1,25-DIHYDROXYVITAMIN D, S (SQ:VDDOHA)

DHVD

TESTING INFORMATION

Ordering Recommendations:
May be useful for evaluating calcium metabolism in individuals with hypercalcemia or renal failure in addition to Vitamin D, 25-Hydroxy testing. Test is not appropriate for diagnosing vitamin D deficiency or insufficiency.

Collect:
Serum separator tube or plain red, lithium heparin or EDTA plasma.

Specimen Preparation:
Allow serum separator or plain red tube to sit for 15-20 minutes at room temperature for proper clot formation. Centrifuge and separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Storage/Transport Temperature: Refrigerated.

Unacceptable Conditions:
Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
19.9-79.3 pg/mL

Reported:
Within 24 hours

Methodology:
Quantitative Chemiluminescent Immunoassay

Interpretive Data:
This test is primarily indicated during patient evaluation for hypercalcemia and renal failure. A normal result does not rule out Vitamin D deficiency. The recommended test for diagnosing Vitamin D deficiency is Vitamin D 25-hydroxy.

Performing Lab:
ARUP

ARUP Test Code:
0080385

ADMINISTRATIVE

CPT Codes:
82652

Last Reviewed:
12/2/2023

17-HYDROXYPROGESTERONE, S (SQ:17OHPA)

17OHP

TESTING INFORMATION

Collect:
Serum separator tube (SST). Also acceptable: Plain red, pink (K2EDTA), plasma separator tube (PST), green (sodium heparin), or green (lithium heparin).

Specimen Preparation:
Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.3 mL)

Unacceptable Conditions:
Grossly hemolyzed specimens.

Storage/Transport Temperature:
Frozen. Also acceptable: Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 3 Days; Refrigerated: 1 week; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
Effective August 19, 2013

Age	Female	Male
Premature (26-28 weeks)	124-841 ng/dL	124-841 ng/dL
Premature (29-35 weeks)	26-568 ng/dL	26-568 ng/dL
Full term Day 3	7-77 ng/dL	7-77 ng/dL
4 days-30 days	7-106 ng/dL	Less than 200 ng/dL
1 month-2 months	13-106 ng/dL	Less than 200 ng/dL
3 months-5 months	13-106 ng/dL	3-90 ng/dL
6 months-1 year	Less than or equal to 148 ng/dL	Less than or equal to 148 ng/dL
2-3 years	Less than or equal to 256 ng/dL	Less than or equal to 228 ng/dL
4-6 years	Less than or equal to 299 ng/dL	Less than or equal to 208 ng/dL
7-9 years	Less than or equal to 71 ng/dL	Less than or equal to 63 ng/dL
10-12 years	Less than or equal to 129 ng/dL	Less than or equal to 79 ng/dL
13-15 years	9-208 ng/dL	9-140 ng/dL
16-17 years	Less than or equal to 178 ng/dL	24-192 ng/dL
18 years and older	Less than 207 ng/dL	Less than 139 ng/dL
Follicular	15-70 ng/dL	Does Not Apply
Luteal	35-290 ng/dL	Does Not Apply
Tanner Stage I	Less than or equal to 74 ng/dL	Less than or equal to 62 ng/dL
Tanner Stage II	Less than or equal to 164 ng/dL	Less than or equal to 104 ng/dL
Tanner Stage III	13-209 ng/dL	Less than or equal to 151 ng/dL
Tanner Stage IV-V	7-170 ng/dL	20-173 ng/dL

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Performing Lab:
ARUP

ARUP Test Code:
0092332

ADMINISTRATIVE

CPT Codes:
83498

Last Reviewed:
12/2/2023

21-HYDROXYLASE AUTOANTIBODIES, SERUM (SQ:HYDSAA)

HYDSA

TESTING INFORMATION

Ordering Recommendations:
Secondary test to diagnose autoimmune disease after adrenal insufficiency confirmed.

Collect:
Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Tue, Fri

Reference Interval:
Negative

Reported:
2-7 days

Methodology:
Qualitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
The 21-Hydroxylase Autoantibody assay is intended for the qualitative determination of autoantibodies to steroid 21-hydroxylase in human serum.
A positive result is indicative of primary adrenal insufficiency (Addison disease). Results should be interpreted within the context of clinical symptoms, including functional adrenal testing.
Males with adrenal insufficiency and negative results for 21-hydroxylase autoantibodies should be screened for X-Linked Adrenoleukodystrophy (X-ALD) by ordering Very Long-Chain Branched Fatty Acids in Plasma (ARUP Test Code 2004250).

Performing Lab:
ARUP

ARUP Test Code:
3001962

ADMINISTRATIVE

CPT Codes:
83516

Last Reviewed:
12/1/2023

5' NUCLEOTIDASE (SQ:5NTDA)

5NTDA

TESTING INFORMATION

Ordering Recommendations:
Determine whether enzyme elevation is due to hepatocellular or cholestatic pattern.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL) Avoid hemolysis.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: 1 week; Frozen: 2 weeks (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
0-15 U/L

Reported:
1-3 days

Methodology:
Quantitative Enzymatic Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0080235

ADMINISTRATIVE

CPT Codes:
83915

5-HYDROXYINDOLEACETIC ACID (5HIAA), 24H, U (SQ:U5HIAA)

5HI24

TESTING INFORMATION

Ordering Recommendations:
Use to diagnose carcinoid tumors and monitor disease.

Patient Preparation:
Patients should abstain, if possible, from medications, over-the-counter drugs, and herbal remedies for at least 72 hours prior to the test. Foods rich in serotonin (avocados, bananas, eggplant, pineapple, plums, tomatoes, walnuts) and medications that may affect metabolism of serotonin must be avoided at least 72 hours before and during collection of urine for HIAA.

Collect:
24-hour or random urine. Refrigerate 24-hour specimens during collection.

Specimen Preparation:
Transfer 4 mL aliquot from a well-mixed 24-hour or random collection to an ARUP Standard Transport Tube. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Any sample except urine.

Remarks:
Please see Note for a more comprehensive list of dietary restrictions.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>5-HIAA Urine - per 24h</td><td>0.0-15.0 mg/d</td></tr>
<tr><td>5-HIAA Urine - per volume</td><td>The HIAA-to-creatinine ratio will be reported whenever the urine collection is random or other than 24 hours, or the urine volume is less than 400 mL/24 hours.

0-14 mg/g crt</td></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
</table>

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography -Tandem Mass Spectrometry

Notes:
Foods and medications associated with altered urinary HIAA results:

Decreased HIAA: Aspirin, chlorpromazine (Thorazine), corticotropin, dihydroxyphenylacetic acid, alcohol, gentisic acid, homogentisic acid, hydrazine derivatives, imipramine (Tofranil®), isocarboxazid (Marplan), keto acids, levodopa, MAO inhibitors, methenamine, methyldopa (Aldomet®), perchlorperazine, phenothiazines (Compazine®), promazine, promethazine (Mepergan®).

Increased HIAA: Acetaminophen, acetanilide, caffeine, coumaric acid, diazepam (Valium®), ephedrine, fluorouracil, glycerol guaiacolate (Guaifenesin), melphalan (Alkeran®), mephenesin, methamphetamine (Desoxyn), methocarbamol (Robaxin®), naproxen, nicotine, phenacetin, phenmetrazine, phenobarbital, phentolamine, rauwolfia, reserpine.

Interpretive Data:

5-Hydroxyindoleacetic acid (5-HIAA) results are expressed as a ratio to creatinine excretion (mg/g CRT). No reference interval is available for results reported in units of mg/L. Increased urine 5-HIAA concentration is common and may be the result of improper specimen collection, consumption of serotonin containing foods or dietary supplements, drug interference, or malabsorption syndromes. Significant elevation (ten times the upper reference limit) of urine 5-HIAA may indicate the presence of a carcinoid tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

0080420

ADMINISTRATIVE

CPT Codes:

83497

Last Reviewed:

12/1/2023

7C4 Diagnostic Test (SQ: MISCLB)

TESTING INFORMATION

Collect:
Specimen Type: Serum
Specimen Collection Tube: Serum Seperator Tube or Red-top Tube (1.0 mL serum)

Unacceptable Conditions:
Frozen

Storage/Transport Temperature:
Cold pack required

Stability (from collection to initiation):
Room temp: 3 days
Refrigerated: 7 days

Reported:
7 days once received at testing laboratory

Performing Lab:
Prometheus Laboratory

Testing Region:
Carle West

ABO VERIFY (SQ: ABRCNF)

ABOVR

TESTING INFORMATION

Collect:
Pink or Purple Top

Unacceptable Conditions:
Frozen sample or incorrect labeling

Storage/Transport Temperature:
Entire collection at 2-8° C or Ambient.

Methodology:
Hemagglutination

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

ABO/RH (SQ: ABORH)

ABORH

TESTING INFORMATION

Collect:
K2 EDTA Pink or Lavender

Pediatric Collection:
EDTA Heel Stick

Unacceptable Conditions:
Frozen Samples

Performed:
Sunday-Saturday

Methodology:
Hemagglutination

Performing Lab:
Methodist, Pekin, and Proctor

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

ACETAMINOPHEN (SQ: ACTMN)

ACETA

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Plain Red Tube	6.0 mL	3.0 mL
Methodist	1 Green Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 Lavender (K2-EDTA) Tube		
Pekin	1 SST (Gold Top) Tube		

Specimen Preparation:

Separate serum or plasma from cells as soon as possible or within two hours of collection. If gold SST tube is collected, serum must be analyzed within 24 hours or removed from gel tube for storage.

Storage/Transport Temperature:

1.0 mL serum or plasma sent refrigerated.

Stability (from collection to initiation):

	After separation from cells:		
	Ambient	Refrigerated	Frozen
Methodist & Pekin	8 hours	7 days	Indefinitely
Proctor	24 hours capped	7 days capped	6 months capped Invert specimens several times Freeze only Once

Performed:

Sunday-Saturday

Reference Interval:

Normal Therapeutic doses: 10 - 30 ug/mL

Toxic: >150 ug/mL4 hours after ingestion
>50 ug/mL 12 hours after ingestion

ug/mL may be reported as mcg/mL

Methodology:

Bichromatic Endpoint

Performing Lab:

Methodist Hospital
Proctor Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

80143

Last Reviewed:

1/19/24:JLM

ACETYLCHOL BLOCK AB (SQ: ACTBKA)

ACTBK

TESTING INFORMATION

Ordering Recommendations:
Initial diagnostic testing for myasthenia gravis. For reflexive panel, which contains binding, blocking, and modulating antibodies, refer to Acetylcholine Receptor Antibody Reflexive Panel (2001571).

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon-Sat

Reference Interval:

Components	Reference Interval
Acetylcholine Blocking Antibody	26 or less blocking

Reported:
1-4 days

Methodology:
Semi-Quantitative Flow Cytometry

Interpretive Data:
Approximately 85-90% of patients with myasthenia gravis (MG) express antibodies to the acetylcholine receptor (AChR), which can be divided into binding, blocking, and modulating antibodies. Binding antibody can activate complement and lead to loss of AChR. Blocking antibody may impair binding of acetylcholine to the receptor, leading to poor muscle contraction. Modulating antibody causes receptor endocytosis resulting in loss of AChR expression, which correlates most closely with clinical severity of disease. Approximately 10-15% of individuals with confirmed myasthenia gravis have no measurable binding, blocking, or modulating antibodies.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
Acetylcholine Receptor Blocking Antibody	Negative: 0-26% blocking Indeterminate: 27-41% blocking Positive: 42% or greater blocking

Performing Lab:
ARUP

ARUP Test Code:
0099580

ADMINISTRATIVE

CPT Codes:
86042

Last Reviewed:
12/2/2023

ACETYLCHOLINE RECEPTOR (ACHR) MODULATING AB, S (SQ: ARMA)

ACRM

TESTING INFORMATION

Ordering Recommendations:
Assessment of clinical activity of and initial diagnostic testing for myasthenia gravis. For reflexive panel, which contains binding, blocking, and modulating antibodies, refer to Acetylcholine Receptor Antibody Reflexive Panel (2001571).

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Fri

Reference Interval:

Components	Reference Interval
Acetylcholine Modulating Antibody	45 or less modulating

Reported:
2-7 days

Methodology:
Semi-Quantitative Flow Cytometry

Interpretive Data:
Approximately 85-90 percent of patients with myasthenia gravis (MG) express antibodies to the acetylcholine receptor (AChR), which can be divided into binding, blocking, and modulating antibodies. Binding antibody can activate complement and lead to loss of AChR. Blocking antibody may impair binding of acetylcholine to the receptor, leading to poor muscle contraction. Modulating antibody causes receptor endocytosis resulting in loss of AChR expression, which correlates most closely with clinical severity of disease. Approximately 10-15 percent of individuals with confirmed myasthenia gravis have no measurable binding, blocking, or modulating antibodies.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
Acetylcholine Receptor Modulating Antibody	Negative: 0-45% modulating Positive: 46% or greater modulating

Performing Lab:
ARUP

ARUP Test Code:
0099521

ADMINISTRATIVE

CPT Codes:
86043

Last Reviewed:
12/2/2023

ACETYLCHOLINE RECEPTOR AB REFLEXIVE PANEL (SQ:ACHRFA)

ACHRF

TESTING INFORMATION

Ordering Recommendations:
Preferred reflexive panel for diagnosing myasthenia gravis. Includes acetylcholine receptor (AChR) binding and blocking antibodies with reflex to AChR modulating antibodies.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Acetylcholine Binding Antibody	0.4 nmol/L or less
Acetylcholine Blocking Antibody	26 or less blocking

Reported:
3-7 days

Methodology:
Quantitative Radioimmunoassay/Semi-Quantitative Flow Cytometry

Notes:
If Acetylcholine Receptor Binding Antibody result is greater than 0.4 nmol/L or Acetylcholine Receptor Blocking Antibody result is greater than 26 percent, then Acetylcholine Receptor Modulating Antibody (ARUP test code 0099521) will be added. Additional charges apply.

Interpretive Data:
Approximately 85-90 percent of patients with myasthenia gravis (MG) express antibodies to the acetylcholine receptor (AChR), which can be divided into binding, blocking, and modulating antibodies. Binding antibody can activate complement and lead to loss of AChR. Blocking antibody may impair binding of acetylcholine to the receptor, leading to poor muscle contraction. Modulating antibody causes receptor endocytosis resulting in loss of AChR expression, which correlates most closely with clinical severity of disease. Approximately 10-15 percent of individuals with confirmed myasthenia gravis have no measurable binding, blocking, or modulating antibodies.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation	
Acetylcholine Receptor Binding Antibody	Negative: Positive:	0.0-0.4 nmol/L 0.5 nmol/L or greater
Acetylcholine Receptor Blocking Antibody	Negative: Indeterminate: Positive:	0-26% blocking 27-41% blocking 42% or greater blocking

Performing Lab:
ARUP

ARUP Test Code:
2001571

ADMINISTRATIVE

CPT Codes:
86041; 86042; if reflexed, add 86043

Last Reviewed:
12/2/2023

ACETYLCHOLINE RECEPTOR BINDING AB, S (SQ:ACETYL)

ARBI

TESTING INFORMATION

Ordering Recommendations:
Initial diagnostic testing for myasthenia gravis. For reflexive panel, which contains binding, blocking, and modulating antibodies, refer to Acetylcholine Receptor Antibody Reflexive Panel (2001571).

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Plasma. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Acetylcholine Binding Antibody	0.4 nmol/L or less

Reported:
2-3 days

Methodology:
Quantitative Radioimmunoassay

Interpretive Data:
Approximately 85-90% of patients with myasthenia gravis (MG) express antibodies to the acetylcholine receptor (AChR), which can be divided into binding, blocking, and modulating antibodies. Binding antibody can activate complement and lead to loss of AChR. Blocking antibody may impair binding of acetylcholine to the receptor, leading to poor muscle contraction. Modulating antibody causes receptor endocytosis resulting in loss of AChR expression, which correlates most closely with clinical severity of disease. Approximately 10-15% of individuals with confirmed myasthenia gravis have no measurable binding, blocking, or modulating antibodies.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
Acetylcholine Receptor Binding Antibody	0.0-0.4 nmol/L Negative 0.5 nmol/L or greater Positive

Performing Lab:
ARUP

ARUP Test Code:
0080009

ADMINISTRATIVE

CPT Codes:
86041

Last Reviewed:
12/2/2023

ACID FAST CULTURE, BLOOD (SQ:AFBCHI)

AFBL

TESTING INFORMATION

Ordering Recommendations:
Identify acid-fast bacteria in blood or bone marrow specimens.

Patient Preparation:
Aseptic draw.

Collect:
Whole blood or bone marrow in Bactec® Myco/F Lytic bottle (ARUP supply # 31916) or yellow (SPS) tube (ARUP supply # 24964).

Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.

Specimen Preparation:
Whole Blood: Transport 1-5 mL in Bactec® Myco/F Lytic bottle or transport 1-7mL in SPS yellow tube.
Bone Marrow: Transport 1-5 mL (Min: 0.5 mL) in Bactec® Myco/F Lytic bottle or transport 1-7 mL (Min 0.5 mL) in SPS tube.

Storage/Transport Temperature:
Room temperature

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
No growth

Reported:
1-43 days

Methodology:
Continuous Monitoring Blood Culture/Culture

Notes:
Identification and susceptibility testing is performed on positive cultures at an additional charge.

Performing Lab:
ARUP

ARUP Test Code:
0060060

ADMINISTRATIVE

CPT Codes:
87116; CPT codes vary based on method.

ACTIVATED CLOTTING TIME, POCT (SQ: ACTPOC)

ACTPC

TESTING INFORMATION

Methodology:
Biochromatic endpoint

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

ADAMTS13 ACTIVITY AND INHIBITOR PROFILE (SQ:ADM13A)

ADM13

TESTING INFORMATION

Ordering Recommendations:
Reflexive panel to assist in diagnosis of thrombotic thrombocytopenic purpura (TTP) and in distinguishing between inherited and acquired forms of TTP.

Collect:
Light Blue (Sodium Citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 3 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 2 mL)

Unacceptable Conditions:
Serum, or EDTA plasma. Clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: Unacceptable; Frozen: 2 weeks (No freeze/thaw cycles.)

Performed:
Tue

Reference Interval:

Components	Reference Interval
ADAMTS13 Activity	Greater than 60 percent

Reported:
1-8 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Notes:
If ADAMTS13 Activity is less than or equal to 30 percent, then ADAMTS13 Inhibitor will be added. If ADAMTS13 Inhibitor is less than 0.8 BU, then ADAMTS13 Antibody will be added. Additional charges apply.

Interpretive Data:
Refer to report.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
3000239

ADMINISTRATIVE

CPT Codes:
85397, if reflexed, add, 85335, if reflexed, add 83520

Last Reviewed:
12/2/2023

ADAMTS13 ANTIBODY (SQ: ADMABA)

AD13B

TESTING INFORMATION

Ordering Recommendations:
Assist in distinguishing between inherited and acquired forms of thrombotic thrombocytopenic purpura (TTP). Not recommended as initial test for identification of autoantibodies to ADAMTS13, since the ADAMTS13 antibody test is less specific for acquired TTP than ADAMTS13 Inhibitor (3000228). Order when acquired TTP is suspected but antibodies are not identified by the ADAMTS13 inhibitor test.

Patient Preparation:
Draw specimen prior to plasma exchange therapy.

Collect:
Light Blue (Sodium Citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Serum or EDTA plasma. Clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: Unacceptable; Frozen: 2 weeks (No freeze/thaw cycles.)

Performed:
Tue

Reference Interval:
Negative: Less than 12 U/mL
Borderline: 12-15 U/mL
Positive: Greater than 15 U/mL

Reported:
1-8 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
3000182

ADMINISTRATIVE

CPT Codes:
83520

Last Reviewed:
12/2/2023

ADAMTS13 EVALUATION (SQ:ADAMTA)

ADAMT

TESTING INFORMATION

Ordering Recommendations:
Assist in diagnosing acquired (idiopathic) or inherited thrombotic thrombocytopenic purpura (TTP).

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Serum, EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:
Effective November 17, 2014

Greater than 60 percent

Reported:
1-3 days

Methodology:
Chromogenic Assay

Interpretive Data:
ADAMTS13 levels of less than 10 percent may be associated with either inherited (Upshaw-Schulman Syndrome) or acquired thrombotic thrombocytopenic purpura (TTP).

A variety of medical conditions may result in a mild to moderate deficiency of ADAMTS13 activity. Recent plasma exchange therapy may raise the observed ADAMTS13 activity.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0030056

ADMINISTRATIVE

CPT Codes:
85397

Last Reviewed:
12/2/2023

ADAMTS13 INHIBITOR (SQ: ADMINA)

AD13I

TESTING INFORMATION

Ordering Recommendations:
Assist in distinguishing between inherited and acquired forms of thrombotic thrombocytopenic purpura (TTP). Recommended initial test for the identification of autoantibodies to ADAMTS13, since the ADAMS13 inhibitor test is more specific for acquired TTP than the ADAMTS13 antibody test. If suspicion for TTP remains after a negative result, ADAMTS13 Antibody (3000182) is recommended.

Collect:
Light Blue (Sodium Citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum or EDTA plasma. Clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: Unacceptable; Frozen: 2 weeks (No freeze/thaw cycles.)

Performed:
Sun-Sat

Reference Interval:
0.4 BU (Bethesda Units) or less

Reported:
1-3 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
The majority of cases of idiopathic thrombotic thrombocytopenic purpura (TTP) are caused by ADAMTS13 autoantibodies. Autoantibodies that neutralize ADAMTS13 function are found in approximately two-thirds of idiopathic cases and can be identified and titered by the ADAMTS13 inhibitor test. Non-neutralizing autoantibodies that result in increased ADAMTS13 clearance, but do not inhibit function, are found in approximately one-third of idiopathic TTP cases. Non-neutralizing antibodies are not detected in the inhibitor test but can be detected by ELISA (ADAMTS13 antibody test). ADAMTS13 autoantibodies are not present in congenital TTP (Upshaw-Schulman syndrome). Correlation with clinical information, ADAMTS13 activity, and other relevant laboratory testing is suggested.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
3000228

ADMINISTRATIVE

CPT Codes:
85335

Last Reviewed:
12/2/2023

ADENOVIRUS, QUANTITATIVE PCR (SQ:LADVA)

LADVA

TESTING INFORMATION

Ordering Recommendations:
Detect and quantify adenovirus groups A-F. Diagnose adenovirus in patients. Monitor disease and/or response to therapy.

Collect:
Lavender (EDTA), pink (K2EDTA), or serum separator tube

Specimen Preparation:
Do not freeze whole blood specimens. Transport 1 mL whole blood, serum or plasma in a sterile container. (Min: 0.5 mL).

Unacceptable Conditions:
Frozen whole blood. Heparinized specimens.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 5 days; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

Not detected

Reported:
1-4 days

Methodology:
Quantitative Real-Time Polymerase Chain Reaction

Notes:
The limit of quantification for this DNA assay is 3.0 log copies/mL (1,000 copies/mL). If the assay DID NOT DETECT the virus, the test result will be reported as "< 3.0 log copies/mL (< 1,000 copies/mL)." If the assay DETECTED the presence of the virus but was not able to accurately quantify the number of copies, the test result will be reported as "Not Quantified."

Interpretive Data:
The quantitative range of this assay is 3.0- 7.0 log copies/mL (1,000-10,000,000 copies/mL).

A negative result (less than 3.0 log copies/mL or less than 1,000 copies/mL) does not rule out the presence of PCR inhibitors in the patient specimen or Adenovirus DNA concentrations below the level of detection of the assay. Inhibition may also lead to underestimation of viral quantitation.

No international standard is currently available for calibration of this assay. Caution should be taken when interpreting results generated by different assay methodologies.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2007192

ADMINISTRATIVE

CPT Codes:
87799

Last Reviewed:
12/1/2023

ADRENOCORTICOTROPIC HORMONE (ACTH), P (SQ:ACTHA)

ACTHP

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of adrenal insufficiency and determining the presence of anterior pituitary tumors.

Patient Preparation:
Morning collection (7 a.m. to 10 a.m.) is preferred.

Collect:
Lavender (K_2EDTA) or Pink (K_2EDTA). Collection tube must be siliconized glass or plastic.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.5 mL)

Unacceptable Conditions:
Serum, heparinized plasma, tissue or urine. Grossly hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: 3 hours; Refrigerated: 4 hours; Frozen: 10 weeks (No freeze/thaw cycles.)

Performed:
Sun-Sat

Reference Interval:
Effective August 5, 2019
7.2 - 63.3 pg/mL (a.m. draws)

Reported:
Within 24 hours

Methodology:
Quantitative Electrochemiluminescent Immunoassay

Notes:
No reference intervals established for p.m. collections.

Interpretive Data:
Reference interval based on samples collected between 7 a.m. and 10 a.m. No reference intervals established for p.m. collections. Pediatric reference values are the same as adults (Acta Paediatr Scand 1981;70:341-345). This assay measures intact ACTH 1-39; some types of synthetic ACTH and ACTH fragments are not detected by this assay.

Performing Lab:
ARUP

ARUP Test Code:
0070010

ADMINISTRATIVE

CPT Codes:
82024

AFB CULT/SM RESPIRATORY (RFL MTB/RIF PCR) (SQ:AFBRFA)

AFBRF

TESTING INFORMATION

Ordering Recommendations:
Comprehensive panel includes acid-fast bacillus culture and stain; positive smears reflex to PCR amplification of M. tuberculosis complex species and rifampin resistance.

Patient Preparation:
Three sputum specimens should be collected at 8-24 hour intervals (24 hours when possible) and at least one first-morning specimen. An individual order must be submitted for each specimen.

Collect:
Respiratory specimen, pleural fluid, CSF, tissue, gastric aspirate

Specimen Preparation:
Transfer (for each collection) 5-10 mL specimen or visible tissue to a sterile container, 50 ml sterile specimen transport tube preferred (Client supply number # 29582). (Min: 1 mL) Place each specimen in an individually sealed bag.

Unacceptable Conditions:
Multiple same-site specimens (more than one in 24 hours), dry material, or material collected and transported on a swab.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:
Culture negative for acid-fast bacilli.
Identification ordered and performed on positives.
Susceptibility performed on all initial isolates of M. tuberculosis complex.
Susceptibility performed on Mycobacterium other than M. tuberculosis complex isolates by request only.
Susceptibility testing of M. gordonae is inappropriate.

Reported:
1-62 days

Methodology:
Stain/Culture/16S rDNA Sequencing/ Broth Microdilution/Polymerase Chain Reaction/ Matrix-Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF) Mass Spectrometry

Notes:
Respiratory specimens under 5 mL will receive a volume suboptimal disclaimer in the report.

Positive cultures are reported as soon as detected. AFB stain, AFB identification of positives, and susceptibility tests are billed separately from culture. Identification of positive culture is billed by matrix-assisted laser desorption ionization (MALDI) and/or sequencing tests performed.

The laboratory should be notified when the presence of Mycobacterium genavense or Mycobacterium haemophilum is suspected, as these organisms will not grow on media routinely used for Mycobacterium isolation.

The laboratory should be notified when M. xenopii is suspected, as this organism requires a different temperature from routine culture setup.

The laboratory should be notified if the specimen is from a cystic fibrosis patient, as these specimens need additional decontamination from routine culture setup.

Susceptibility will be performed on organisms isolated from a sterile source and isolates of Mycobacterium tuberculosis complex, M. chelonae, M. abscesses, M. fortuitum complex, M. immunogenum, M. mucogenicum. Susceptibility testing will be performed by request only on M. kansasii and M. marinum. Susceptibility testing of M. gordonae is inappropriate.

For AFB susceptibility information, refer to Antimicrobial Susceptibility - AFB Mycobacteria (ARUP test code 0060217).

For AFB culture on blood refer to Culture, Acid-Fast Bacillus, Blood (ARUP test code 0060060).

After a positive result, repeat orders for Mycobacterium tuberculosis Complex Detection and Rifampin Resistance by PCR will continue to yield a positive result and repeat testing is not clinically indicated.

Performing Lab:
ARUP

ARUP Test Code:
0060738

ADMINISTRATIVE

CPT Codes:
87116; if reflexed, add 87564; CPT codes for identification and susceptibility vary based on method

Last Reviewed:
12/2/2023

Alanine Aminotransferase (SQ: ALT)

ALT

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Plain Red Tube	6.0 mL	3.0 mL
Methodist	1 Green Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 Lavender (K2-EDTA) Tube		
Pekin & Proctor	1 SST (Gold Top) Tube		

Unacceptable Conditions:

Hemolyzed specimens or specimens with cellular material.
Potassium oxalate/sodium fluoride should not be used as anticoagulant

Storage/Transport Temperature:

Centrifuged gold top or 0.5 mL serum/plasma (Min: 0.2 mL). Transport ambient (room temperature) or refrigerated. Seperate serum or plasma from cells ASAP or within 2 hours from collection.;

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
	7 days	1 month

Performed:

Sunday-Saturday

Reference Interval:

Female: 13-56 U/L
Male: 16-61 U/L

Methodology:

Bichromatic Rate

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84460

ALBUMIN (SQ: ALB)

ALB

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Plain Red Tube	6.0 mL	3.0 mL
Methodist	1 Green Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 Lavender (K2-EDTA) Tube		
Pekin	1 SST (Gold Top) Tube		

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Potassium oxalate, sodium fluoride contamination.
Proctor: Fluoride Plasma

Storage/Transport Temperature:
1 ml serum or centrifuge gold top, refrigerated 2-8°C
Minimum volume: 0.5 mL

Stability (from collection to initiation):

	Ambient	Refrigerated	Frozen
Methodist and Pekin	8 hours	72 hours	6 months
Proctor	2.5 months, capped	5 months, capped	4 months, capped Invert specimens several times Freeze only once

Performed:
Sunday-Saturday

Reference Interval:

METHODIST & PEKIN		
Age	Male	Female
0-7 days	2.4-3.9	1.9-4.0
8-180 days	2.1-4.9	1.9-4.4
181 days-1 year	2.2-4.7	2.3-4.7
1-6 years	3.6-5.2	3.6-5.2
6-17 years	3.8-5.6	3.8-5.6
18 and greater	3.4-5.0	3.4-5.0

PROCTOR	
0-4 days	2.8-4.4 g/dL
4 - days - 14 years	3.8 - 5.4 g/dL
14 years - 18 years	3.2 - 4.5 g/dL
>18 years	3.5 - 5.2 g/dL

Methodology:
Methodist and Pekin: Polychromatic Endpoint
Proctor: Colorimetric

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82040

Last Reviewed:
2/7/24:TK

ALBUMIN, BODY FLUID (SQ: FALB)

ALBBF

COLLECTION DEVICE

Preferred Collection Device:
STERILE CONTAINER

TESTING INFORMATION

Collect:
3 mL body fluid in clean container with secure lid. (Min: 1 mL) Pleural and Peritoneal fluids. Specify Source of Fluid

Unacceptable Conditions:
Frozen Samples

Storage/Transport Temperature:
Transport immediately at Ambient (room temperature) or refrigerate and transport at 2-8°C

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
4 hours		3 days		Unacceptable

Reference Interval:
A reference interval has not been established for this test on the supplied specimen type. This test was developed using enzymatic methodology developed by Siemens and its performance characteristics determined by Carle Health Methodist. It has not been cleared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes.

Methodology:
Polychromatic endpoint

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82042

Last Reviewed:
2/7/24:TK

ALCOHOL, SERUM (SQ: ALC)

ALCSR

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:
Use non-alcohol germicidal solution to cleanse skin for collection.

Preferred Specimen Collection:

	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
Proctor	1 Plasma Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

	Specimen Type	Requested Volume	Minimum Volume
Methodist & Pekin	1 Plain Red Tube	6.0 mL	4.0 mL
Methodist & Pekin	1 Green Top Tube	6.0 mL	4.0 mL
Methodist & Pekin	1 K2EDTA Lavender Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Proctor:

- samples exposed to air
- Use of alcohol or other volatile disinfectants of venipuncture site

Remarks:
For medical purposes only.

Storage/Transport Temperature:
Send 1mL serum/plasma or centrifuged gold top tube, refrigerated at 2-8°C.
Minimum volume: 0.5mL

Stability (from collection to initiation):

	Ambient	Refrigerated	Frozen
Methodist	4 hours	3 days	1 month
Proctor	2 days, capped	2 weeks, capped	4 weeks, capped Invert Specimens several times Freeze Only once

Performed:
Sunday-Saturday

Reference Interval:
Non-Detected

Proctor:
Male and Femal <17

Methodology:
Bichromatic Rate

Notes:
This test is for medical purposes only and not to be used for a legal blood alcohol limit. Methodist: Assay limit of detection 10 mg/dL Critical: 300 mg/dL
Pekin and Proctor: Assay limit of detection 3 mg/dL Critical: 300 mg/dL

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82077

Last Reviewed:
2/7/24:TK

ALDOLASE, S (SQ:ALDOLA)

ALDLS

TESTING INFORMATION

Ordering Recommendations:
Do not use as a stand-alone test. This non-specific test has been replaced by more specific markers for muscle or liver damage. It has largely been replaced by other enzyme tests such as CK, alanine aminotransferase (ALT), and aspartate aminotransferase (AST) as markers of muscle or liver damage.

Collect:
Serum separator tube.

Specimen Preparation:
Allow specimen to clot completely at room temperature. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimen types other than serum. Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 5 days; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:

0-30 days	6.0-32.0 U/L
1-5 months	3.0-12.0 U/L
6-35 months	3.5-10.0 U/L
3-6 years	2.7-8.8 U/L
7-17 years	3.3-9.7 U/L
18 years and older	1.2-7.6 U/L

Reported:
Within 24 hours

Methodology:
Quantitative Enzymatic Assay

Performing Lab:
ARUP

ARUP Test Code:
0020012

ADMINISTRATIVE

CPT Codes:
82085

Last Reviewed:
12/2/2023

ALDOSTERONE, S (SQ:ALDOS)

ALDST

TESTING INFORMATION

Ordering Recommendations:
The combined aldosterone/renin tests are preferred when screening for hyperaldosteronism. Refer to Aldosterone/Renin Activity Ratio (0070073) or Aldosterone and Renin Direct, With Ratio (3005949).

Patient Preparation:
Collect midmorning after patient has been sitting, standing or walking for at least 2 hours and seated for 5-15 minutes. Refer to the Additional Technical Information for specific patient preparation recommendations.

Collect:
Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
EDTA plasma.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 5 days; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Effective May 16, 2011

Age	Posture Unspecified	Supine	Upright
0-6 days	5.0-102.0 ng/dL		
1-3 weeks	6.0-179.0 ng/dL		
1-11 months	7.0-99.0 ng/dL		
1-2 years	7.0-93.0 ng/dL		
3-10 years	4.0-44.0 ng/dL		
11-14 years	4.0-31.0 ng/dL		
15 years and older	Less than or equal to 31.0 ng/dL	Less than or equal to 16.0 ng/dL	4.0-31.0 ng/dL

Reported:
Within 24 hours

Methodology:
Quantitative Chemiluminescent Immunoassay

Notes:
Refer to the Additional Technical Information for Endocrine Society recommendations for patient preparation, specimen collection, medications for hypertension control during confirmatory testing for primary aldosteronism, and factors that may lead to false-positive or false-negative aldosterone-renin ratio (ARR) results.

Interpretive Data:
Normal serum levels of aldosterone are dependent on the sodium intake and whether the patient is upright or supine. High sodium intake will tend to suppress serum aldosterone, whereas low sodium intake will elevate serum aldosterone. The reference intervals for serum aldosterone are based on normal sodium intake.

Performing Lab:
ARUP

ARUP Test Code:
0070015

ADMINISTRATIVE

CPT Codes:
82088

Last Reviewed:
12/2/2023

ALDOSTERONE, UR (SQ:ALDURA)

ALDUA

TESTING INFORMATION

Ordering Recommendations:
Screen and diagnose hyperaldosteronism.

Collect:
24-hour urine. Urine must be refrigerated during collection.

Specimen Preparation:
Add 1 g boric acid per 100 mL urine. Transfer 4 mL aliquot of urine from a 24-hour collection to an ARUP Standard Transport Tube. (Min: 0.5 mL) Record total volume and collection time interval on transport tube and test request form. Also acceptable: Preserved urine if the pH of the specimen is adjusted to 2-4 with 6M HCl or 50 percent acetic acid or unpreserved urine if frozen immediately after collection.

Storage/Transport Temperature:
Frozen. Also acceptable: Refrigerated, if preserved with HCl or acetic acid.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: (with preservative): 5 days; Frozen: 1 month

Performed:
Tue, Thu, Sat

Reference Interval:
Effective October 6, 2014

Components	Reference Interval
Aldosterone, Urine	1.2-28.1 µg/d
Creatinine, Urine - per 24h	

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

Reported:
2-5 days

Methodology:
Quantitative Chemiluminescent Immunoassay (CLIA)

Interpretive Data:
Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

Performing Lab:
ARUP

ARUP Test Code:
0070480

ADMINISTRATIVE

CPT Codes:
82088

Last Reviewed:
12/1/2023

ALKALINE PHOSPHATASE (SQ: ALKP)

ALKP

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Plain Red Tube	6.0 mL	3.0 mL
Methodist	1 Green Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 SST (Gold Top) Tube		

Specimen Preparation:

Centrifuged gold top
Centrifuge within 2 hours of collection

Unacceptable Conditions:

Collection in EDTA or oxalate/fluoride

Storage/Transport Temperature:

Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

		Ambient	Refrigerated	Frozen
Methodist	Separated	8 hours	7 days	6 months
Methodist	Unseparated	2 hours		
Proctor		7 days, capped	7 days capped	2 months, capped Invert specimens several times Freeze Only once

Performed:

Sunday-Saturday

Reference Interval:

METHODIST & PEKIN	Female (U/L)	Male
0 - 14 days	82 - 249	82-249
15 days - 1 year	122 - 473	122-473
1 - 9 years	142 - 336	142 - 336
10 - 12 years	128 - 420	128 - 420
13 - 14 years	55 - 255	115 - 471
15 - 16 years	49 - 116	81 - 333
17 - 18 years	43 - 86	53 - 149
19 - 99 years	45 - 117 Methodist 46 - 117 Pekin	45 - 117 Methodist 46 - 117 Pekin
PROCTOR	Female (U/L)	Male (U/L)
0-14 days	83 - 248	83 - 248
15 days - <1 year	122 - 469	122 - 469
1 - <10 years	142 - 335	142 - 335
10 - <13 years	129 - 417	129 - 417
13 - <15 years	57 - 254	116 - 468
15 - <17 years	50 - 177	82 - 331
17 - <19 years	45 - 87	55 - 149
>19 years	35 -104	40 - 129

Methodology:
Bichromatic Rate
Proctor: Colorimetric assay

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84075

Last Reviewed:
12/2/2023

ALKALINE PHOSPHATASE, TOT AND ISO,S (SQ:ALKISA)

ALKTS

TESTING INFORMATION

Ordering Recommendations:
Use when total alkaline phosphatase activity is elevated to determine amounts contributed by bone and liver isoenzymes.

Collect:
Serum Separator Tube (SST) or Green (Sodium or Lithium Heparin).

Specimen Preparation:
Allow serum specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube and refrigerate or freeze immediately. (Min: 1 mL)

Unacceptable Conditions:
Specimens collected in EDTA, sodium fluoride, sodium citrate, or potassium oxalate. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 1 week; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:

Components		
Alkaline Phosphatase, Serum or Plasma	Male 0-30 days: 60-320 U/L 1-11 months: 70-350 U/L 1-3 years: 125-320 U/L 4-6 years: 150-370 U/L 7-9 years: 150-440 U/L 10-11 years: 150-470 U/L 12-13 years: 160-500 U/L 14-15 years: 130-530 U/L 16-19 years: 60-270 U/L 20 years and older: 40-120 U/L	Female 0-30 days: 60-320 U/L 1-11 months: 70-350 U/L 1-3 years: 125-320 U/L 4-6 years: 150-370 U/L 7-9 years: 150-440 U/L 10-11 years: 150-530 U/L 12-13 years: 110-525 U/L 14-15 years: 55-305 U/L 16-19 years: 40-120 U/L 20 years and older: 40-120 U/L
Bone	Male 1-6 years: 0-208 U/L 7-9 years: 0-264 U/L 10-15 years: 0-340 U/L 16-19 years: 0-165 U/L 20 years and older: 0-55 U/L	Female 1-6 years: 0-189 U/L 7-9 years: 0-246 U/L 10-13 years: 0-340 U/L 14-15 years: 0-91 U/L 16 years and older: 0-55 U/L
Liver	Male 1-6 years: 0-145 U/L 7-11 years: 0-182 U/L 12-15 years: 0-226 U/L 16-19 years: 0-114 U/L 20 years and older: 0-94 U/L	Female 1-9 years: 0-148 U/L 10-15 years: 0-162 U/L 16 years and older: 0-94 U/L

Reported:
1-4 days

Methodology:
Quantitative Heat Inactivation/Enzymatic Assay

Notes:
The presence of heat-stable isoenzymes (i.e., germ cell and placental) will be detected but their activities cannot be differentiated from the liver isoenzyme.

Interpretive Data:
Bone Specific Alkaline Phosphatase (0070053) and 5'Nucleotidase (0080235) may be useful in identifying disorders of bone and liver, respectively.

Performing Lab:
ARUP

ARUP Test Code:
0021020

ADMINISTRATIVE

CPT Codes:
84075; 84080

Last Reviewed:
12/2/2023

ALLERGEN ANA O3 CASHEW NUT IGE (SQ: ANAO3)

ANAO3

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Ana o 3

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN BER E1 BRAZIL NUT IGE (SQ: BERE1)

BERE1

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Ber e1

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN BRAZIL NUT IGE (SQ: BRAZIL)

BRAZL

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
Immuno CAP/Fluoroenzyme immunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

ALLERGEN BRAZIL NUT WITH REFLEX (SQ: BRAZLS)

BRAZS

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Brazil nut with reflex to Ber e 1

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN CASHEW WITH REFLEX (SQ: CASHWS)

CASWS

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Cashew with reflex to Ana 0 3

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN CHILD PANEL WITH REFLEX (SQ: CHLDPR)

CHDPR

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric or lipemic samples.

Storage/Transport Temperature:
2.0 mL serum at 2-8 degrees C for first allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0 mL)

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be consideredweakly positive or equivocal. Class 2 and higher should beconsiderd positive. Although increasing class ranges (01-06) arereflective or increasing concentrations of allergen specific IgE,this may not correlate with the degree of clinical response whenchallenged with the specific allergen. The correation of allergylaboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003 x 16
82785
86006 per reflexed component

Last Reviewed:
2/1/24

ALLERGEN CLAMS (SQ: CLAM)

CLAM

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN EGG COMPONENT (SQ: EGGCOM)

EGGC

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzyme Immunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Ovalbumin (f232)
Ovomucoid (f233)

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN EGG WHITE WITH REFLEX (SQ: EGGWHR)

EGGWR

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Egg white with reflex to:
Ovalbumin
Ovomucoid

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN FOOD PANEL WITH REFLEX (SQ: FOODPR)

FOODP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric or lipemic samples.

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:
Variable

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
86003 x 12
82785
86006 per reflexed component

Last Reviewed:
2/1/24

ALLERGEN GLUTEN IGE (SQ: GLUTEN)

GLUTN

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

ALLERGEN HAZELNUT WITH REFLEX (SQ: HZLNTS)

HZLNS

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Hazelnut with reflex to:
Cor a 1
Cor a 8
Cor a 9
Cor a 14

ALLERGEN MILK WITH REFLEX (SQ: MILKCR)

MILKR

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum at 2-8 degrees C for first allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Milk with reflex to:
a-lactalbumin (f76)
B-lactoglobulin (f77)
Casein (f78)

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN PEANUT WITH REFLEX (SQ: PENUTS)

PENTS

COLLECTION DEVICE

Preferred Collection Device:

Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:

Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:

2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:

Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:

ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:

Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

Peanut with reflex to:
Ara h 8
Ara h 9
Ara h 1
Ara h 2
Ara h 3
Ara h 6

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN RESPIRATORY PROFILE (SQ: PRESAL)

PRESL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	3.0 mL -add 0.1 mL for each additional allergen	1.5 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP.

Storage/Transport Temperature:

3 mL serum Refrigerated or one allergen; Add 0.1 mL foreach additional allergen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	1 week	long term

Performed:

Variable

Reference Interval:

Class	Range
Class 00	0.10 kU/L Absent or undetectable
Class 01	0.10 - 0.70 kU/L Low
Class 02:	0.71 - 3.50 kU/L Moderate
Class 03:	3.51 - 17.50 kU/L High
Class 04:	17.51 - 50.00 kU/L Very High
Class 05:	50.01 - 100.00 kU/L Very High
Class 06:	> 100 kU/L Very High

Methodology:

Immuno CAP/Fluoroenzymeimmunoassay

Interpretive Data:

Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

Components:

- Cat Dander,
- Dust mite (Derm,Farinae)
- Cockroach
- Dog Dander
- Mold (Alternia Alternata)
- Common Ragweed
- Elm
- Dust mite (Derm.Pteronyssinus)
- Maple boxelder
- Mold (Aspergillus Fumigatus)
- Oak,
- Rough Marchelder
- Bermuda Grass
- Cottonwood
- Hickory/Pecan
- Maple Leaf Sycamore
- Mountain Juniper
- Mulberry
- Penicillium notatum
- Pigweed
- Russian Thistle
- Timothy Grass
- Walnut Tree
- White Ash,
- C.herbarium, Total IgM

ADMINISTRATIVE

CPT Codes:

86003 x 25
82785

Last Reviewed:

12/2/2023

ALLERGEN SAGEBRUSH, COMMON IGE (SQ:WORMWA)

WORMA

TESTING INFORMATION

Patient Preparation:
Multiple patient encounters should be avoided.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.25 mL). For multiple allergen orders refer to "Allergen Specimen Collection Instructions" at www.aruplab.com/testing/resources/specimen.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:
Effective 02/18/2014

Reporting Range (reported in kU/L)	Probability of IgE Mediated Clinical Reaction	Class Scoring
Less than 0.10	No significant level detected	0
0.10 - 0.34	Clinical relevance undetermined	0/1
0.35 - 0.70	Low	1
0.71 - 3.50	Moderate	2
3.51 - 17.50	High	3
17.51 - 50.00	Very high	4
50.01 - 100.00	Very high	5
Greater than 100.00	Very high	6

Reported:
1-3 days

Methodology:
Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay

Interpretive Data:
Allergen results of 0.10-0.34 kU/L are intended for specialist use as the clinical relevance is undetermined. Even though increasing ranges are reflective of increasing concentrations of allergen-specific IgE, these concentrations may not correlate with the degree of clinical response or skin testing results when challenged with a specific allergen. The correlation of allergy laboratory results with clinical history and in vivo reactivity to specific allergens is essential. A negative test may not rule out clinical allergy or even anaphylaxis.

Performing Lab:
ARUP

ARUP Test Code:
0055029

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
12/2/2023

ALLERGEN SESAME COMPONENT (SQ: SESAMC)

SEAMC

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
r SGS I1

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN SESAME WITH REFLEX (SQ: SESAMP)

SESAMP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 DAYS	7 DAYS	1 MONTH

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
rSES I 1 (f449)

ADMINISTRATIVE

Last Reviewed:
2/5/24

ALLERGEN WALNUT WITH REFLEX (SQ: WALNTS)

WALNS

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Walnut with reflex to:
Jugr1
Jugr3

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN WHEAT COMPONENTS F4 (SQ: WHEATC)

WHETC

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 DAYS	7 DAYS	1 MONTH

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Gliadin (f98)
r Tri a 14 (f433)
r Tri a 19 Omega-5 Gliadin (f416)

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALLERGEN WHEAT WITH REFLEX (SQ:WHEATP)

WHEATP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 DAYS	7 DAYS	1 MONTH

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
rTria 19 (f416)
Gliadin (f98)
rTria 14 (f433)

ADMINISTRATIVE

Last Reviewed:
2/5/24

ALOPECIA PANEL (SQ: ALOPCA)

ALPCA

TESTING INFORMATION

Collect:

Collect all tubes listed:1 K2EDTA Lavendar Top - send whole blood
1 Navy Top (with or without EDTA)
2 Gold Top SST
1 Green top

Specimen Preparation:

Special Handling: Vitamin B12 and Vitamin B6 should be protected from light.

K2EDTA Lavender - send as whole blood
All other collections: Separate serum/plasma from cells as soon as possible, or within two hours of collection. Vitamin B12 and Vitamin B6 should be separated and protected from light within one hour of collection.

See individual components for detailed handling instructions.

Storage/Transport Temperature:

Transport specimens refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	48 hours	Serum/plasma samples: 7 days Whole Blood K2EDTA - not acceptable

Performed:

Variable

Reference Interval:

See Individual Component Testing

Methodology:

See Individual Component Testing

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

Vitamin D
ANA with Reflex to Titer by IFA (ANASN)
CMP
DHEA
Iron/TIBC
Prolactin
Total T4
Free and Total Testosterone
aTPO
aTG
Vitamin B12
Syphilis Antibodies
Pyridoxal 5 Phosphate (Vitamin B6)
Zinc
CBC

ADMINISTRATIVE

Last Reviewed:

2/1/24

ALPHA 1 ANTITRYPSIN (SQ: A1AT)

AAT

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Lithium Heparin Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Severely lipemic or contaminated samples.

Storage/Transport Temperature:
Transport 1.0mL serum or centrifuged gold top tube at refrigerated temperature, 2-8°C
Minimum volume: 0.5 mL

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 hours	7 days	3 months

Performed:
Sunday-Saturday

Reference Interval:
90-200 mg/dL

Methodology:
Nephelometry

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82103

Last Reviewed:
2/7/24

ALPHA 2 ANTIPLAS ACT (SQ:A2AA)

A2AA

TESTING INFORMATION

Ordering Recommendations:
Use to screen for alpha-2-antiplasmin deficiency. Not a first-line test for diagnosing inherited thrombotic or bleeding disorders.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
mbient: 4 hours; Refrigerated: Unacceptable; Frozen: at -20° C: 3 months; at -70° C: 6 months

Performed:
Thu

Reference Interval:
By Report

Age	Activity (%)
1-4 days	55-115%
5-29 days	70-130%
30-89	76-124%
90-179 days	76-140%
180-364 days	83-139%
1-5 years	93-117%
6 years	89-110%
7-9 years	88-147%
10-11 years	90-144%
12-13 years	87-142%
14-15 years	83-136%
16-17 years	77-134%
18 years and older	82-133%

Reported:
1-8 days

Methodology:
Chromogenic Assay

Performing Lab:
ARUP

ARUP Test Code:
0098727

ADMINISTRATIVE

CPT Codes:
85410

ALPHA FETOPROTEIN, AMNIOTIC FLUID (SQ: AFPG)

AFPG

TESTING INFORMATION

Ordering Recommendations:

Include the gestational age by ultrasound and/or last menstrual period (LMP) on the request form on the date of draw of the sample. The patient's gestational age must be between 12 weeks and 24 weeks for interpretation of alpha-fetoprotein. Note that AChE false-positive and false-negative results are more frequent at gestational ages less than 13 weeks or greater than 24.9 weeks. Optimal gestational age is 14 to 18 weeks.

Patient Preparation:

The patient should have undergone ultrasound studies to verify fetal viability, detect multiple gestation, confirm gestational age, localize placenta, and detect fetal and uterine pathology.

Collect:

Amniotic fluid 1 mL in Sterile plastic conical tube; do **not** use urine containers or tubes with rubber stoppers. Rubber is toxic to amniocytes.

Avoid contamination of amniotic fluid with maternal or fetal blood. As little as one drop of fetal blood can cause false-positive results during assay of amniotic fluid. Amniotic fluid should be collected by the attending physician.

Unacceptable Conditions:

Specimen not amniotic fluid; gross contamination of amniotic fluid with maternal or fetal blood; quantity not sufficient for analysis

Remarks:

Analysis of midtrimester amniotic fluid for detection of open neural tube defects and ventral wall defects

This test was developed and its performance characteristics determined by Labcorp. It has not been cleared or approved by the Food and Drug Administration.

Storage/Transport Temperature:

Ship and maintain specimen at room temperature.

Stability (from collection to initiation):

room temperature only

Performed:

Genzyme Laboratories (Lab Corp) Test code: 002428

Reported:

2 - 5 days

Turnaround time is defined as the usual number of days from the date of pickup of a specimen for testing to when the result is released to the ordering provider. In some cases, additional time should be allowed for additional confirmatory or additional reflex tests. Testing schedules may vary.

Methodology:

Chemiluminescent immunoassay

Notes:

Measurement of amniotic fluid AFP. Samples with AFP values >=2.0 MoM will reflex to detection of acetylcholinesterase and fetal hemoglobin.

ADMINISTRATIVE

CPT Codes:

82106

Last Reviewed:

12/7/2023

Alpha Fetoprotein, Serum (Tumor Marker) (SQ: AFPTM)

AFP-T

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	6.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	6.0 mL
1 Green (Lithium) Top Tube	6.0 mL	6.0 mL

Specimen Preparation:

Centrifuged gold top

Remarks:

The AFP was performed by the Siemens chemiluminescent immunoassay AFP result obtained with a different manufacturers AFP assays cannot be used interchangeabley.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Monday - Saturday

Reference Interval:

Adult males and non-pregnant females 0-8 ng/mL

Methodology:

Chemilumescent Immunoassay

Notes:

Specimens that contain biotin at a concentraton of 500 ng/mL demonstrate a less than or equal to 10% change in results. Biotin concentrations greater than this may lead to falsely depressed results for patient samples.

Interpretive Data:

AFP is a valuable aid in the management of nonseminomatous testicular cancer patients when used in conjunction with information available from the clinical evaluation and other diagnostic procedures. Increased serum AFP concentrations have also been observd in ataxia telangiectasia, heredity tyrosinemia, primary hepato-cellular carcinoma, teratocarcinoma, gastrointestinal tract cancers with and without liver metastases, and in benign hepatic conditions such as acute viral hepatitis, chronic active hepatitis, and cirrhosis. The result cannot be interpreted as absolute evidence of the presense or absence of malignant disease.

This result is not interpretable in pregnant females.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

82015

Last Reviewed:

12/2/2023

ALPHA-1-ANTITRYPSIN PHENOTYPE (SQ:A1ATPA)

A1APP

TESTING INFORMATION

Ordering Recommendations:
Determine specific AAT protein variant(s) in individual with decreased concentration of AAT (<90mg/dL).

Collect:
Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Grossly hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 3 months; Frozen: 3 months (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Alpha-1-Antitrypsin	90-200 mg/dL

Reported:
2-4 days

Methodology:
Qualitative Isoelectric Focusing/Immunoturbidimetry

Notes:
Interpret with caution if the patient has been transfused within the previous 21 days.

Performing Lab:
ARUP

ARUP Test Code:
0080500

ADMINISTRATIVE

CPT Codes:
82104; 82103

ALPHFETOPROTEIN TOTAL AND L2 PERCENT (SQ: ALFL3A)

AFL3A

TESTING INFORMATION

Ordering Recommendations:
Surveillance and monitoring of hepatocellular carcinoma.

Collect:
Serum separator tube.

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 5 days; Frozen: 3 months (avoid repeated freeze/thaw cycles)

Performed:
Mon, Thu

Reference Interval:
By report

Components	Reference Interval
Alpha Fetoprotein Total	0-15 ng/mL
Alpha Fetoprotein L3 Pct	0.0-9.9 percent

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography/Immunoassay

Interpretive Data:
The µTASWako method is used. Results obtained with different assay methods or kits cannot be used interchangeably. The AFP L3 Percent assay is intended as a risk assessment for the development of hepatocellular carcinoma in patients with chronic liver diseases. Patients with elevated serum AFP-L3 percent should be more intensely evaluated for evidence of hepatocellular carcinoma since elevated values have been shown to be associated with a seven-fold increase in the risk for developing hepatocellular carcinoma within 21 months. Results cannot be interpreted as absolute evidence of the presence or absence of malignant disease. For pregnant females, the result is not interpretable as a tumor marker.

Performing Lab:
ARUP

ARUP Test Code:
0081208

ADMINISTRATIVE

CPT Codes:
82107

Last Reviewed:
12/2/2023

ALTERNARIA ALTERNATA (SQ: ATMOLD)

ALTA

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

ALUMINUM LEVEL (SQ:ALUMA)

ALUMA

TESTING INFORMATION

Ordering Recommendations:
Preferred test for routine aluminum screening. May be useful in the assessment of aluminum toxicity due to dialysis. Aluminum urine testing is preferred for chronic exposure.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patient should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).

Collect:
Royal Blue (No Additive).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma. Specimens that are not separated from the red cells or clot within 2 hours. Specimens collected in containers other than specified. Specimens transported in containers other than specified.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated or frozen.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely (If the specimen is drawn and stored in the appropriate container, the trace element values do not change with time.)

Performed:
Tue, Thu, Sat

Reference Interval:
0.0-15.0 µg/L

Reported:
1-4 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
Serum aluminum greater than 50.0 µg/L is consistent with overload and may correlate with toxicity.

Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum aluminum, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Performing Lab:
ARUP

ARUP Test Code:
0099266

ADMINISTRATIVE

CPT Codes:
82108

Last Reviewed:
12/2/2023

AMIKACIN LEVEL (SQ:AMIKRA)

AMIKA

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0090015

ADMINISTRATIVE

Last Reviewed:
12/2/2023

AMIKACIN LEVEL, RANDOM SERUM (SQ: AMIKRA)

AMIKA

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Collect:
Serum separator tube (SST). Also acceptable: Plain red

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP standard transport tube. (Min: 0.25 mL)
Test is not performed at ARUP; separate specimens must be submitted when multiple tests are ordered.

Storage/Transport Temperature:
Refrigerated. Also acceptable: Frozen.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 28 days

Performed:
Varies

Reported:
3-6 days

Methodology:
Quantitative Kinetic Interaction of Microparticles in Solution (KIMS)

Performing Lab:
ARUP Reference Partner

ARUP Test Code:
3018754

ADMINISTRATIVE

CPT Codes:
80150

AMINO ACID QUANT, PLASMA (SQ:AAPQTA)

AAPQT

TESTING INFORMATION

Ordering Recommendations:
Diagnose and monitor aminoacidopathies (eg, PKU, MSUD).

Patient Preparation:
Adults: Fasting specimen preferred. Infants and children: Draw specimen prior to feeding or 2-3 hours after a meal.

Collect:
Green (sodium or lithium heparin).

Specimen Preparation:
Separate plasma from cells ASAP or within 2 hours of collection. Avoid transferring buffy coat material. Transfer 0.5 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.25 mL)

Unacceptable Conditions:
Hemolyzed specimens.

Remarks:
Clinical information is needed for appropriate interpretation. Additional required information includes age, gender, diet (e.g., TPN therapy), drug therapy, and family history. Biochemical Genetics Patient History Form is available on the ARUP Web site at http://www.aruplab.com/patienthistory or by contacting ARUP Client Services.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 24 hours; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Effective November 18, 2019

Components	Reference Interval
Alpha-aminoadipic acid, Plasma	Less than or equal to 4 µmol/L
Alpha-amino butyric acid, Plasma	Less than or equal to 40 µmol/L
Alanine, Plasma	**Age** / **Reference Interval** 0-30 days / 140-480 µmol/L 1 month-11 months / 150-520 µmol/L 1 year and older / 160-530 µmol/L
Allo-isoleucine, Plasma	Less than or equal to 5 µmol/L
Anserine, Plasma	Less than or equal to 5 µmol/L
Arginine, Plasma	**Age** / **Reference Interval** 0-30 days / 16-140 µmol/L 1 month-11 months / 35-140 µmol/L 1 year and older / 35-125 µmol/L
Argininosuccinic Acid, Plasma	Less than or equal to 2 µmol/L
Asparagine, Plasma	20-80 µmol/L
Aspartic Acid, Plasma	**Age** / **Reference Interval** 0-30 days / Less than or equal to 45 µmol/L 1 month-11 months / Less than or equal to 30 µmol/L 1 year and older / Less than or equal to 15 µmol/L
Beta-alanine, Plasma	Less than or equal to 25 µmol/L
Beta-amino isobutyric acid, Plasma	**Age** / **Reference Interval** 0 day to 11 months / Less than or equal to 15 µmol/L 1 year and older / Less than or equal to 10 µmol/L

Citrulline, Plasma	**Age** / **Reference Interval** 0 day to 11 months / 7-40 µmol/L 1 year and older / 10-45 µmol/L
Cystathionine, Plasma	Less than or equal to 5 µmol/L
Cystine, Plasma	**Age** / **Reference Interval** 0-30 days / 10-60 µmol/L 1 month-11 months / 10-50 µmol/L 1 year and older / 10-65 µmol/L
Ethanolamine, Plasma	**Age** / **Reference Interval** 0-30 days / Less than or equal to 100 µmol/L 1 month-11 months / Less than or equal to 25 µmol/L 1 year and older / Less than or equal to 15 µmol/L
Gamma-amino butyric acid, Plasma	Less than or equal to 5 µmol/L
Glutamic Acid, Plasma	**Age** / **Reference Range** 0-30 days / 30-240 µmol/L 1 month-11 months / 30-210 µmol/L 1 year and older / 15-130 µmol/L
Glutamine, Plasma	**Age** / **Reference Interval** 0-30 days / 295-900 µmol/L 1 month-11 months / 400-850 µmol/L 1 year and older / 380-680 µmol/L
Glycine, Plasma	**Age** / **Reference Interval** 0-30 days / 160-470 µmol/L 1 month-11 months / 120-375 µmol/L 1 year and older / 140-420 µmol/L
Histidine, Plasma	50-130 µmol/L
Homocitrulline, Plasma	Less than or equal to 5 µmol/L
Homocystine, Plasma	Less than or equal to 2 µmol/L
Hydroxylysine, Plasma	Less than or equal to 5 µmol/L
Hydroxyproline, Plasma	**Age** / **Reference Interval** 0-30 days / 15-90 µmol/L 1 month-11 months / 10-70 µmol/L 1 year and older / 5-40 µmol/L
Isoleucine, Plasma	**Age** / **Reference Interval** 0-30 days / 20-110 µmol/L 1 month and older / 30-120 µmol/L
Leucine, Plasma	**Age** / **Reference Interval** 0-11 months / 50-180 µmol/L 1 year and older / 60-180 µmol/L
	Age / **Reference Interval** 0-30 days / 70-270 µmol/L

Lysine, Plasma

1 month-11 months	80-260 µmol/L
1 year and older	85-230 µmol/L

Methionine, Plasma

Age	Reference Interval
0-11 months	15-55 µmol/L
1 year and older	15-40 µmol/L

Ornithine, Plasma

Age	Reference Interval
0-30 days	30-180 µmol/L
1 month-11 months	30-140 µmol/L
1 year and older	25-110 µmol/L

Phenylalanine, Plasma

Age	Reference Interval
0-30 days	30-95 µmol/L
1 month-11 months	30-90 µmol/L
1 year and older	30-82 µmol/L

Proline, Plasma

Age	Reference Interval
0-30 days	110-340 µmol/L
1 month-11 months	100-320 µmol/L
1 year and older	90-350 µmol/L

Sarcosine, Plasma

Less than or equal to 5 µmol/L

Serine, Plasma

Age	Reference Interval
0-30 days	90-340 µmol/L
1 month-11 months	90-275 µmol/L
1 year and older	60-170 µmol/L

Taurine, Plasma

Age	Reference Interval
0-30 days	30-250 µmol/L
1 month-11 months	30-170 µmol/L
1 year and older	30 -130 µmol/L

Threonine, Plasma

Age	Reference Interval
0-30 days	60-400 µmol/L
1 month-11 months	60-310 µmol/L
1 year and older	60-190 µmol/L

Tryptophan, Plasma

Age	Reference Interval
0-30 days	15-75 µmol/L
1 month-11 months	20-85 µmol/L
1 year and older	25-80 µmol/L

Tyrosine, Plasma

Age	Reference Interval
0-30 days	30-140 µmol/L
1 month-11 months	30-130 µmol/L
1 year and older	35-110 µmol/L

Age	Reference Interval

Valine, Plasma	0-30 days	80-270 µmol/L
	1 month-11 months	90-310 µmol/L
	1 year and older	120-320 µmol/L

Reported:
2-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Common indications for amino acid testing include clinical situations such as: 1) acute life-threatening episode, 2) failure to thrive, 3) recurrent vomiting, 4) neurological deterioration, 5) hyperammonemia, 6) lethargy, 7) metabolic acidosis, and 8) testing or following therapy for a specific inborn error of metabolism (PKU, MSUD, tyrosinemia, etc.). Listing of clinical information is particularly important for appropriate interpretation.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2009389

ADMINISTRATIVE

CPT Codes:
82139

Last Reviewed:
12/2/2023

AMINO ACIDS QUANT URN (SQ:UAAA)

UAAA

TESTING INFORMATION

Ordering Recommendations:
Screen for disorders of amino acids transport (eg, cystinuria, lysinuric protein intolerance, HHH syndrome). Also useful to evaluate renal tubular function.

Patient Preparation:
First morning urine preferred.

Collect:
Random urine. Avoid dilute urine when possible.

Specimen Preparation:
Mix urine well. Transfer 4 mL aliquot of urine to ARUP Standard Transport Tubes and freeze immediately. (Min: 3 mL)

Remarks:
Clinical information is needed for appropriate interpretation. Additional required information includes age, gender, diet (eg, TPN therapy), drug therapy, and family history. Biochemical Genetics Patient History Form is available on the ARUP Website or by contacting ARUP Client Services.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 24 hours; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Effective November 18, 2019

Components	Reference Interval
Alpha-aminoadipic acid, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 700 µmol/g creatinine 3-11 months: Less than or equal to 520 µmol/g creatinine 1-2 years: Less than or equal to 470 µmol/g creatinine 3-5 years: Less than or equal to 200 µmol/g creatinine 6-11 years: Less than or equal to 125 µmol/g creatinine 12 years and older: Less than or equal to 100 µmol/g creatinine
Alpha-amino butyric acid, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 120 µmol/g creatinine 3-11 months: Less than or equal to 80 µmol/g creatinine 1-2 years: Less than or equal to 70 µmol/g creatinine 3-5 years: Less than or equal to 60 µmol/g creatinine 6-11 years: Less than or equal to 50 µmol/g creatinine 12 years and older: Less than or equal to 25 µmol/g creatinine
Alanine, Urine	**Age** / **Reference Interval** 0-2 months: 475-3330 µmol/g creatinine 3-11 months: 270-3020 µmol/g creatinine 1-2 years: 170-1750 µmol/g creatinine 3-5 years: 100-1000 µmol/g creatinine 6-11 years: 80-930 µmol/g creatinine 12 years and older: 60 -500 µmol/g creatinine
Anserine, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 60 µmol/g creatinine 3-11 months: Less than or equal to 300 µmol/g creatinine 1-2 years: Less than or equal to 720 µmol/g creatinine

	3-5 years: Less than or equal to 385 µmol/g creatinine 6-11 years: Less than or equal to 480 µmol/g creatinine 12 years and older: Less than or equal to 250 µmol/g creatinine
Arginine, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 470 µmol/g creatinine 3-11 months: Less than or equal to 340 µmol/g creatinine 1-2 years: Less than or equal to 390 µmol/g creatinine 3-5 years: Less than or equal to 270 µmol/g creatinine 6-11 years: Less than or equal to 160 µmol/g creatinine 12 years and older: Less than or equal to 100 µmol/g creatinine
Argininosuccinic Acid, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 110 µmol/g creatinine 3-11 months: Less than or equal to 100 µmol/g creatinine 1-2 years: Less than or equal to 80 µmol/g creatinine 3-5 years: Less than or equal to 65 µmol/g creatinine 6-11 years: Less than or equal to 50 µmol/g creatinine 12 years and older: Less than or equal to 40 µmol/g creatinine
Asparagine, Urine	**Age** / **Reference Interval** 0-2 months: 55-1445 µmol/g creatinine 3-11 months: 45-910 µmol/g creatinine 1-2 years: 80-675 µmol/g creatinine 3-5 years: 50-345 µmol/g creatinine 6-11 years: 40-390 µmol/g creatinine 12 years and older: 25-180 µmol/g creatinine
Aspartic Acid, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 370 µmol/g creatinine 3-11 months: Less than or equal to 160 µmol/g creatinine 1-2 years: Less than or equal to 65 µmol/g creatinine 3 years and older: Less than or equal to 25 µmol/g creatinine
Beta-alanine Urine	**Age** / **Reference Interval** 0-5 months: Less than or equal to 250 µmol/g creatinine 6 months and older: Less than or equal to 125 µmol/g creatinine
Beta-amino isobutyric acid, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 6780 µmol/g creatinine 3-11 months: Less than or equal to 6000 µmol/g creatinine 1-2 years: Less than or equal to 5500 µmol/g creatinine 3-5 years: Less than or equal to 3490 µmol/g creatinine 6-11 years: Less than or equal to 1720 µmol/g creatinine 12 years and older: Less than or equal to 1200 µmol/g creatinine
Citrulline, Urine	**Age** / **Reference Interval** 0-2 months: Less than or equal to 145 µmol/g creatinine 3-11 months: Less than or equal to 75 µmol/g creatinine 1-2 years: Less than or equal to 40 µmol/g creatinine

	3 years and older: Less than or equal to 15 µmol/g creatinine

Cystathionine, Urine

Age	Reference Interval
0-2 months	Less than or equal to 235 µmol/g creatinine
3-11 months	Less than or equal to 60 µmol/g creatinine
1-2 years	Less than or equal to 75 µmol/g creatinine
3-5 years	Less than or equal to 35 µmol/g creatinine
6-11 years	Less than or equal to 25 µmol/g creatinine
12 years and older	Less than or equal to 60 µmol/g creatinine

Cystine, Urine

Age	Reference Interval
0-2 months	Less than or equal to 870 µmol/g creatinine
3-11 months	Less than or equal to 300 µmol/g creatinine
1-2 years	Less than or equal to 150 µmol/g creatinine
3-5 years	Less than or equal to 125 µmol/g creatinine
6-11 years	Less than or equal to 100 µmol/g creatinine
12 years and older	Less than or equal to 150 µmol/g creatinine

Ethanolamine, Urine

Age	Reference Interval
0-2 months	390-6560 µmol/g creatinine
3-11 months	320-1410 µmol/g creatinine
1-2 years	270-1160 µmol/g creatinine
3-5 years	245-825 µmol/g creatinine
6-11 years	130-770 µmol/g creatinine
12 years and older	100-510 µmol/g creatinine

Gamma-amino butyric acid, Urine

Age	Reference Interval
0-2 months	Less than or equal to 60 µmol/g creatinine
3-5 months	Less than or equal to 50 µmol/g creatinine
6 months and older	Less than or equal to 25 µmol/g creatinine

Glutamic Acid, Urine

Age	Reference Interval
0-2 months	Less than or equal to 560 µmol/g creatinine
3-11 months	Less than or equal to 360 µmol/g creatinine
1-2 years	Less than or equal to 190 µmol/g creatinine
3-5 years	Less than or equal to 80 µmol/g creatinine
6-11 years	Less than or equal to 70 µmol/g creatinine
12 years and older	Less than or equal to 52 µmol/g creatinine

Glutamine, Urine

Age	Reference Interval
0-2 months	380-3860 µmol/g creatinine
3-11 months	310-3240 µmol/g creatinine
1-2 years	340-2225 µmol/g creatinine
3-5 years	300-1525 µmol/g creatinine
6-11 years	165-1530 µmol/g creatinine
12 years and older	100-665 µmol/g creatinine

Age	Reference Interval
0-2 months	1620-19725 µmol/g creatinine
3-11 months	915-10220 µmol/g creatinine
1-2 years	775-6600 µmol/g creatinine

Glycine, Urine

3-5 years	600-4600 µmol/g creatinine
6-11 years	310-5700 µmol/g creatinine
12 years and older	230 - 3510 µmol/g creatinine

Histidine, Urine

Age	Reference Interval
0-2 months	325-4940 µmol/g creatinine
3-11 months	290-4850 µmol/g creatinine
1-2 years	340-4420 µmol/g creatinine
3-5 years	315-2460 µmol/g creatinine
6-11 years	160-2380 µmol/g creatinine
12 years and older	80-1130 µmol/g creatinine

Homocitrulline, Urine

Age	Reference Interval
0-2 months	Less than or equal to 675 µmol/g creatinine
3-11 months	Less than or equal to 220 µmol/g creatinine
1-2 years	Less than or equal to 150 µmol/g creatinine
3-5 years	Less than or equal to 100 µmol/g creatinine
6-11 years	Less than or equal to 70 µmol/g creatinine
12 years and older	Less than or equal to 40 µmol/g creatinine

Hydroxylysine, Urine

Age	Reference Interval
0-2 months	Less than or equal to 510 µmol/g creatinine
3-11 months	Less than or equal to 240 µmol/g creatinine
1-2 years	Less than or equal to 85 µmol/g creatinine
3-5 years	Less than or equal to 50 µmol/g creatinine
6-11 years	Less than or equal to 40 µmol/g creatinine
12 years and older	Less than or equal to 30 µmol/g creatinine

Hydroxyproline, Urine

Age	Reference Interval
0-2 months	Less than or equal to 6100 µmol/g creatinine
3-11 months	Less than or equal to 1270 µmol/g creatinine
1-2 years	Less than or equal to 100 µmol/g creatinine
3-5 years	Less than or equal to 35 µmol/g creatinine
6-11 years	Less than or equal to 20 µmol/g creatinine
12 years and older	Less than or equal to 30 µmol/g creatinine

Isoleucine, Urine

Age	Reference Interval
0-2 months	Less than or equal to 360 µmol/g creatinine
3-11 months	Less than or equal to 140 µmol/g creatinine
1-2 years	Less than or equal to 100 µmol/g creatinine
3-5 years	Less than or equal to 70 µmol/g creatinine
6-11 years	Less than or equal to 60 µmol/g creatinine
12 years and older	Less than or equal to 45 µmol/g creatinine

Leucine, Urine

Age	Reference Interval
0-2 months	20-420 µmol/g creatinine
3-11 months	20-195 µmol/g creatinine
1-2 years	20-190 µmol/g creatinine
3-5 years	20-110 µmol/g creatinine
6-11 years	20-100 µmol/g creatinine

	12 years and older — Less than or equal to 45 µmol/g creatinine
Lysine, Urine	**Age** — **Reference Interval** 0-2 months — 120-2270 µmol/g creatinine 3-11 months — 55-1260 µmol/g creatinine 1-2 years — 45-930 µmol/g creatinine 3-5 years — 40-475 µmol/g creatinine 6-11 years — 25-440 µmol/g creatinine 12 years and older — Less than or equal to 355 µmol/g creatinine
Methionine, Urine	**Age** — **Reference Interval** 0-2 months — Less than or equal to 100 µmol/g creatinine 3-11 months — Less than or equal to 60 µmol/g creatinine 1-2 years — Less than or equal to 50 µmol/g creatinine 3-11 years — Less than or equal to 30 µmol/g creatinine 12 years and older — Less than or equal to 20 µmol/g creatinine
Ornithine, Urine	**Age** — **Reference Interval** 0-2 months — Less than or equal to 475 µmol/g creatinine 3-11 months — Less than or equal to 150 µmol/g creatinine 1-2 years — Less than or equal to 70 µmol/g creatinine 3 years and older — Less than or equal to 30 µmol/g creatinine
Phenylalanine, Urine	**Age** — **Reference Interval** 0-2 months — 45-360 µmol/g creatinine 3-11 months — 65-370 µmol/g creatinine 1-2 years — 50-350 µmol/g creatinine 3-5 years — 35-170 µmol/g creatinine 6-11 years — 30-140 µmol/g creatinine 12 years and older — 15-85 µmol/g creatinine
Proline, Urine	**Age** — **Reference Interval** 0-2 months — 130-2340 µmol/g creatinine 3-11 months — Less than or equal to 1190 µmol/g creatinine 1-2 years — Less than or equal to 170 µmol/g creatinine 3-5 years — Less than or equal to 60 µmol/g creatinine 6-11 years — Less than or equal to 40 µmol/g creatinine 12 years and older — Less than or equal to 35 µmol/g creatinine
Sarcosine, Urine	**Age** — **Reference Interval** 0-2 months — Less than or equal to 300 µmol/g creatinine 3-11 months — Less than or equal to 75 µmol/g creatinine 1 year and older — Less than or equal to 25 µmol/g creatinine
Serine, Urine	**Age** — **Reference Interval** 0-2 months — 70-4125 µmol/g creatinine 3-11 months — 275-2730 µmol/g creatinine 1-2 years — 390-1890 µmol/g creatinine 3-5 years — 260-990 µmol/g creatinine 6-11 years — 130-1100 µmol/g creatinine 12 years and older — 90-470 µmol/g creatinine

Taurine, Urine

Age	Reference Interval
0-2 months	95-9800 µmol/g creatinine
3-11 months	Less than or equal to 7400 µmol/g creatinine
1-2 years	Less than or equal to 9000 µmol/g creatinine
3-5 years	Less than or equal to 4400 µmol/g creatinine
6-11 years	Less than or equal to 3800 µmol/g creatinine
12 years and older	Less than or equal to 3200 µmol/g creatinine

Threonine, Urine

Age	Reference Interval
0-2 months	125-2890 µmol/g creatinine
3-11 months	50-1300 µmol/g creatinine
1-2 years	85-910 µmol/g creatinine
3-5 years	50-380 µmol/g creatinine
6-11 years	40-470 µmol/g creatinine
12 years and older	25-250 µmol/g creatinine

Tryptophan, Urine

Age	Reference Interval
0-2 months	25-395 µmol/g creatinine
3-11 months	45-390 µmol/g creatinine
1-2 years	45-325 µmol/g creatinine
3-5 years	35-150 µmol/g creatinine
6-11 years	20-180 µmol/g creatinine
12 years and older	15-95 µmol/g creatinine

Tyrosine, Urine

Age	Reference Interval
0-2 months	50-870 µmol/g creatinine
3-11 months	70-700 µmol/g creatinine
1-2 years	65-560 µmol/g creatinine
3-5 years	40-300 µmol/g creatinine
6-11 years	40-280 µmol/g creatinine
12 years and older	15-150 µmol/g creatinine

Valine, Urine

Age	Reference Interval
0-2 months	40-425 µmol/g creatinine
3-11 months	30-250 µmol/g creatinine
1-2 years	40-280 µmol/g creatinine
3-5 years	30-160 µmol/g creatinine
6-11 years	20-120 µmol/g creatinine
12 years and older	Less than or equal to 55 µmol/g creatinine

Reported:
3-7 days

Methodology:
Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Common indications for urine amino acid testing include clinical situations such as: 1) acute life-threatening episode, 2) failure to thrive, 3) recurrent vomiting, 4) neurological deterioration, 5) hyperammonemia, 6) lethargy, 7) metabolic acidosis, 8) testing or following therapy for a specific inborn error of metabolism (PKU, MSUD, tyrosinemia, etc.), and 9) kidney stones. Listing of clinical information is particularly important for appropriate interpretation.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2009419

ADMINISTRATIVE

CPT Codes:
82139

Last Reviewed:
12/1/2023

AMINOLEVULINIC ACID, 24 HOUR (SQ:UDALAA)

AUDAL

TESTING INFORMATION

Ordering Recommendations:
Evaluate suspected aminolevulinic acid dehydratase deficiency (ADP) porphyria or hereditary tyrosinemia.

Patient Preparation:
Refrain from alcohol consumption 24 hours prior to collection.

Collect:
24 hour or random urine. Refrigerate 24-hour specimens during collection.

Specimen Preparation:
Transfer a 4 mL aliquot from a well-mixed 24 hour or random collection to an ARUP Standard Transport Tube. (Min: 1.2 mL)

Unacceptable Conditions:
Body fluids other than urine.

Remarks:
Record total volume and collection time interval on transport tube and test request form.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 1 month

Performed:
Mon, Wed, Fri

Reference Interval:

Components	Reference Interval
Aminolevulinic Acid - per volume	0-35 µmol/L
Aminolevulinic Acid - per 24h	0-60 µmol/d
Creatinine, Urine - per 24h	See table below

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

Reported:
1-4 days

Methodology:
Quantitative Ion Exchange Chromatography/Spectrophotometry

Notes:
Increased ALA concentration is associated with exposure to alcohol, lead, and a variety of other agents. Massive elevation of ALA occurs in the acute porphyrias and hereditary tyrosinemia.

Specimen preservation with acid or base is discouraged and may cause assay interference. When collecting urine for additional tests that require acid or base preservation, the ALA aliquot should be removed prior to the addition of the acid or base.

Interpretive Data:
Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

Performing Lab:
ARUP

ARUP Test Code:
0080103

ADMINISTRATIVE

CPT Codes:
82135

AMIODARONE (SQ:AMIOD)

AMIOD

TESTING INFORMATION

Ordering Recommendations:
Use to optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw - at steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP amber standard transport tube to protect from light. Freeze immediately (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution). Refrigerated or room temperature specimens.

Storage/Transport Temperature:
Critical Frozen. Additional specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 year

Performed:
Mon, Tue, Thu, Fri, Sat

Reference Interval:

Therapeutic Range	0.5-2.0 µg/mL
Toxic Level	Greater than 2.5 µg/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Toxic concentrations may exacerbate arrhythmias, cause liver and lung toxicity, and thyroid dysfunction. The concentration of desethylamiodarone, an active major metabolite, is also reported but no therapeutic range is established. At steady-state, the metabolite concentration is similar to the amiodarone concentration.

Performing Lab:
ARUP

ARUP Test Code:
0090161

ADMINISTRATIVE

CPT Codes:
80151

Last Reviewed:
12/2/2023

AMITRIPTYLINE AND NORTRIPTYLINE, S (SQ:AMNOTA)

AMNOR

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady-state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Fri

Reference Interval:
Effective February 19, 2013

Therapeutic Range	Total (amitriptyline and nortriptyline): 95-250 ng/mL
Toxic Level	Greater than 500 ng/mL

Reported:
2-8 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Report includes individual values for amitriptyline, nortriptyline, and total.

Interpretive Data:
Toxic concentrations may cause anticholinergic effects, cardiac abnormalities, and seizures.

Performing Lab:
ARUP

ARUP Test Code:
0090158

ADMINISTRATIVE

CPT Codes:
80335 (Alt code: G0480)

Last Reviewed:
12/2/2023

AMMONIA (SQ: AMMON)

AMMON

TESTING INFORMATION

Collect:

Preferred Specimen Collection

	Priority	Specimen Type	Requested Volume	Minimum Volume
METHODIST OR PEKIN	Routine:	1 Lithium Heparin Tube (Green) - CRITICAL FROZEN	6.0 mL	3.0 mL
PROCTOR		seperate Tube (cannot be shared specimen) 1 EDTA (Lavendar) Top tube - on ice	5.0 mL	
	Other Acceptable Specimen Type (s)			

Specimen Preparation:

Collect on ice. Separate samples must be submitted when multiple test are ordered. Separate plasma from cells within 20 minutes of collection and freeze.

Proctor: Place immediately on ice and centrifuge, preferably refrigerated. Perform analysis within 60 minutes of venipuncture or freeze separated plasma immediately.

Unacceptable Conditions:

- Do not use plasma prepared with other anticoagulants
- Do not use serum since ammonia can be generated during clotting
- Avoid contamination of samples by ammonia from smoking or traffic in laboratory or patient's room, from glassware or water.

Remarks:

- Smoking should be avoided prior to sampling

Stability (from collection to initiation):

	Ambient	Referigerated	Frozen
Proctor	30 minutes, capped	2 hour, capped	3 days, capped Invert specimens several times Freeze only once

Reference Interval:

Methodist	
	11 - 32 (umol/L)
Proctor	
Gender	Range (umol/L)
Males	16 - 60
Females	11 - 51

Methodology:

Enzymatic

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82140

AMNIOTIC RUPTURE OF MEMBRANE (SQ: AMNIS)

AMNIM

TESTING INFORMATION

Collect:
Methodist: sample of amniotic fluid taken by sterile polyster vaginal swab, placed into vial with buffer solution.
Pekin: Amnisure Kit Collection swab

Unacceptable Conditions:
Significant bloody swab, Frozen specimen or Refrigerated (2-8C)

Storage/Transport Temperature:
Transport immediately to laboratory.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
6 HOURS	UNACCEPTABLE	UNACCEPTABLE

Performed:
Daily

Reference Interval:
Negative (no membrane rupture)

Methodology:
Immunochromatography, detection of PP12 (IGFBP-1) and AFP proteins

Interpretive Data:
The ROM test should be used to evaluate patients with clinical signs/symptoms suggestive of fetal membranes rupture. Test performance in patients without signs or symptoms of ROM is unknown. Results should be used in conjuction with other clinical information.

Performing Lab:
Methodist, Proctor Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84112

Last Reviewed:
2/7/24:TK

AMPHETAMINES CONFIRMATION, URINE (MML) (SQ:AMPHUA)

AMPHU

TESTING INFORMATION

Ordering Recommendations:
Use to obtain quantitative results or to follow up a presumptive result. For general screening, the preferred test is Amphetamines Urine Screen with Reflex to Quantitation (2012209).

Collect:
Random urine.

Specimen Preparation:
Transfer 0.5 mL urine with no additives or preservatives to an ARUP standard transport tube. (Min: 0.3 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years

Performed:
Sun-Sat

Reference Interval:
Effective November 11, 2018

Drugs Covered	Cutoff Concentrations
Amphetamine	50 ng/mL
Methamphetamine	200 ng/mL
Methylenedioxyamphetamine (MDA)	200 ng/mL
Methylenedioxymethamphetamine (Ecstasy, MDMA)	200 ng/mL
Methylenedioxyethylamphetamine (Eve, MDEA)	200 ng/mL
Phentermine	200 ng/mL

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Compare to Pain Management, MDMA/MDA, Quantitative, with medMATCH, Urine; Pain Management, Amphetamines, with Confirmation with medMATCH, Urine; Pain Management, Amphetamines, Quantitative, with medMATCH, Urine.

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry.

Positive cutoff: 200 ng/mL unless specified below:
Amphetamine: 50 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
2010075

ADMINISTRATIVE

CPT Codes:
80325; 80359 (Alt code: G0480)

AMYLASE (SQ: AMYL)

AMYL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Green Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

Samples containing calcium chelating anticoagulants such as oxalates, citrates and EDTA.

Storage/Transport Temperature:

Centrifuged Gold top or 1 mL serum or plasma (Min: 0.3 mL); Ambient (room temperature) or Refrigerated: Do not freeze.

Seperate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
7 days	6 months	1 year

Performed:

Sunday-Saturday

Reference Interval:

Reference Interval
25-120 u/L

Methodology:

Bichromatic Rate

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82150

Last Reviewed:

12/2/2023

AMYLASE, BODY FLUID (SQ: FAMYL)

AMYBF

COLLECTION DEVICE

Preferred Collection Device:
STERILE CONTAINER

TESTING INFORMATION

Collect:
3 mL body fluid in clean container with secure lid. (Min: 1 mL)
Pleural and Peritoneal Fluids. Specify source of fluid.

Remarks:
Specify body fluid source

Storage/Transport Temperature:
Transport 3mL Body fluid at Ambient (room temperature) or 2-8°C
Do not freeze. (Min: 1.0 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	7 days	Unacceptable

Performed:
Sunday-Saturday

Reference Interval:
A reference interval has not been established for this test on the supplied specimen type. This test was developed using enzymatic methodology developed by Siemens and its performance characteristics determined by Carle Health Methodist. It has not been clared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes.

Methodology:
Enzymatic

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82150

Last Reviewed:
2/7/24:TK

ANA W/REFLEX TO ENA AND TITER BY IFA (SQ: ANASEN)

ANASE

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	1.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	1.0 mL

Specimen Preparation:

Separate serum from cells ASAP.

Unacceptable Conditions:

Hemolyzed Specimens

Storage/Transport Temperature:

- 1 mL serum (Min: 0.5 mL); Refrigerated.
- Separate serum from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Variable

Reference Interval:

Test Number	Components	Reference Interval
	dsDNA	Negative: 4 IU/mL Indeterminate: 5-9 IU/mL Positive: 10 IU/mL
	For all other analytes	Negative: 1.0 AI Positive: >1.0 AI

Methodology:

Multiplex Flow Immunoassay and Fluorescent Antinuclear Antibody

Interpretive Data:

ANA testing peformed by multiplex analysis. A negative ANA implies that the following ENAs are also negative: dsDNA, SSA, SSb, Smith, SCL-70, JO1, Smith RNP, Ribosomal Protein, RNP, Centromere B and Chromatin.

Titers for ANA by IFA start at 1:80. A titer of less that 1:80 does not rule out the possibility of patients having a titer of 1:40, which is considered clinically insignificant.

The patient serum is screened for Antinuclear Antibodies with HEP_2 cell line substrate by FANA method.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

Components:

- DSDNAB (dsDNA)
- SMA (anti-SM)
- RNPA (RNP)
- SSAROA (SS-A)
- SSBLA (SS-B)
- SCLA (Scleroderma)
- JO1A (Jo-1)
- CHRNUA (Chromatin)
- CENTA (Centromere B)
- SMRNP (anti-SM-RNP)
- RIBPA (Ribosomal P)

ADMINISTRATIVE

CPT Codes:
86038, If ANA reflexed add 86039, If ENA performed add 86235 x 5

ANA WITH REFLEX TO TITER BY IFA(SQ: ANASN)

ANASN

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	1.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	1.0 mL

Specimen Preparation:

Separate serum from cells ASAP.

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1 ml serum or centrifuged gold top refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Variable

Reference Interval:

Negative
Positive

Methodology:

Multiplex Flow Immunoassay and Fluorescent Antinuclear Antibody

Interpretive Data:

Titers for ANA by IFA start at 1:80. A titer of less that 1:80 does not rule out the possibility of patients having a titer of 1:40, which is considered clinically insignificant.

The patient serum is screened for Antinuclear Antibodies with HEP_2 cell line substrate by FANA method.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

86038, if reflexed - add 86309

Last Reviewed:

12/2/2023

ANAPLASMA PHAGOCYTOPHILUM AB, IGG,S (SQ:ANAPA)

ANPHG

TESTING INFORMATION

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Tue, Fri

Reference Interval:
Less than 1:80 - No significant level of IgG antibodies to A. phagocytophilum detected.
Greater than or equal to 1:80 - Suggestive of a recent or past infection with A. phagocytophilum

Reported:
1-5 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Performing Lab:
ARUP

ARUP Test Code:
0097317

ADMINISTRATIVE

CPT Codes:
86666

Last Reviewed:
12/1/2023

ANDROSTENEDIONE, S (SQ:ANDSTA)

ANST

TESTING INFORMATION

Ordering Recommendations:
Aids in the investigation of virilizing endocrinopathies and in managing congenital adrenal hyperplasia in conjunction with other sex steroids. Not recommended for initial evaluation of polycystic ovarian syndrome.

Patient Preparation:
Specimen should be collected between 6-10 a.m.

Collect:
Serum separator tube or green (sodium or lithium heparin).

Specimen Preparation:
Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.3 mL) Also acceptable: EDTA plasma.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
Effective August 19, 2013

Age	Female	Male
Premature Infants, 26-28 weeks-Day 4	0.92-2.82 ng/mL	0.92-2.82 ng/mL
Premature Infants, 31-35 weeks-Day 4	0.80-4.46 ng/mL	0.80-4.46 ng/mL
Full-term Infants, 1-7 days	0.20-2.90 ng/mL	0.20-2.90 ng/mL
8-30 days	0.18-0.80 ng/mL	0.18-0.80 ng/mL
1-5 months	0.06-0.68 ng/mL	0.06-0.68 ng/mL
6-24 months	Less than 0.15 ng/mL	0.03-0.15 ng/mL
2-3 years	Less than 0.16 ng/mL	Less than 0.11 ng/mL
4-5 years	0.02-0.21 ng/mL	0.02-0.17 ng/mL
6-7 years	0.02-0.28 ng/mL	0.01-0.29 ng/mL
8-9 years	0.04-0.42 ng/mL	0.03-0.30 ng/mL
10-11 years	0.09-1.23 ng/mL	0.07-0.39 ng/mL
12-13 years	0.24-1.73 ng/mL	0.10-0.64 ng/mL
14-15 years	0.39-2.00 ng/mL	0.18-0.94 ng/mL
16-17 years	0.35-2.12 ng/mL	0.30-1.13 ng/mL
18-39 years	0.26-2.14 ng/mL	0.33-1.34 ng/mL
40 years and older	0.13-0.82 ng/mL	0.23-0.89 ng/mL
Pre-menopausal	0.26-2.14 ng/mL	Does Not Apply
Postmenopausal	0.13-0.82 ng/mL	Does Not Apply
Tanner Stage I	0.05-0.51 ng/mL	0.04-0.32 ng/mL
Tanner Stage II	0.15-1.37 ng/mL	0.08-0.48 ng/mL
Tanner Stage III	0.37-2.24 ng/mL	0.14-0.87 ng/mL
Tanner Stage IV-V	0.35-2.05 ng/mL	0.27-1.07 ng/mL

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Performing Lab:
ARUP

ARUP Test Code:
2001638

ADMINISTRATIVE

CPT Codes:
82157

Last Reviewed:
12/2/23

ANEMIA PANEL (SQ: ANMPRO)

ANMPL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
AND		
1 Lavender Top Tube (EDTA)	3.0 mL	2.0 mL

Other Acceptable Specimen Type (s) for Gold Top Tube ONLY

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Pediatric Collection:
Minimum Volume: 1 full pediatric EDTA microtainer AND 0.5mL serum or plasma

Specimen Preparation:
For EDTA Lavender top tube, send whole blood.
For Gold Top: Centrifuge to separate serum/plasma from cells as soon as possible or within 2 hours. Send 1 mL serum/plasma. Minimum volume 0.5mL.

Unacceptable Conditions:
See individual components.

Storage/Transport Temperature:
Send whole blood at room temperature. If delayed more than 24 hours, send at 2 - 8 degrees C.
Send serum/plasma at 2-8 degrees C.

Stability (from collection to initiation):
For EDTA Whole Blood:

Ambient	Refrigerated	Frozen
24 Hours	48 Hours	Unacceptable

For Serum/Plasma:

Ambient	Refrigerated	Frozen
8 Hours	7 days	6 months

Performed:
Daily

Reference Interval:
See individual components.

Methodology:
Multiple methods. Refer to individual components.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:

- CBC with Differential
- Serum Iron
- TIBC
- Ferritin
- Vitamin B12

ANGIOTENSIN CONVERTING ENZYME, CSF (SQ:ACESFA)

FACE

TESTING INFORMATION

Ordering Recommendations:
Use to support a diagnosis of neurosarcoidosis. May be used to evaluate treatment response.

Collect:
CSF.

Specimen Preparation:
Transfer 1 mL CSF to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
CSF containing gadolinium-based contrast agents. Hemolyzed or xanthochromic specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: 1 week; Frozen: 6 months

Performed:
Mon, Wed, Fri

Reference Interval:
0.0-2.5 U/L

Reported:
1-5 days

Methodology:
Quantitative Spectrophotometry

Notes:
Gadolinium contrast agents have been reported to inhibit ACE activity. Therefore, CSF containing gadolinium-based contrast agents should not be submitted to the laboratory for evaluation.

Performing Lab:
ARUP

ARUP Test Code:
0098974

ADMINISTRATIVE

CPT Codes:
82164

ANGIOTENSIN CONVERTING ENZYME, S (SQ:ANGI1A)

ACES

TESTING INFORMATION

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
EDTA or heparin plasma. Hemolyzed specimens. CSF (refer to Angiotensin Converting Enzyme, CSF test code 0098974).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 1 week; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
0-6 years: 18-90 U/L
7-14 years: 24-121 U/L
15-17 years: 18-101 U/L
18 years and older: 16-85 U/L

Reported:
Within 24 hours

Methodology:
Quantitative Enzymatic Assay

Notes:
Note: Measurement of ACE activity for the evaluation of sarcoidosis is not reliable when ACE inhibitors are present. Serum ACE activity is markedly reduced in patients on ACE inhibitor therapy.

Performing Lab:
ARUP

ARUP Test Code:
0080001

ADMINISTRATIVE

CPT Codes:
82164

ANSER ADA (SQ: ANSADA)

ANADA

TESTING INFORMATION

Collect:

Specimen Type: Serum
Specimen Collection Tube: Serum Separator Tube or Red top Tube (2.0 mL)

Pediatric Collection:

Specimen Type: Serum
Specimen Collection Tube: Serum Separator Tube or Red top Tube (0.5 mL)

Unacceptable Conditions:

Frozen

Storage/Transport Temperature:

Transportation Kit Requirements: Ambient or cold pack acceptable.
Storage Conditions: Room temperature or Refrigerated

Stability (from collection to initiation):

Room temp: 7 days
Refrigeratored: 9 days

Performing Lab:

Prometheus Laboratories

ANSER IFX (SQ: ANSIFX)

ANIFX

TESTING INFORMATION

Collect:

Specimen Type: Serum
Specimen Collection Tube: Serum Seperator Tube or Red-Top tube (2.0 mL)

Pediatric Collection:

Specimen Collection Tube: Serum Seperator Tube or Red-Top tube (0.5 mL)

Unacceptable Conditions:

Frozen

Storage/Transport Temperature:

Transportation Kit Requirements: Ambient or cold pack acceptable
Storage conditions: Room Temperature or Refrigered.

Stability (from collection to initiation):

Room Tempeature: 7 days
Refrigerated: 9 days

Performing Lab:

Prometheus Laboratories

ANSER VDZ (SQ: ANSVDZ)

ANVDZ

TESTING INFORMATION

Collect:
Specimen Type: serum
Specimen Collection Tube: Serum Separator Tube or Red Top Tube (2.0 mL)

Pediatric Collection:
Specimen Type: serum
Specimen Collection Tube: Serum Separator Tube or Red Top Tube (0.5 mL)

Unacceptable Conditions:
Frozen Samples

Storage/Transport Temperature:
Transport Kit Requirements: ambient or cold pack acceptable
Storage Conditions: Room temperature or refrigerated

Stability (from collection to initiation):
Room Temp: 7 days
Refrigerated: 9 days

Reported:
3 days after received at testing laboratory

Performing Lab:
Prometheus Laboratories

Testing Region:
Carle West Region

ANTI PM/SCL 100 AB (SQ:PABIGA)

PABIG

TESTING INFORMATION

Ordering Recommendations:
May be useful when evaluating for systemic sclerosis or connective tissue disease associated with overlapping features of systemic sclerosis and/or myositis.

Collect:
Serum separator tube.

Specimen Preparation:
Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.3 mL)

Unacceptable Conditions:
Plasma. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles).

Performed:
Tue, Thu, Sat

Reference Interval:
Negative

Reported:
1-4 days

Methodology:
Qualitative Immunoblot

Interpretive Data:
The presence of PM/Scl-100 IgG antibody along with a positive ANA IFA nucleolar pattern is associated with connective tissue diseases such as polymyositis (PM), dermatomyositis (DM), systemic sclerosis (SSc), and polymyositis/systemic sclerosis overlap syndrome. The clinical relevance of PM/Scl-100 IgG antibody with a negative ANA IFA nucleolar pattern is unknown. PM/Scl-100 is the main target epitope of the PM/Scl complex, although antibodies to other targets not detected by this assay may occur.

Performing Lab:
ARUP

ARUP Test Code:
2003040

ADMINISTRATIVE

CPT Codes:
86235

Last Reviewed:
12/1/2023

ANTIBODY PANEL (SQ: ABID)

ABID2

TESTING INFORMATION

Collect:
K2 EDTA Pink or Lavender

Remarks:
Do not freeze.

Performed:
Sunday-Saturday

Methodology:
Solid Phase or Tube Agglutination

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

ANTIBODY SCREEN (SQ: ABSCR)

ABS

TESTING INFORMATION

Collect:
6.0mL K2 EDTA Pink or Lavender Whole blood

Pediatric Collection:
2 lavendar microtainers

Unacceptable Conditions:
Frozen Samples

Remarks:
New specimen required every 3 days if patient pregnant/transfused in past 3 months.

Performed:
Sunday-Saturday

Methodology:
Solid Phase or Tube Agglutination

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

ANTIBODY TITER (BLOOD BANK) (SQ: ABTTRT)

TITER

TESTING INFORMATION

Collect:
Two 6.0 mL pink top tubes. (Minimum one 6.0 mL pink top tube)

Specimen Preparation:
Do not freeze

Unacceptable Conditions:
Frozen specimens

Storage/Transport Temperature:
Ambient or refrigerated at 2-8 degrees C.

Performed:
Monday - Friday

Methodology:
Hemagglutination

Performing Lab:
Mississippi Valley Regional Blood Center

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

ANTIGEN TYPING (SQ: AGP)

AGTP2

TESTING INFORMATION

Collect:
6.0 mL of whole blood in K2 EDTA Pink or Lavender

Unacceptable Conditions:
Frozen Samples

Storage/Transport Temperature:
Ambient (room temperature)

Performed:
Daily

Methodology:
Hemagglutination/Solid Phase

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86905

Last Reviewed:
2.23.24

ANTI-ISLET CELL ANTIBODY (SQ: ISLETC)

ISLET

TESTING INFORMATION

Ordering Recommendations:
If pursuing antibody testing to determine autoimmune diabetes mellitus (DM), perform at least two antibody tests. In most cases, use glutamic acid decarboxylase antibody in combination with another antibody test. Other antibody tests include Islet Antigen-2 (IA-2) Autoantibody (3001499), Glutamic Acid Decarboxylase Antibody (2001771), Insulin Antibody (0099228), and Zinc Transporter 8 Antibody (2006196). Most useful to establish autoimmune etiology in previously diagnosed type 1 DM. Do not use to differentiate type 1 DM from type 2 DM, for most cases.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer1 mL serum to an ARUP standard transport tube. (Min: 0.50 mL)

Unacceptable Conditions:
Plasma. CSF. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month.

Performed:
Sun-Sat

Reference Interval:
< 1:4 No antibody detected.

Reported:
1-3 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Interpretive Data:
Islet cell antibodies (ICAs) are associated with type 1 diabetes (T1D), an autoimmune endocrine disorder. ICAs may be present years before the onset of clinical symptoms. To calculate Juvenile Diabetes Foundation (JDF) units: multiply the titer x 5 (1:8 8 x 5 = 40 JDF Units).

Performing Lab:
ARUP

ARUP Test Code:
0050138

ADMINISTRATIVE

CPT Codes:
86341

Last Reviewed:
12/2/2023

ANTIMULLERIAN HORMONE (AMH), S (SQ:AMULLA)

AMH

TESTING INFORMATION

Collect:
Serum separator tube. Also acceptable: Plain red or green (lithium heparin).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 3 weeks (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Effective April 7, 2014

Female, Age	Reference Interval	Male, Age	Reference Interval
6 months - 14 years	0.256-6.345 ng/mL	6-11 months	56.677-495.299 ng/mL
15-17 years	0.861-10.451 ng/mL	1-6 years	33.442-342.450 ng/ml
18-29 years	0.401-16.015 ng/mL	7-9 years	20.245-189.781 ng/mL
30-39 years	0.176-11.705 ng/mL	10-12 years	2.903-178.243 ng/mL
40-45 years	6.282 ng/mL or less	13 years or greater	2.079-30.656 ng/mL
46-50 years	0.064 ng/mL or less		
Post-menopausal	0.003 ng/mL or less		

Reported:
1-3 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2002656

ADMINISTRATIVE

CPT Codes:
82166

Last Reviewed:
12/2/2023

ANTINUCLEAR ANTIBODIES TITER AND PATTERN ONLY (SQ: ANASR)

ANASR

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	1.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	1.0 mL

Specimen Preparation:

Separate serum from cells ASAP.

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1 mL serum or centrifuged gold top refrigerated.

Stability (from collection to initiation):

AFTER SEPARATION FROM CELLS		
Ambient	Refrigerated	Frozen
8 hours	3 days	1 month

Performed:

Variable

Reference Interval:

- Negative
- Positive

Reported:

Variable

Methodology:

Fluorescent Antinuclear Antibody (FANA)

Interpretive Data:

Titers for ANA by IFA start at 1:80. A titer of less than 1:80 does not rule out the possibility of patients having a titer of 1:40, which is considered clinically insignificant.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

86038, 86309

Last Reviewed:

12/2/2023

ANTIPHOSPHOLIPID ANTIBODY PANEL (SQ: APLPNL)

APLNL

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Gold (SST), Green, Red, or 2 blue tops	6 mL	4mL
STAT:	Gold (SST), Green, Red, or 2 blue tops	6 mL	4mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1.0 mL serum or plasma refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Variable

Reference Interval:

Negative: <20 U/mL
Positive: >= 20 U/mL

Methodology:

Multiplex Flow Immunoassy

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

PHLABA (Anti-Cardiolipin IgA)
B2GAA (Beta 2 Glycoprotein IgA)
PHLABG (Anti-Cardiolipin IgG)
B2GAG (Beta 2 Glycoprotein IgG)
PHLABM (Anti-Cardiolipin IgM)
B2GAM (Beta 2 Glycoprotein IgM)

ADMINISTRATIVE

CPT Codes:

86146 X 3
86147 X 3

Last Reviewed:

1/25/24:JLM

ANTITHROMBIN III ANTIGEN, B (SQ:ATIIIA)

A3ACW

TESTING INFORMATION

Ordering Recommendations:
Not recommended as an initial test to detect antithrombin (AT) deficiency. Use to determine subtype in AT-deficient individuals.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
82-136%

Reported:
1-2 days

Methodology:
Microlatex Particle-Mediated Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0030015

ADMINISTRATIVE

CPT Codes:
85301

Last Reviewed:
12/2/2023

APC RESISTANCE PROFILE WITH REFLEX TO FACTOR V LEIDEN (SQ:APCRVA)

APCF5

TESTING INFORMATION

Ordering Recommendations:
Recommended test to detect activated protein C resistance and confirm presence of a factor V Leiden variant. Refer to Factor V Leiden (F5) R506Q Mutation (0097720) for individuals with prolonged baseline clotting times due to anticoagulation or a lupus anticoagulant.

Collect:
Light Blue (Sodium Citrate) AND Lavender (EDTA), Pink (K_2EDTA), or Yellow (ACD Solution A or B). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transport 1.5 mL platelet-poor plasma AND 3 mL whole blood. (Min: 1 mL/each)

Unacceptable Conditions:
Serum, clotted or hemolyzed specimens. Frozen specimens in glass collection tubes.

Storage/Transport Temperature:
Plasma: CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.
Whole Blood: Frozen.

Stability (from collection to initiation):
Plasma: Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months; Frozen at -70°C: 6 months
Whole Blood: Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Mon-Sat

Reference Interval:

Components	Reference Interval
APC Resistance	2.00 or greater

Reported:
1-5 days

Methodology:
Electromagnetic Mechanical Clot Detection/Polymerase Chain Reaction (PCR)/Fluorescence Monitoring

Notes:
If APC resistance is normal, then no further testing will be added. If APC resistance is low, then Factor V Leiden by PCR will be added. Additional charges apply.

Interpretive Data:
Ratios less than 2.00 suggest APC resistance. This method uses factor V deficient plasma; therefore, APC resistance due to a nonfactor V mutation will not be detected. Extreme factor V deficiency or presence of direct oral anticoagulants (DOACs) may cause an unreliable ratio.

Note: If APC resistance is normal, then no further testing will be added. If APC resistance is low, or if a valid result cannot be obtained for the APC portion of the profile, then Factor V Leiden by PCR will be added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
0030192

ADMINISTRATIVE

CPT Codes:
85307; if reflexed, add 81241

APOLIPOPROTEIN B (SQ:APOLBA)

APOLB

TESTING INFORMATION

Patient Preparation:
Fasting specimen.

Collect:
Serum separator tube, plasma separator tube, K2EDTA, lithium heparin

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 8 days; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
Male: 66-133 mg/dL
Female: 60-117 mg/dL

Reported:
Within 24 hours

Methodology:
Quantitative Immunoturbidimetry

Notes:
This protein is found in low density lipoprotein.

Interpretive Data:
A desirable fasting serum Apo B concentration for the prevention of atherosclerotic cardiovascular disease in adults is less than 90 mg/dL. A fasting serum Apo B concentration of 130 mg/dL or greater corresponds to a LDL cholesterol concentration greater than 160 mg/dL and constitutes a risk enhancing factor for atherosclerotic cardiovascular disease in adults.

Performing Lab:
ARUP

ARUP Test Code:
0050029

ADMINISTRATIVE

CPT Codes:
82172

Last Reviewed:
12/2/2023

APOLIPOPROTEIN B/A RATIO (SQ:APLABA)

APLBA

TESTING INFORMATION

Ordering Recommendations:
Acceptable nontraditional secondary cardiovascular risk screen for specific populations.

Patient Preparation:
Fasting specimen recommended.

Collect:
Serum separator tube, plasma separator tube, K2EDTA, lithium heparin

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 8 days; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval	
Apolipoprotein B	**Male**	**Female**
	66-133 mg/dL	60-117 mg/dL
Apolipoprotein A-1	**Male**	**Female**
	104-202 mg/dL	108-225 mg/dL

Reported:
Within 24 hours

Methodology:
Quantitative Immunoturbidimetry

Interpretive Data:
The ratio of apolipoprotein B/A can provide an estimate of the risk for major adverse cardiovascular events in adults.

Apolipoprotein B/A Ratio:	
Low Risk	0.2 - 0.6
Medium Risk	0.61 - 0.90
High Risk	0.91 - 5.0

Performing Lab:
ARUP

ARUP Test Code:
0050028

ADMINISTRATIVE

CPT Codes:
82172 x2

Last Reviewed:
12/2/2023

AQUAPORIN-4 AB ELISA RFLX TO AQUAPORIN-4 AB, IGG BY IFA (SQ:AQP4A)

AQP4A

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
2013327

ADMINISTRATIVE

Last Reviewed:
12/1/2023

ARGININE VASOPRESSIN HORMONE (SQ:ADHORA)

ADHOR

TESTING INFORMATION

Collect:
Lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate plasma from cells ASAP or within 2 hours of collection. Transfer 6 mL plasma to ARUP Standard Transport Tubes and freeze immediately. (Min: 2.5 mL)

Unacceptable Conditions:
Non-frozen specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: 2 hours; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Mon, Wed, Fri

Reference Interval:
Effective May 21, 2012
0.0-6.9 pg/mL

Reported:
3-11 days

Methodology:
Quantitative Radioimmunoassay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0070027

ADMINISTRATIVE

CPT Codes:
84588

Last Reviewed:
12/2/2023

ARSENIC URINE 24 HR (SQ:UAS24A)

UAS24

TESTING INFORMATION

Ordering Recommendations:

Preferred test for the assessment of acute or chronic arsenic exposure. This test is able to differentiate between toxic inorganic and methylated species as well as benign organic forms. Results are reported as total inorganic, total methylated, and organic arsenic

Patient Preparation:

Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, nonessential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48 to 72 hours. High concentrations of iodine may interfere with elemental testing. Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post contrast media exposure.

Collect:

24-hour or random urine collection. Specimen must be collected in a plastic container and refrigerated during collection. ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimens adequately if tested within 14 days of collection.

Specimen Preparation:

Transfer an 8 mL aliquot from a well-mixed collection to ARUP Trace Element-Free Transport Tubes (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 2 mL)

Unacceptable Conditions:

Acid preserved urine. Specimens collected within 72 hours after administration of iodinated or gadolinium-based contrast media. Specimens contaminated with blood or fecal material. Specimens transported in non-trace element-free transport tube (with the exception of the original device).

Remarks:

Record total volume and collection time interval on transport tube and on test request form.

Storage/Transport Temperature:

Refrigerated. Also acceptable: Room temperature or frozen.

Stability (from collection to initiation):

Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 1 year

Performed:

Sun-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
<tr><td>Arsenic Urine - per volume</td><td>0.0-34.9 µg/L</td></tr>
<tr><td>Arsenic Urine - per 24h</td><td>0.0-49.9 µg/d</td></tr>
<tr><td>Arsenic, Urine - ratio to CRT</td><td>0.0-29.9 µg/g CRT</td></tr>
</table>

Reported:

1-5 days

Methodology:

Quantitative High Performance Liquid Chromatography (HPLC) / Quantitative Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Notes:

If total arsenic concentration is found to be elevated based on reference intervals, then Arsenic, Fractionated, will be added to determine the proportion of organic, inorganic, and methylated forms. Additional charges apply.

Interpretive Data:

The ACGIH Biological Exposure Index (BEI) for arsenic in urine is 35 µg/L. The ACGIH BEI is based on the sum of inorganic and methylated species. For specimens with elevated total arsenic results, fractionation is automatically performed to determine the proportions of inorganic, methylated and organic species.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

0025000

ADMINISTRATIVE

CPT Codes:

82175; if reflexed, add 82175

ARTERIAL BLOOD GASES, POCT (SQ: VABG)

PABG

TESTING INFORMATION

Collect:

Collect sample one of the following:

- **Heparinized Syringe**
- **Lithium heparin green top non-gel tube.**

Specimen Preparation:

Syringe collection: Remove needle according to safety guidelines and cap immediately
Lithium Heparin Green Top (non-gel) tube: send whole blood. Do not remove top or centrifuge sample.
Minimum volume: 65 uL

Stability (from collection to initiation):

Capped Syringe: Stable 30 minutes at Room Temperature.

Performed:

Daily

Reference Interval:

Test	Reference Range	Critical Values	Units
pH	7.35-7.45	< 7.2 and > 7.6	
pCO2	35-45	<20 and >70	mmHg
pO2	80-100		mmHg
HCO3	23-29	<10 or > 50	mmol/L
BE	-3 to +3	Not applicable	

Methodology:

Potentiometry, amperometry

Performing Lab:

Methodist, Pekin, Proctor

Testing Region:

Carle West region

Components:

pH
PCO2
PO2
HCO3
BE

ADMINISTRATIVE

Last Reviewed:

2/1/24

ARTHRITIS PROFILE (SQ: ARTPRO)

ATHPL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
AND	1 Lavendar (EDTA) Top Tube	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavendar Microtainer, Minimum 1.0 mL

Unacceptable Conditions:

For Lavendar Top:

- Improper anticoagulant
- Insufficient volume
- Clotted or evidence of fibrin strands
- Hemolyzed
- contaminated with IV fluid
- Incompletely labeled or mislabled
- Stability exceeded
- Frozen

Storage/Transport Temperature:

Whole Blood K2EDTA at 2-8° C

Stability (from collection to initiation):

	Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
Lavendar Top	24 hours	24 hours	unacceptable
Gold Top (seperate within 2 hours of collection)	8 hours	5 days	1 month

Performed:

Daily

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

- ANA (ANTINUCLEAR ANTIBODY) SCREEN (ANABP)
- ANA QUANTITATIVE (ANAT)
- CBC WITH DIFFERENTIAL (CBCWD)
- C-REACTIVE PROTEIN (CRP)
- SEDIMENATION RATE (ESR)
- RHEUMATOID FACTOR, QUANT (RHUF)
- URIC ACID, SERUM (URIC)

ADMINISTRATIVE

CPT Codes:

- ANA (ANTINUCLEAR ANTIBODY) SCREEN (ANABP) - 86038
- ANA QUANTITATIVE (ANAT) - 86039
- CBC WITH DIFFERENTIAL (CBCWD) - 85025
- C-REACTIVE PROTEIN (CRP) - 86140
- SEDIMENATION RATE (ESR) - 85651
- RHEUMATOID FACTOR, QUANT (RHUF) - 86431
- URIC ACID, SERUM (URIC) - 84550

Last Reviewed:

5/1/24

ASO-ANTISTREPTOLYSIN O (SQ: ASOQNT)

ASO

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
Due to Reagent backorders, this test will be sent to ARUP for testing until further notice. use test code ASOQ in Epic - ASOA in lab system when ordering.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Severely lipemic, contaminated or hemolyzed samples.

Storage/Transport Temperature:
Centrifuged gold top or 1 mL serum or plasma: Ambient (room temperature) or 2-8°C
Minimum Volume 0.5 mL

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	3 months

Performed:
Daily

Reference Interval:
0-408 IU/mL

Methodology:
Nephelometry

Interpretive Data:
ASO is performed on the Siemens Vista system. Quantitative results cannot be compared between different methods. Normal ASO values vary with age and season. ASO levels should be interfpreted with clinical data and test results from two specimens obtained 1 -2 weeks apart. Anti-DNase-B testing is recommneded in patients with negative ASO titers when ther is clinical suspicion of a post-streptococcal infection.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86060

Last Reviewed:
2/7/24:TK

ASO-ANTISTREPTOLYSIN O (SQ:ASOA)

ASOQ

TESTING INFORMATION

Ordering Recommendations:
Confirm a prior infection with group A Streptococcus in patients suspected of having a nonsuppurative complication such as acute glomerulonephritis (AGN) or acute rheumatic fever (ARF). DNase-B Antibody (0050220) and Streptolysin O Antibody (ASO) (0050095) antibody tests are generally ordered concurrently.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL)

Unacceptable Conditions:
Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 8 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
0-1 year: Less than 200 IU/mL
2-12 years: Less than 240 IU/mL
13 years and older: Less than 330 IU/mL

Reported:
Within 24 hours

Methodology:
Quantitative Nephelometry

Interpretive Data:
Elevated titers of antideoxyribonuclease B antibody (anti-DNase B) or antistreptolysin O antibody (ASO) indicate a recent group A Streptococcus infection. Anti-DNase B antibodies typically remain elevated longer than ASO and may remain elevated for several months after infection. Patients suspected of having complications related to a recent Streptococcus infection such as acute glomerulonephritis or acute rheumatic fever may have elevated anti-DNase B but normal ASO antibody titers. A negative or very low anti-DNase B and ASO antibody titers, especially from a specimen tested 2 weeks after a suspected infection, indicates unlikely incidence of a recent Streptococcus infection.

Performing Lab:
ARUP

ARUP Test Code:
0050095

ADMINISTRATIVE

CPT Codes:
86060

Aspartate Aminotransferase (SQ: AST)

AST

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Plain Red Tube	6.0 mL	3.0 mL
Methodist	1 Green Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 Lavender (K2-EDTA) Tube		
Pekin & Proctor	1 SST (Gold Top) Tube		

Unacceptable Conditions:
Hemolyzed samples should not be used

Storage/Transport Temperature:
Centrifuged gold top or 1 mL plasma (Min: 0.3 mL) Room temperature or refrigerated. Seperate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):
After separation from cells:

Ambient	Refrigerated	Frozen
3 days	7 days	1 month

Performed:
Sunday-Saturday

Reference Interval:
15-37 U/L

Methodology:
Bichromatic Rate

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84550

Last Reviewed:
2/1/24

ASPERGILLUS (GALACTOMANNAN) AG, S (SQ:ASPAGA)

ASPAG

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of invasive/disseminated aspergillosis.

Collect:
Plain red or serum separator tube.

Specimen Preparation:
Separate serum from cells within 2 hours of collection. Transfer 2 mL serum to a sterile ARUP Standard Transport Tube (ARUP Supply #43115). Available online through eSupply using ARUP Connect(TM) or contact Client Services at (800) 522-2787. (Min: 1 mL)

Unacceptable Conditions:
Plasma. Hemolyzed specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 week

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Aspergillus Galactomannan Antigen, Serum	Negative
Aspergillus Galactomannan Index	By report

Reported:
1-2 days

Methodology:
Semi-quantitative Enzyme Immunoassay

Notes:
For bronchial specimens refer to Aspergillus Galactomannan Antigen by EIA, Bronchoscopy (ARUP test code 2003150). For sputum or tissue specimens, refer to Aspergillus Species by PCR (ARUP test code 3000265).

Interpretive Data:
Negative results do not exclude the diagnosis of invasive aspergillosis. A single positive test result (index equal to or greater than 0.5) should be clinically correlated by testing a separate serum specimen because many agents (e.g. foods, antibiotics) may cross-react with the test. If invasive aspergillosis is suspected in high-risk patients, serial sampling is recommended.

The false-positive rate is higher in children than in adults. (Cancer 91:311, 2001; J.Clin Oncol 20:1898,2002; Mycosis 41:373,1998).

Performing Lab:
ARUP

ARUP Test Code:
0060068

ADMINISTRATIVE

CPT Codes:
87305

ASPERGILLUS AB, CF/ID (SQ: ASPER)

ASPER

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of allergic bronchopulmonary aspergillosis (ABPA) and aspergilloma. For diagnosis of invasive aspergillosis, consider ordering Aspergillus Galactomannan Antigen by EIA, Serum (0060068) or Aspergillus Galactomannan Antigen by EIA, Bronchoscopy (2003150).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP standard transport tube. (Min: 0.8 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Aspergillus Antibodies by CF	Less than 1:8
Aspergillus Antibodies by ID	Not detected

Reported:
3-6 days

Methodology:
Semi-Quantitative Complement Fixation/Qualitative Immunodiffusion

Notes:
The immunodiffusion component of this test uses pooled mycelial-phase culture filtrates of Aspergillus fumigatus, Aspergillus flavus, Aspergillus niger, and Aspergillus terreus.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
0050101

ADMINISTRATIVE

CPT Codes:
86606 x2

Last Reviewed:
12/2/2023

ASPERGILLUS AG, BAL (SQ:ASGAL)

ASPBA

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of pulmonary aspergillosis.

Collect:
Lower respiratory material by bronchoscopy (BAL, fluid, or washings).

Specimen Preparation:
Transfer 2 mL bronchoscopy specimen to a sterile ARUP Standard Transport Tube (ARUP Supply #43115). Available online through eSupply using ARUP Connect(TM) or contact Client Services at (800) 522-2787. (Min: 0.6 mL)

Unacceptable Conditions:
Sputum. Specimens in media or preservatives. Grossly bloody specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 week

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Aspergillus Galactomannan Antigen, BAL by EIA	Negative
Aspergillus Galactomannan Index	By report

Reported:
1-2 days

Methodology:
Semi-quantitative Enzyme Immunoassay

Notes:
For serum specimens, refer to Aspergillus Galactomannan Antigen by EIA, Serum (ARUP test code 0060068). For sputum or tissue specimens, refer to Aspergillus Species by PCR (ARUP test code 3000265).

Interpretive Data:
A BAL galactomannan index of greater than or equal to 0.5 is considered positive. This result should be interpreted in the context of patient history, clinical signs/symptoms, and other routine diagnostic tests (e.g., culture, histologic examination of biopsy material, and radiographic imaging).

Performing Lab:
ARUP

ARUP Test Code:
2003150

ADMINISTRATIVE

CPT Codes:
87305

Last Reviewed:
12/1/2023

ASPERGILLUS FUMIGATUS (SQ: AFMOLD)

ASPF

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

AT3 ENZYMATIC ACTIV (SQ:AT3NZM)

AT3NZ

TESTING INFORMATION

Ordering Recommendations:
Recommended test to detect antithrombin deficiency.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma , clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Age	Reference Interval
1-4 days	39-87%
5-29 days	41-93%
30-89 days	48-108%
90-179 days	73-121%
180-364 days	84-124%
1-5 years	82-139%
6 years	90-131%
7-9 years	90-135%
10-11 years	90-134%
12-13 years	90-132%
14-15 years	90-131%
16-17 years	87-131%
18 years and older	76-128%

Reported:
1-2 days

Methodology:
Chromogenic Assay

Interpretive Data:
Refer to report

Performing Lab:
ARUP

ARUP Test Code:
0030010

ADMINISTRATIVE

CPT Codes:
85300

Last Reviewed:
12/1/2023

AUTOIMMUNE DYSAUTONOMIA PANEL, SERUM (SQ:ADEMA)

ADEMA

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate idiopathic dysautonomia symptoms or to differentiate between autoimmune dysautonomia and the effects of chemotherapy in individuals with autonomic symptoms who are receiving cancer treatment.

Collect:
Serum separator tube (SST)

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer three 1 mL serum aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)

Unacceptable Conditions:
Amniotic fluid, ocular fluid, peritoneal fluid, synovial fluid, CSF, or plasma. Contaminated, hemolyzed, icteric, or lipemic specimens.

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 14 days; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Varies

Reference Interval:

Components	Reference Interval
CV2 Ab IgG CBA-IFA Screen, Serum	Less than 1:100
Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected
Ganglionic Acetylcholine Receptor Ab	8.4 pmol/L or less
DPPX Ab IgG CBA-IFA Screen, Serum	Less than 1:10
CASPR2 Ab IgG CBA-IFA Screen, Serum	Less than 1:10
LGI1 Ab IgG CBA-IFA Screen, Serum	Less than 1:10

Reported:
3-10 days

Methodology:
Semi-Quantitative Cell-Based Indirect Fluorescent Antibody/Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Qualitative Radioimmunoassay (RIA)/Qualitative Immunoblot

Notes:
PCCA/ANNA antibody IgG is screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu) IgG by Immunoblot will be performed. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu) IgG by Immunoblot will be performed. Additional charges apply.
If CASPR2 antibody IgG is positive, then titer will be added. Additional charges apply.
If LGI1 antibody IgG is positive, then titer will be added. Additional charges apply.
If CV2 antibody IgG is positive, then titer will be added. Additional charges apply.
If DPPX antibody IgG by IFA is positive, then titer will be added. Additional charges apply.

Interpretive Data:
Refer to report

Component	Interpretation
Ganglionic Acetylcholine Receptor Antibody	0.0 - 8.4 pmol/L Negative 8.5 - 11.6 pmol/L Indeterminate 11.7 pmol/L or greater Positive

Performing Lab:
ARUP

ARUP Test Code:
3006203

ADMINISTRATIVE

CPT Codes:
83519; 86255 x5; if reflexed add 84182; 86256 per titer

Last Reviewed:
12/2/2023

B PERTUSSIS IGG IMMUNOBLOT (SQ: BPIBGA)

BPIBG

TESTING INFORMATION

Ordering Recommendations:
May be used to provide evidence of vaccination or past infection; test does not determine immunity to B. pertussis. CDC-recommended first-line tests for pertussis are Bordetella pertussis/parapertussis by PCR (0065080) and/or Bordetella pertussis Culture (0060117). If serology is used to assess late-stage pertussis, the recommended test is Bordetella pertussis Antibodies, IgA and IgG by ELISA with reflex to immunoblot (2001774).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Heat-inactivated specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun, Tue, Fri

Reference Interval:
Effective February 19, 2013

Bordetella pertussis Antibody, IgG by Immunoblot	
Components	**Reference Interval**
Bordetella pertussis Ab, IgG by Immunoblot Interp	Negative
B. pertussis, IgG Immunoblot PT100	Negative
B. pertussis, IgG Immunoblot PT	Negative
B. pertussis, IgG Immunoblot FHA	Negative

Reported:
1-4 days

Methodology:
Qualitative Immunoblot

Notes:
This assay tests for the presence of pertussis toxin (PT), pertussis toxin PT 100 (PT-100), and filamentous hemagglutinin antibody (FHA).

Performing Lab:
ARUP

ARUP Test Code:
2004327

ADMINISTRATIVE

CPT Codes:
86615

Last Reviewed:
12/2/2023

B PERTUSSIS IMMUNOBLOT FHA IGA (SQ:BPIBA)

BPIBA

TESTING INFORMATION

Ordering Recommendations:
Not a standalone test. CDC-recommended first-line tests for pertussis are Bordetella pertussis/parapertussis by PCR (0065080) and/or Bordetella pertussis Culture (0060117). If serology is used to assess late-stage pertussis, the recommended test is Bordetella pertussis Antibodies, IgA and IgG by ELISA with Reflex to Immunoblot (2001774).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Contaminated or heat-inactivated specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Tue, Fri

Reference Interval:
Effective February 19, 2013

Bordetella pertussis Antibody, IgA by Immunoblot	
Components	**Reference Interval**
Bordetella pertussis Ab, IgA by Immunoblot Interp	Negative
B. pertussis, IgA Immunoblot PT	Negative
B. pertussis, IgA Immunoblot FHA	Negative

Reported:
1-5 days

Methodology:
Qualitative Immunoblot

Notes:
This assay tests for the presence of pertussis toxin (PT) and filamentous hemagglutinin antibody (FHA).

Performing Lab:
ARUP

ARUP Test Code:
2004316

ADMINISTRATIVE

CPT Codes:
86615

Last Reviewed:
12/2/2023

B.PERTUSSIS, IGM AB (IMMUNOBLOT) CONFIRM (SQ:BPIBM)

BPIBM

TESTING INFORMATION

Ordering Recommendations:
Evaluation of IgM pertussis antibodies has little clinical utility. CDC-recommended first-line tests for pertussis are Bordetella pertussis/parapertussis by PCR (0065080) and/or Bordetella pertussis Culture (0060117).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Heat-inactivated specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Tue, Fri

Reference Interval:
Effective February 19, 2013

Bordetella pertussis Antibody, IgM by Immunoblot	
Components	**Reference Interval**
Bordetella pertussis Ab, IgM by Immunoblot Interp	Negative
B. pertussis, IgM Immunoblot PT	Negative
B. pertussis, IgM Immunoblot FHA	Negative

Reported:
1-5 days

Methodology:
Qualitative Immunoblot

Notes:
This assay tests for the presence of pertussis toxin (PT) and filamentous hemagglutinin antibody (FHA).

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2004326

ADMINISTRATIVE

CPT Codes:
86615

Last Reviewed:
12/2/2023

B.PERTUSSIS/PARAPERTUSSIS PCR (SQ: PCRBPA)

PCRBP

TESTING INFORMATION

Ordering Recommendations:
CDC-recommended test for the diagnosis of pertussis in nasopharyngeal swab and nasal wash specimens.

Collect:
Respiratory specimen: Aspirate, bronchoalveolar lavage (BAL) or swab.

Specimen Preparation:
Fluid: Transfer 2 mL respiratory specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to viral transport media (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787
Swabs: Place in viral transport media.

Unacceptable Conditions:
Calcium-alginate swabs.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 5 days; Frozen: 2 weeks.

Performed:
Sun-Sat

Reported:
1-4 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0065080

ADMINISTRATIVE

CPT Codes:
87798 x2

Last Reviewed:
12/2/2023

B-2-MICROGLOB CSF (SQ:SFB2MA)

SFB2M

TESTING INFORMATION

Ordering Recommendations:
Evaluate central nervous system involvement of certain inflammatory or B-cell proliferative diseases.

Collect:
CSF. Also acceptable: CSF collected in plain red or green (lithium heparin).

Specimen Preparation:
Centrifuge to remove cellular material. Transfer 0.5 mL CSF to an ARUP Standard Transport Tube. (Min: 0.4 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cellular material: Ambient: 72 hours; Refrigerated: 1 week; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:
0.0-2.4 mg/L

Reported:
Within 24 hours

Methodology:
Quantitative Immunoturbidimetry

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0080054

ADMINISTRATIVE

CPT Codes:
82232

BABESIA SPECIES PCR (SQ:LBABA)

LBABA

TESTING INFORMATION

Ordering Recommendations:
First-line test to diagnose acute babesiosis. Detects nucleic acid from Babesia microti, and detects but does not differentiate between B. duncani, B. divergens, and Babesia strains MO-1 and EU-1. Blood smears are also appropriate to diagnose and monitor babesiosis; refer to Parasites Smear (Giemsa Stain), Blood (0049025). If also investigating anaplasmosis or ehrlichiosis, consider Tick-Borne Disease Panel by PCR, Blood (2008670).

Collect:
Lavender (EDTA) or pink (K2EDTA).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.6 mL)

Unacceptable Conditions:
Serum, plasma, and heparinized specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 14 days

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Notes:
This test detects and speciates B. microti. The nucleic acid from B. duncani, B. divergens, strain MO-1, and strain EU-1 will be detected by this test but cannot be differentiated.

Interpretive Data:
A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection by this test.

Performing Lab:
ARUP

ARUP Test Code:
2008665

ADMINISTRATIVE

CPT Codes:
87469; 87798

BACTERIAL DEFINITIVE IDENTIFICATION (SQ: VCBID)

VCBID

TESTING INFORMATION

Collect:
Actively growing isolated organism, in pure culture, on agar slant, plate or appropriate transport media.
Requested volume: 5 mL
Minimum volume: 3 mL

Specimen Preparation:
Ensure plate is labelled with two patient identifiers and date plated.

Unacceptable Conditions:
Non-viable organism, mixed culture, leaking container, organism submitted in liquid media, unproper labeling

Remarks:
Indicate source of organism and any other pertinent information. The selection and extent of tests used for identification vary according to the origin of the specimen from which the microorganisms was isolated and the type of infection suspected or present. Ensure plate

Storage/Transport Temperature:
Submit organism according to Infectious Substance Shipping guidelines.

Performed:
Sunday-Saturday

Methodology:
Stardard reference procedures for identifications

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87077

Last Reviewed:
2/1/24

BARBITUATES CONFIRMATION, U (SQ:BARBUA)

BARU

TESTING INFORMATION

Ordering Recommendations:
Use to obtain quantitative results or to follow up a presumptive result. For general screening, the preferred test is Barbiturates, Urine Screen with Reflex to Quantitation (2012211).

Collect:
Random urine.

Specimen Preparation:
Transfer 3.5 mL urine with no additives or preservatives to an ARUP standard transport tube. (Min: 1.5 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years

Performed:
Tue, Thu, Sat

Reference Interval:

Drugs Covered	Cutoff Concentrations
Butalbital	50 ng/mL
Pentobarbital	50 ng/mL
Phenobarbital	50 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Compare to; Pain Management, Barbiturates, Quantitative, with medMATCH, Urine; Pain Management, Barbiturates, with Confirmation with medMATCH, Urine.

Interpretive Data:
Methodology: Quantitative Gas Chromatography-Mass Spectrometry/Quantitative Liquid Chromatography-Tandem Mass Spectrometry.

Positive cutoff: 50 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
2012213

ADMINISTRATIVE

CPT Codes:
80345 (Alt code: G0480)

Last Reviewed:
12/1/2023

BART. QUINT. AB IGG IGM (SQ:BARTQA)

BARTQ

TESTING INFORMATION

Ordering Recommendations:
May assist in confirming suspected Trench fever in patient with typical signs and symptoms and compatible exposure history.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon, Thu

Reported:
1-8 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Interpretive Data:
Refer to individual components.

Component	Interpretation
Bartonella quintana Antibody, IgG by IFA	< 1:64 Negative - No significant level of Bartonella quintana IgG antibody detected. 1:64-1:128 Equivocal - Questionable presence of Bartonella quintana IgG antibody detected. Repeat testing in 10-14 days may be helpful. >=1:256 Positive - Presence of IgG antibody to Bartonella quintana detected, suggestive of current or past infection.
Bartonella quintana Antibody, IgM by IFA	< 1:16 Negative - No significant level of Bartonella quintana IgM antibody detected. >=1:16 Positive - Presence of IgM antibody to Bartonella quintana detected, suggestive of current or recent infection.

Performing Lab:
ARUP

ARUP Test Code:
0050106

ADMINISTRATIVE

CPT Codes:
86611 x2

Last Reviewed:
12/2/2023

BARTONELLA SPECIES BY PCR (SQ:BARTPA)

BARTP

TESTING INFORMATION

Ordering Recommendations:
Detect Bartonella species in blood, CSF, or tissue.

Collect:
Lavender (EDTA), pink (K_2EDTA) or serum separator tube. Also acceptable: CSF or tissue.

Specimen Preparation:
Separate serum or plasma from cells. Transfer 1 mL serum, plasma, whole blood, or CSF to a sterile container. (Min: 0.5 mL). Tissue: Transfer to a sterile container and freeze immediately. Also acceptable: Formalin-fixed paraffin-embedded (FFPE) tissue.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Whole blood: Refrigerated. FFPE: Room temperature. All others: Frozen.

Stability (from collection to initiation):
Whole Blood: Ambient: 7 days; Refrigerated: 7 days: Frozen: 7 days.
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month.
FFPE: Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable.
All Others: Ambient: 24 hours; Refrigerated: 5 days; Frozen: 1 month.

Performed:
Tue, Fri

Reported:
1-5 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0093057

ADMINISTRATIVE

CPT Codes:
87471

Last Reviewed:
12/1/23

BASIC CHILDHOOD ALLERGEN (SQ: CHILDP)

BCA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	3.0 mL -add 0.1 mL for each additional allergen	1.5 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	3.0 mL	1.5 mL
1 Lavendar Top Tube	3.0 mL	1.5 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP.

Storage/Transport Temperature:

5 mL whole blood (lavender EDTA) at 2-8° C. (Min: 0.7 mL of thoroughly mixed whole blood)

Methodology:

ImmunoCAP/Fluoroenzymeimmunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

86003 x 16 - Allergen
82785 - IgE

Last Reviewed:

2/3/24

BASIC METABOLIC PANEL - FASTING (SQ: BASICF)

BMPF

TESTING INFORMATION

Ordering Recommendations:
Testing is for use in Outpatient settings Only

Patient Preparation:
Fasting defined as: No caloric intake (beverage or food) for 8 hours before the lab test No intake of artificial sweeteners for 8 hours before the lab test.

Collect:

Priority	Specimen Type	Requested Vol.	Min Vol.
Routine:	1 Serum Separator Tube (God Top)	6 mL	3 mL
STAT:	1 Green Top	6 mL	3 mL

Pediatric Collection:
Two full microtainer

Unacceptable Conditions:
Uncapped, hemolyzed, EDTA, Fluoride/Oxalate preserved specimens

Storage/Transport Temperature:
Do not remove cap. If transport will be delayed, separate serum or plasma from cells within 2 hours of collection and transport at 2 to 8 degrees C. Non-gel plasma speicmens must be poured off in to aliquat container prior to transport after being spun.

Stability (from collection to initiation):

	Ambient	Refrigerated	Frozen
Methodist	4 Hours	72 Hours	Indefinitely
Pekin	4 Hours	7 Days	Indefinitely
Proctor	4 Hours	7 Days	Indefinitely

Performed:
Sunday-Saturday

Methodology:
Refer to invidual components

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

Components:
Sodium;Potassium;Chloride;Carbon Dioxide;Calcium;Glucose;BUN;Creatinine

ADMINISTRATIVE

CPT Codes:
80048

Last Reviewed:
12/2/2023

BASIC METABOLIC PANEL (SQ: BASIC)

BMP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:	1 Green Top	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Pediatric Collection:
Two full microtainers.

Unacceptable Conditions:
Uncapped, hemolyzed, contaminated specimens.

Storage/Transport Temperature:
Do not remove cap. If transport will be delayed, separate serum or plasma from cells within 2 hours of collection and transport at 2 to 8 degrees C. Non-gel plasma speicmens must be poured off in to aliquat container prior to transport after being spun.
Minimum volume: 0.5 mL serum or plasma

Stability (from collection to initiation):

	Ambient	Refrigerated	Frozen
Methodist	4 hours	72 hours	Indefinitely
Pekin	4 hours	7 days	Indefinitely
Proctor	4 hours	7 days	Indefinitely

Performed:
Sunday-Saturday

Reference Interval:
Please refer to individual components for reference intervals.

Methodology:
Refer to individual components

Performing Lab:
Methodist, Proctor, and Pekin Hospitals

Testing Region:
Carle West region

Components:
Sodium
Potassium
Chloride
Carbon Dioxide
Calcium
Glucose
BUN
Creatinine

BCR/ABL1, P210 QUANT MONITORING, BLOOD (SQ:BCRABA)

BCRAB

TESTING INFORMATION

Ordering Recommendations:

This quantitative test is appropriate for therapeutic monitoring of BCR::ABL1 major (p210) positive chronic myeloid leukemia (CML) or acute lymphoblastic leukemia/lymphoma (ALL). This test is designed to meet the current National Comprehensive Cancer Network (NCCN) guidelines and is recommended for detection of minimal residual disease (MRD).For patients with uncertain diagnoses or unknown forms of BCR::ABL1 fusion transcripts, consider ordering Diagnostic Qualitative BCR::ABL1 Assay with Reflex to p190 or p210 Quantitative Assays (3005839).

Collect:

Whole blood or bone marrow in lavender (EDTA).

Specimen Preparation:

Whole blood: Transport 5 mL whole blood. (Min: 3 mL)
Bone marrow: Transport 3 mL bone marrow. (Min: 1 mL)
Refrigerate immediately. Specimens must be received within 48 hours of collection due to lability of RNA.

Unacceptable Conditions:

Serum, plasma, extracted DNA, CSF, FFPE tissue, ambient whole blood, or frozen whole blood or bone marrow.
Specimens collected in anticoagulants other than EDTA. Severely hemolyzed or clotted specimens.
Ambient bone marrow specimens past 7 days will be canceled.
Refrigerated whole blood or bone marrow specimens past 7 days will be canceled.

Remarks:

This quantitative test is recommended for therapeutic monitoring and detection of minimal residual disease for patients with an established diagnosis. For patients with uncertain diagnoses or unknown forms of BCR::ABL1 fusion transcripts, please order Diagnostic Qualitative BCR::ABL1 Assay with Reflex to p190 or p210 Quantitative Assays (ARUP test code 3005839).

Storage/Transport Temperature:

Whole blood and bone marrow: CRITICAL REFRIGERATED. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):

Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: Unacceptable

Performed:

Varies

Reported:

5-9 days

Methodology:

Reverse Transcription Polymerase Chain Reaction

Notes:

This test does not detect the BCR::ABL1 micro (p230) or minor (p190) fusion transcripts. This test does not detect rare BCR::ABL1 major (p210) forms involving beyond ABL1 exon 2.

For the p190 fusion form (minor breakpoint), order BCR::ABL1, Minor (p190), Quantitative (ARUP test code 2005016).

Interpretive Data:

Refer to report.

Performing Lab:

ARUP

ARUP Test Code:

3005840

ADMINISTRATIVE

CPT Codes:

81206

Last Reviewed:

12/2/2023

BERMUDA GRASS (SQ: BGRASS)

BEGR

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
Immuno CAP/ Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

BETA 2 - MICROGLOBULIN (SQ: B2MGLB)

B2MGB

TESTING INFORMATION

Collect:
One Gold, Red,Green (Serum)

Unacceptable Conditions:
EDTA plasma samples, hemolyzed or highly lipemic specimens.

Storage/Transport Temperature:
0.3 mL serum at 2-8øC: for one allergen;Add 0.1 mL for each additional allergen.

Performed:
Daily

Methodology:
Chemiluminescent Immunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Cashew nut with reflex to Ana

BETA 2 MICROGLOB URN (SQ:B2MGUA)

B2MGU

TESTING INFORMATION

Ordering Recommendations:
Evaluate renal tubular damage. Monitor exposure to mercury and cadmium.

Patient Preparation:
Void the urinary bladder, then drink a large glass of water (around 500 mL or 17 oz) and collect a urine specimen within 1 hour.

Collect:
Random urine.

Specimen Preparation:
Transfer one 3 mL aliquot from a well-mixed random collection to an ARUP Standard Transport Tube. (Min: 1 mL)
If pH is greater than 8, lower pH to 6-8 by adding 1M HCL. If pH less than 6, increase pH to 6-8 by adding 5% NaOH. Titrate with appropriate preservative until pH of 6-8 has been reached. Record the pH on the transport tube and test request form.

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 48 hours; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:

Effective February 18, 2014	
Components	**Reference Interval**
Beta-2-Microglobulin, Urine	0-300 µg/L
Beta-2-Microglobulin, ratio to CRT	0-300 µg/g CRT

Reported:
Within 24 hours

Methodology:
Quantitative Chemiluminescent Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0080432

ADMINISTRATIVE

CPT Codes:
82232

BETA-2-GLYCOPROTEIN 1 AB, IGM, P (SQ: B2GAM)

B2GM

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
2 NaCit Blue Top Tubes	drawn to marked fill line	drawn to marked fill line

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum/plasma or centrifuged gold top, Refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86146

Last Reviewed:
2/1/24

BETA-2-GLYCOPROTEIN I AB IGA, P (SQ: B2GAA)

B2GA

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
2 NaCit Blue Top Tubes	drawn to marked fill line	drawn to marked fill line

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum/plasma or centrifuged gold top, refrigerated 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86146

Last Reviewed:
2/1/24

BETA-2-GLYCOPROTEIN I AB, IGG, P (SQ: B2GAG)

B2GG

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
2 NaCit Blue Top Tubes	drawn to marked fill line	drawn to marked fill line

Specimen Preparation:

Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1 mL serum/plasma or centrifuged gold top refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Variable

Methodology:

Mutliplex Flow Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86146

Last Reviewed:

2/1/24

BETA-HCG, QUANT. (SQ: HCGQNT)

HCGQ3

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
METHODIST & PEKIN	1 Serum Separator Tube (Gold)	6.0 mL	2.0 mL
PROCTOR	1 Lithium Heparin (Green) - seperate tube for individual testing as of 3/12/24	5.0 mL	

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	2.0 mL
1 Green Top Tube	6.0 mL	2.0 mL

Specimen Preparation:

Recommend transport in original collection tube.

Unacceptable Conditions:

Gross hemolysis, or samples stored more than 8 hrs at room temperature.

Remarks:

This test is not intended to be used for aiding in the diagnosis of cancer, or for monitoring the treatment of cancer patients.

Storage/Transport Temperature:

Ambient (room temperature) or 2-8 degrees C if not received in lab within 8 hours. Separate serum or plasma from cells ASAP or within 2 hours from collection. Recommend transport in original collection tube.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

Non pregnant females, age 18-62 years	1-3 mIU/mL

Methodology:

Chemiluminescent Immunoassay

Notes:

This assay measures free beta subunits plus intact hCG.

Performing Lab:

Methodist Hospital
Proctor Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84702

BETA-HYDROXYBUTYRATE (SQ: BHB)

BHBA2

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	4.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	4.0 mL	3.0 mL
1 Green (no gel) Top Tube	4.0 mL	3.0 mL

Specimen Preparation:
Plasma separated from the cells within 2 hours of collection

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 hours	4 hours for whole blood 1 week for serum, plasma	Unacceptable

Performed:
Sunday-Saturday

Reference Interval:
0.02-0.27 mmol/L

Methodology:
Enzymatic

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
82010

Last Reviewed:
2/1/24

BILE ACIDS, FRACTIONATED (SQ:BASFA)

BILEF

TESTING INFORMATION

Ordering Recommendations:
Aids in the evaluation of liver function and intrahepatic cholestasis of pregnancy. Use to monitor patients on bile acid therapy. This assay is not useful for the diagnosis of inborn errors of bile acid metabolism.

Patient Preparation:
Fasting for a minimum of eight hours prior to specimen collection is recommended.

Collect:
Plain red or serum separator tube.

Specimen Preparation:
After clot formation, centrifuge specimen and pour off serum into a transport tube. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.2 mL)

Storage/Transport Temperature:
Refrigerated. Store specimen refrigerated or frozen.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 2 weeks; Frozen: 3 months

Performed:
Tue, Thu, Sat

Reference Interval:
7 years and older:
Cholic acid (CA) 0-1.9 µmol/L
Chenodeoxycholic acid (CDC) 0-3.4 µmol/L
Deoxycholic acid (DCA) 0-2.5 µmol/L
Ursodeoxycholic acid (UDC) 0-1.0 µmol/L
Total 0-7.0 µmol/L

Reported:
1-6 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Reference intervals were derived using samples obtained after an overnight fast.

Interpretive Data:
The reference intervals were established in fasting individuals. Mild elevation of bile acids could be secondary to nonfasting. For a more accurate interpretation of the results, a fasting specimen is recommended for this test.

Performing Lab:
ARUP

ARUP Test Code:
0092610

ADMINISTRATIVE

CPT Codes:
83789

Last Reviewed:
12/1/2023

BILE ACIDS, TOTAL, S (SQ:BILEA)

BILAT

TESTING INFORMATION

Ordering Recommendations:
Use to detect hepatobiliary dysfunction. Do not order to detect inborn errors of bile acid metabolism. May aid in diagnosis of intrahepatic cholestasis of pregnancy.

Patient Preparation:
Patient should fast for 8 hours prior to collection.

Collect:
Serum separator tube or plasma separator tube. Also acceptable : Lavender (EDTA), Green (Lithium heparin)

Specimen Preparation:
Allow specimen to clot completely at room temperature before centrifugation. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Body fluids. Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 2 weeks; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
0-10 µmol/L

Reported:
Within 24 hours

Methodology:
Quantitative Enzymatic Assay

Interpretive Data:
Reference interval applies to fasting specimens.

Performing Lab:
ARUP

ARUP Test Code:
0070189

ADMINISTRATIVE

CPT Codes:
82239

Last Reviewed:
12/2/2023

BILIRUBIN, DIRECT (SQ: DBIL)

DBIL

COLLECTION DEVICE

Preferred Collection Device:
Light Protected Gold SST

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Green (Li-heparin) Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 Lavender (K2-EDTA) Tube		
Pekin & Proctor	1 SST (Gold Top) Tube		

Specimen Preparation:
Protect from light.
Allow specimen to clot adequately prior to centrifugation.
Separate serum/plasma from cells as soon as possible, or within two hours of collection

Storage/Transport Temperature:
1 mL serum/plasma, refrigerated at 2-8°C . (Min: 0.5 mL)

Stability (from collection to initiation):

After separated from cells, and protected from light:		
Ambient	Refrigerated	Frozen
4 hours	5 days	3 months

Performed:
Sunday-Saturday

Reference Interval:

0-1 week	<0.6 mg/dL
1 week and older	0.0-0.3 mg/dL

Methodology:
Bichromatic Endpoint

Performing Lab:
Methodist, Pekin, and Proctor

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

BILIRUBIN, TOTAL (SQ: TBIL)

TBIL

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Green (Li-heparin) Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 Lavender (K2-EDTA) Tube		
Pekin & Proctor	1 SST (Gold Top) Tube		

Pediatric Collection:

Neonatal:Methodist: Pre-warm collection site. Fill one amber, red top:microtainer, full (Min: 0.5 mL) and centrifuge within 2 hours ofcollection.;Proctor: Pre-warm collection site. Fill one amber, lithiumheparin, red top microtainer, full (Min: 0.5 mL) and centrifugewithin 2 hours of collection.

Specimen Preparation:

Separate serum or plasma from cells as soon as possible or within two hour of collection.
Keep sample proctected from light.

Unacceptable Conditions:

Not protected from light.

Remarks:

Use of this assay is not recommended for patients undergoing treatment with eltrombopag due to potential for the falsely elevated results.

Storage/Transport Temperature:

Send serum/plasma, protected from light, refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	5 days	6 months

Performed:

Sunday-Saturday

Reference Interval:

Expected values: mg/dL	
Age	Reference Range
0-1 day	2.0-6.0
1-2 days	6.0-10.0
3-5 days	4.0-8.0
6-14 days	< 15.0
15-30 days	<1.0
> 30 days	0.2-1.0

Critical Results for Newborn:	
0-1 day	>10 mg/dL
1-2 days	>12 mg/dL
2-3 days	>12mg/dL
3-30 days	>= 15 mg/dL

Methodology:

Photometric

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82247

Last Reviewed:
1/31/24:JLM

BK VIRUS BY QUANTITATIVE NAAT, PLASMA (SQ:PBKVQA)

BKQNP

TESTING INFORMATION

Ordering Recommendations:
Use to detect and quantify BK virus in plasma.

Collect:
Lavender (EDTA), pink (K2EDTA), or plasma preparation tube (PPT).

Specimen Preparation:
Separate from cells within 24 hours of collection. Transfer 2mL plasma to an ARUP standard transport tube (ARUP supply #15824). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Minimum volume, 1mL)

Unacceptable Conditions:
Heparinized specimens, whole blood, serum. Urine (refer to BK Virus by Quantitative NAAT, Urine, ARUP test code 3006075).

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hrs; Refrigerated: 6 days; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
Not detected

Reported:
1-3 days

Methodology:
Quantitative Polymerase Chain Reaction

Notes:
The limit of quantification for this assay is 1.33 log IU/mL (21.5 IU/mL). If the assay DETECTED the presence of the virus but was not able to accurately quantify the viral load, the test result will be reported as "Not Quantified, Detected."

Interpretive Data:
The quantitative range of this assay is 1.33-8.00 log IU/mL (21.5-100,000,000 IU/mL)

An interpretation of "Not Detected" does not rule out the presence of inhibitors or BKV DNA concentration below the level of detection of the assay. Care should be taken in the interpretation of any single viral load determination.

International standardization has improved comparability of assay results across laboratories, but discrepancies still exist due to commutability issues with the standard.

Performing Lab:
ARUP

ARUP Test Code:
3006076

ADMINISTRATIVE

CPT Codes:
87799

BK VIRUS BY QUANTITATIVE NAAT, URINE (SQ:UBKVA)

BKQU

TESTING INFORMATION

Ordering Recommendations:
Use to detect and quantify BK virus in urine.

Collect:
Urine.

Specimen Preparation:
Immediately transfer urine to a cobas® PCR urine sample tube (ARUP supply #58056 PK/100 or #58084 PK/10) available online through eSupply using ARUP Connect or contact Client Services at 800-522-2787. Liquid level must be between the black fill lines on the tube.

Unacceptable Conditions:
Under- or over-filled tubes. Specimens in any transport media other than indicated above. Neat urine. Plasma (refer to BK Virus by Quantitative NAAT, Plasma, ARUP test code 3006076).

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
Urine in media: Ambient: 90 days; Refrigerated: 90 days; Frozen: Unacceptable.

Performed:
Sun-Sat

Reference Interval:
Not detected

Reported:
1-3 days

Methodology:
Quantitative Polymerase Chain Reaction

Notes:
The limit of quantification for this assay is 2.30 log IU/mL (200 IU/mL). If the assay DETECTED the presence of the virus but was not able to accurately quantify the viral load, the test result will be reported as "Not Quantified, Detected".

Interpretive Data:
The quantitative range of this assay is 2.30-8.00 log IU/mL (200-100,000,000 IU/mL).

An interpretation of "Not Detected" does not rule out the presence of inhibitors or BKV DNA concentration below the level of detection of the assay. Care should be taken in the interpretation of any single viral load determination.

International standardization has improved comparability of assay results across laboratories, but discrepancies still exist due to commutability issues with the standard.

Performing Lab:
ARUP

ARUP Test Code:
3006075

ADMINISTRATIVE

CPT Codes:
87799

BLASTO AB BY IMMUNODIFFUSION, SERUM (SQ: BLADRM)

BLADR

TESTING INFORMATION

Ordering Recommendations:
Use to detect Blastomyces antibodies in serum. Not recommended as a standalone test. For more complete serologic testing, refer to Blastomyces dermatitidis Antibodies by Immunoassay with Reflex to Immunodiffusion, Serum (3000236). For diagnosis of blastomycosis, consider testing in conjunction with histology or culture.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Not Detected

Reported:
3-6 days

Methodology:
Immunodiffusion

Notes:
This immunodiffusion test detects total antibodies to the 'A' antigen of Blastomyces dermatitidis.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
0050172

ADMINISTRATIVE

CPT Codes:
86612

Last Reviewed:
12/2/2023

BLASTOMYCES AB, S (SQ:BLAABS)

BLSTO

TESTING INFORMATION

Ordering Recommendations:
Use to detect Blastomyces antibodies in serum. For diagnosis of blastomycosis, consider testing in conjunction with histology or culture.

Collect:
Serum Separator Tube.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Blastomyces Antibodies EIA, SER	0.9 IV or less

Reported:
2-6 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Immunodiffusion

Notes:
This immunoassay detects total antibodies against yeast-phase antigens from Blastomyces dermatitidis.
If Blastomyces antibodies are equivocal or positive by immunoassay then Blastomyces dermatitidis Antibodies by Immunodiffusion will be added. Additional charges apply.

Interpretive Data:

Component	Interpretation
Blastomyces Antibody by EIA, SER	0.9 IV or less Negative 1.0-1.4 IV Equivocal 1.5 IV or greater Positive

Performing Lab:
ARUP

ARUP Test Code:
3000236

ADMINISTRATIVE

CPT Codes:
86612; if reflexed, add 86612

Last Reviewed:
12/1/2023

BLOOD BANK HOLD TUBE (SQ: BBHOLD)

BB-HT

TESTING INFORMATION

Storage/Transport Temperature:
Whole blood, Plnk (EDTA). (Min: 6.0 mL of thoroughly mixed whole blood)

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

BLOOD CULTURE (SQ: VCBL)

VCBL

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Blood	Bactec Plus - Gray Flip Cap (Aerobic) Bactec Plus - Purple Flip Cap (Anaerobic)	10 mL
Blood - Pediatric	Peds Plus - Pink Flip Cap (Pediatric)	0.5 - 5.0 mL

20 ml/set (10 ml per bottle) Inoculate aerobic (gray) bottle first. If insuffiecient volume of blood is available (less than 20 ml), fill aerobic bottle first. pediatric bottles will hold 0.5 - 5.0 ml of blood. Invert bottles several times after collection. Send specimens immediately to the labortory.

Follow proper cleaning technique prior to the draw by scrubbing venipuncture site for 30 seconds with ChloraPrep (Chlorhexidine), Flip off caps of each culture vial and clean the rubber stoppers with alcohol wipes.

Unacceptable Conditions:

No more than three (3) sets of Blood Cultures in a 24-hours period. Refrigerate specimen bottles.

Remarks:

Draw Blood cultures before antibiotics are initiated. If patient is currently on antibiotics, draw the culutes just prior to the next scheduled antibiotic dose. Do not collect Pediatric bottles from adults or children over 2 years of age.

Storage/Transport Temperature:

Send immediately to laboratory. Do not refrigerate.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	n/a	n/a

Performed:

Sunday - Saturday

Methodology:

Standard reference procedure for aerobic bacterial stain, culture and identification.

Notes:

Gram Stain, identification and susceptibility test are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

2/6/2024

BLOOD CULTURE ID PCR PANEL (SQ: BDCPCR)

BCID2

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

BLOOD GAS, ARTERIAL (SQ: ABGS)

RABG

TESTING INFORMATION

Collect:
Collect 2mL Arterial blood in heparinized syringe.

Specimen Preparation:
Remove needle, cap syringe tightly. Gently mix sample well. Specify O2 therapy. Patient temperature in celsius, if indicated.

Unacceptable Conditions:
Uncapped, needle attached, clotted specimen, insufficient quantity, wrong anticoagulant or contaminated or gross hemolysis.

Storage/Transport Temperature:
Immediately at room temperature. Must be tested within 30 minutes from collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
30 min	unacceptable	unacceptable

Performed:
Sunday - Saturday

Reference Interval:

Component	Range	Measurement	Critical
pH	7.35 - 7.45		<7.2 and >7.6
pCO^2	35 - 45	mmHg	<20 and >70
pO^2	80 - 100	mmHg	<40
$cHCO^3$	22 - 28	mmol/L	<10 and >50
Bass excess/deficient	-3 - 3	mmol/L	
sO^2	96 - 100	%	

Reported:
Immediately

Methodology:
Potentiometry

Performing Lab:
Methodist, Pekin and Proctor Hospitals

ADMINISTRATIVE

CPT Codes:
82805

Last Reviewed:
12/2/2023

BLOOD GAS, ARTERIAL, CORD (SQ: UABG)

UABG

TESTING INFORMATION

Ordering Recommendations:
replacement test of as 11/16 for test POC182

Collect:
1 mL arterial cord blood in heparinized capped syringe- Label syringe with site.

Unacceptable Conditions:
Uncapped, needle attached, clotted, insufficient quantity, wrong anticoagulant or contaminated or gross hemolysis.

Storage/Transport Temperature:
Transport to lab immediately, at room temperature. Must be tested within 30 minutes from collection.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
30 minutes		Unacceptable		Unacceptable

Performed:
Daily

Reference Interval:

pH	7.14-7.42
pCO2	34-78 mmHg
pO2	3-40 mmHg
cHCO3	21-29 mmol/L
Base Excess	-7 to 2 mmol/L
Base Deficient	-6 to 2 mmol/L
sO2	0-17%

Methodology:
Potentiometry

Performing Lab:
Methodist, Pekin, and Proctor

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82805

Last Reviewed:
1/25/24:JLM

Blood Gas, Cord Venous; (SQ: UVBG)

UVBG

TESTING INFORMATION

Collect:
1mL venous cord blood in heparinized capped syringe. Label syringe with site.

Unacceptable Conditions:
Uncapped, needle attached, clotted, insufficient quantity, gross hemolysis, wrong anticoagulant or contaminated.

Storage/Transport Temperature:
Transport to lab immediately at room temperature. Must be tested within 30 minutes from collection.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
30 minutes		Unacceptable		Unacceptable

Performed:
Daily

Reference Interval:

pH	7.22-7.44
pCO2	30-63 mmHg
pO2	12-43 mmHg
cHCO3	20-28 mmol/L
Base Excess/Deficit	-6 to 2 mmol/L
sO2	5-20%

Methodology:
Potentiometry, amperometry, optical O2, spectrophotometry

Performing Lab:
Methodist, Pekin, Proctor

Testing Region:
Carle West region

Components:
pH
pCO2
pO2
cHCO3
Base Excess/Deficit
sO2

ADMINISTRATIVE

CPT Codes:
82805

Last Reviewed:
1/25/24: JLM

BLOOD GAS, VENOUS (SQ: VBG)

RVBG

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
Sodium or Lithium Heparin NON-GEL and full tube	6.0 mL	6.0 mL

Specimen Preparation:

Tube must remain capped and delivered immediately to lab. It is important that syringes or green top tube be filled completely to minimize dilution and/or heparin effects. Do not centrifuge specimen.

Unacceptable Conditions:

Clotted specimens, insufficient quantity, wrong anticoagulant or contaminated, gross hemolysis, uncapped or centrifuged.

Storage/Transport Temperature:

Immediately at room temperature. Must be tested within 30 minutes from collection

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
30 min	unacceptable	unacceptable

Performed:

Daily

Reference Interval:

Component	Range	Measurement	Critical
pH	7.31 - 7.41		<7.2 and >7.6
pCO^2	41 - 51	mmHg	
pO^2	30 - 40	mmHg	<40
$cHCO^3$	23 - 29	mmol/L	<10 and >50
Bass excess/deficient	-3 - 3	mmol/L	

Reported:

Immediately

Methodology:

Potentiometry

Performing Lab:

Methodist, Pekin and Proctor Hospitals

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82805

Last Reviewed:

1/26/24: JLM

BODY FLUID CRYSTALS (SQ: FCRYST)

FCRST

COLLECTION DEVICE

Preferred Collection Device:

Sterile container
K2EDTA Lavender top

TESTING INFORMATION

Collect:

Collect at least 1mL of Body Fluid into sterile container or K2EDTA Lavender Top Tube.
Minimum volume: 500uL

Specimen Preparation:

- Specimens should be tested as soon as possible to avoid cell degradation
- Specify source of fluid

Unacceptable Conditions:

Insufficient volume
Frozen sample
Collection into inappropriate additive, other than K2EDTA
Contaminated
Incompletely labeled or mislabeled
Stability exceeded

Storage/Transport Temperature:

Transport fluid in appropriate container at 2-8°C

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
4 hours		24 hours		Unacceptable

Performed:

Daily

Reference Interval:

The reference interval(s) and other method performance specifications are unavailable for this body fluid. Comparison of the result with concentration in the blood, serum, or plasma is recommended.

Methodology:

Manual centrifugation

Performing Lab:

Methodist

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

2/5/24:ME

BODY FLUID CULTURE WITH GRAM STAIN (SQ: VCBFC)

VCBFC

TESTING INFORMATION

Collect:

Aspirate, including CSF shunt

Acceptable sources:

- Joint Fluid/Synovial
- Thoracentesis
- Pleural
- Paracentesis
- Ascites
- Peritoneal
- Pericardial
- Cul-de-centesis
- Jackson-Pratt

If source NOT listed above, please order VCAAN (Aerobic/Anaerobic culture with gram stain)

Unacceptable Conditions:

Non-sterile or leaking containers, specimens submitted in blood culture bottles, specimens submitted in anticoagulant other than SPS, syringe with needle attached.

Remarks:

Client is notified of positive stain/culture. Do not place body fluid in e-swab container, place in sterile container, syringe or tube.

Stability (from collection to initiation):

ANAEROBIC TRANSPORT KIT		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
24 hours	24 hours	not acceptable

STERILE CONTAINER/CAPPED SYRINGE		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
plate ASAP	plate ASAP	

Performed:

Sunday-Saturday

Methodology:

Standard reference procedure for bacterial stain, culture and identification. Anaerobe culture performed on properly collected specimens.

Notes:

Gram stain, identification and susceptibility tests are billedseparately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

87070
87075
87205

Last Reviewed:

1/23/24

BODY FLUID CYTOLOGY

BFCYT

TESTING INFORMATION

Ordering Recommendations:

The exact specimen source, including laterality if applicable, must be included in the order and on the spcimen container. Do not abbreviate L or R to indicate Left or Right. Any pertinent clinical history should be included on the order. Each specimen requires an individual Body fluid cytoldy order in Epic.

Collect:

Fresh, Unfixed Specimen

Clean specimen container with no additives
Routine: Body Fluid - Container and volumes vary according to source and availability. Please send as much fluid as possible in a clean container to Cytology for evaluation. If available, at least 500 ml preferred for pleural, perioteneal, and pericardial fluids.

BODY FLUID, ALBUMIN (SQ:BFALBA)

BFLBA

TESTING INFORMATION

Ordering Recommendations:
Aids in the evaluation of ascites.

Collect:
Body fluid.

Specimen Preparation:
Centrifuge and separate to remove cellular material. Transfer 1 mL body fluid to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Contaminated or grossly hemolyzed specimens. Needle sent with specimen.

Remarks:
Indicate source on the test request form.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cellular material: Ambient: Unacceptable; Refrigerated: 1 month; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Not established

Reported:
1-3 days

Methodology:
Quantitative Immunoturbidimetry/Quantitative Spectrophotometry

Performing Lab:
ARUP

ARUP Test Code:
0050024

ADMINISTRATIVE

CPT Codes:
82042

Last Reviewed:
12/2/2023

BODY FLUID, LDH (SQ:BFLDHA)

BFLHA

TESTING INFORMATION

Ordering Recommendations:
Refer to aruplab.com/bodyfluids for clinical indications and interpretive information.

Collect:
CSF, Pericardial, Peritoneal/Ascites, Pleural, or Synovial fluid.

Specimen Preparation:
Centrifuge to remove cellular material. Transfer 1 mL body fluid to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Unacceptable Conditions:
Specimen types other than those listed. Specimens collected in EDTA, potassium oxalate, or sodium fluoride. Hemolyzed specimens. Specimens too viscous to be aspirated by instrument.

Remarks:
Specimen source must be provided.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 4 days; Frozen: 6 weeks

Performed:
Sun-Sat

Reported:
Within 24 hours

Methodology:
Quantitative Enzymatic Assay

Interpretive Data:
For information on body fluid reference ranges and/or interpretive guidance visit http://aruplab.com/bodyfluids/

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0020505

ADMINISTRATIVE

CPT Codes:
83615

Last Reviewed:
12/2/2023

BONE ALKALINE PHOSPHATASE, S (SQ:BAPA)

BAP

TESTING INFORMATION

Collect:
Serum separator tube. Also acceptable: Green (sodium or lithium heparin).

Specimen Preparation:
Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Urine. Grossly hemolyzed specimens.

Storage/Transport Temperature:
FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: 2 hours; Refrigerated: 48 hours; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
Effective November 14, 2011

Age	Male	Female
6 months-2 years	31.6- 122.6 µg/L	33.4- 145.3 µg/L
3-6 years	31.3-103.4 µg/L	32.9-108.6 µg/L
7-9 years	48.6-140.4 µg/L	36.3-159.4 µg/L
10-12 years	48.8-155.5 µg/L	44.2-163.3 µg/L
13-15 years	27.8-210.9 µg/L	14.8-136.2 µg/L
16-17 years	15.3-126.8 µg/L	10.5-44.8 µg/L
18-24 years	10.0- 28.8 µg/L	
25 years and older	6.5-20.1 µg/L	
Premenopausal Female		4.5-16.9 µg/L
Postmenopausal Female		7.0-22.4 µg/L

Reported:
Within 24 hours

Methodology:
Quantitative Immunoassay

Interpretive Data:
Liver alkaline phosphatase can affect the measurement of bone specific alkaline phosphatase in this assay. Each 100 U/L of liver alkaline phosphatase contributes an additional 2.5 to 5.8 µg/L to the bone specific alkaline phosphatase result.

Performing Lab:
ARUP

ARUP Test Code:
0070053

ADMINISTRATIVE

CPT Codes:
84080

BONE MARROW EXAM (SQ: BONE MARROW)

BMORD

TESTING INFORMATION

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

BORDETELLA PERTUSSIS ANTIBODY (SQ:BPABSA)

BPBSA

TESTING INFORMATION

Ordering Recommendations:

If serology is used to assess late-stage pertussis (>4 weeks), the recommended test is Bordetella pertussis Antibodies, IgA and IgG by ELISA with Reflex to Immunoblot (2001774). CDC-recommended first-line tests for pertussis are Bordetella pertussis/parapertussis by PCR (0065080) and/or Bordetella pertussis Culture (0060117).

Collect:

Serum separator tube.

Specimen Preparation:

Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL) Parallel testing is preferred, and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:

Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Remarks:

New York State Clients: There are no NY approved tests available for the IgM component of this assay. NYSDOH will not approve NPL requests for IgM.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year
New York State Clients: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 1 month

Performed:

Tue, Fri

Reference Interval:

Components	Reference Interval
B. pertussis Ab, IgA by ELISA	1.1 IV or less
B. pertussis Ab, IgG by ELISA	1.04 IV or less
B. pertussis Ab, IgM by ELISA	1.1 IV or less

Reported:

1-5 days

Methodology:

Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Qualitative Immunoblot

Notes:

If Bordetella pertussis Antibody, IgA by ELISA is 1.2 IV or greater, then Bordetella pertussis IgA Immunoblot testing will be added; if Bordetella pertussis Antibody, IgG by ELISA is 1.05 IV or greater, then Bordetella pertussis IgG Immunoblot testing will be added; If Bordetella pertussis Antibody, IgM by ELISA is 1.2 IV or greater, then Bordetella pertussis IgM Immunoblot testing will be added. Additional charges apply.

Interpretive Data:

Recommend that treatment decisions be based on the result of the B. pertussis IgM immunoblot test instead of the ELISA test. B. pertussis IgM test by ELISA may produce false-positive results.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
Bordetella pertussis Antibody, IgA by ELISA	0.9 IV or less: Negative - No significant level of detectable Bordetella pertussis IgA antibody. 1.0-1.1 IV: Equivocal - Repeat testing in 10-14 days may be helpful. 1.2 IV or greater: Positive - IgA antibody to Bordetella pertussis detected, which may indicate a current or past exposure/immunization to B. pertussis.
Bordetella pertussis Antibody IgG by ELISA	0.94 IV or less: Negative - No significant level of detectable B. pertussis IgG antibody. 0.95-1.04 IV: Equivocal - Repeat testing in 10-14 days may be helpful. 1.05 IV or greater: Positive - IgG antibody to B. pertussis detected, which may indicate a current or recent exposure/immunization to B. pertussis.
Bordetella pertussis Antibody IgM by ELISA	0.9 IV or less: Negative - No significant level of detectable B. pertussis IgM antibody. 1.0-1.1 IV: Equivocal - Repeat testing in 10-14 days may be helpful. 1.2 IV or greater: Positive - IgM antibody to B. pertussis detected, which may indicate a current or recent exposure/immunization to B. pertussis

Performing Lab:

ARUP

ARUP Test Code:

2001775

ADMINISTRATIVE

CPT Codes:

86615 x3; if reflexed, add 86615 for each Immunoblot

Last Reviewed:

12/2/2023

BREAST CARCINOMA ASSOC AG(CA 27.29) (SQ:CA2729)

C2729

TESTING INFORMATION

Ordering Recommendations:
Monitor therapy and identify disease recurrence in individuals with a metastatic breast cancer diagnosis. Do not use for diagnosis or screening of breast cancer.

Collect:
Plain red or serum separator tube or EDTA plasma.

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 7 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
Effective August 16, 2021
Less than or equal to 39 U/mL

Reported:
Within 24 hours

Methodology:
Quantitative Chemiluminescent Immunoassay

Interpretive Data:
Test Information: The CA 27.29 assay is intended for use in monitoring: 1) disease progression and/or response to therapy in patients with metastatic disease, and 2) disease recurrence in patients treated previously for stages II or III breast carcinoma who are clinically free of the disease. Serial testing in patients who are clinically free of disease should be used in conjunction with other clinical methods for early detection of cancer recurrence.

Limitations: Patients with confirmed breast carcinoma frequently have CA 27.29 assay values in the same range as healthy individuals. Elevations may also be observed in patients with non-malignant disease. Results of this test must always be interpreted in the context of morphologic and other relevant data and should not be used alone for a diagnosis of malignancy.

Methodology: Siemens Atellica IM BR 27.29 (BR) chemiluminescent immunoassay was used. Results obtained with different assay methods or kits cannot be used interchangeably.

Performing Lab:
ARUP

ARUP Test Code:
0080392

ADMINISTRATIVE

CPT Codes:
86300

Last Reviewed:
12/2/2023

Breath Hydrogen, Frucoste (SQ:VH2BF)

VH2BF

TESTING INFORMATION

Ordering Recommendations:

Must be scheduled at Methodist Outpatient Laboratory, specify test/type of sugar when scheduling. Contact scheduling at 309-671-8282 for appointment at the Methodist Outpatient Lab

Patient Preparation:

Patients must be fasting for 10-12 hours and have been on a white diet for at least 24 hours prior to the administration of the tests substance. Written instructions to be given to patient at providers office. Contact laboratory personnel with questions concerning patient preparation and specimen collection.

Collect:

Specimen Type	Collection Container	Volume
	Breath Hydrogen Bag	Varies depending on test

Unacceptable Conditions:

- Failure to follow diet and fasting protocol
- Failure to follow collection protocol
- Specimens greater than 6 hours old

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
6 hours	not acceptable	not acceptable

Performing Lab:

Methodist Hospital

ADMINISTRATIVE

CPT Codes:

91065

Last Reviewed:

12/2/24

Breath Hydrogen, Glucose (Small Intestinal Bacterial Overgrowth) (SQ: VH2BG)

VH2BG

TESTING INFORMATION

Ordering Recommendations:

Must be scheduled at Methodist Outpatient Labortory, specify test/type fof sugar when scheduling. Contact scheduling at 309-671-8282 for appointment at the Methodist Outpatient Laboratory

Patient Preparation:

Patients must be fasting for 10-12 hours and have been on a white diet for at least 24 hours prior to the administration of the tests substance. Written instructions to be given to patient at providers office. Contact laboratory personnel with questions concerning patient preparation and specimen collection.

Collect:

Specimen Type	Collection Container	Volume
	Breath Hydrogen Bag	Varies depending on test

Unacceptable Conditions:

- Failure to follow diet and fasting protocol
- Failure to follow collection protocol
- Specimens grater than 6 hours old.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
6 hours	unacceptable	unacceptable

Performing Lab:

Methodist Hospital

ADMINISTRATIVE

CPT Codes:

91065

Last Reviewed:

12/2/23

Breath Hydrogen, Lactose (VH2BL)

VH2BL

TESTING INFORMATION

Ordering Recommendations:

Must be scheduled at Methodist Outpatient Laboratory, specify test/type of sugar when scheduling. Contact scheduling at 309- 671-8282 for appointment at the Methodist Outpatient Laboratory.

Patient Preparation:

Patients must be fasting for 10-12 hours and have been on a white diet for at least 24 hours prior to the administration of the tests substance. Written instructions to be given to patient at providers office. Contact laboratory personnel with questions concerning patient preparation and specimen collection.

Collect:

Specimen Type	Collection Container	Volume
	Breath Hydrogen Bag	Varies depending on test

Unacceptable Conditions:

- Failure to follow diet and fasting protocol
- Failure to fllow collection protocol
- Specimens greater than 6 hours old

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
6 hours	unacceptable	unaceptable

Performing Lab:

Methodist Hospital

ADMINISTRATIVE

CPT Codes:

91065

Last Reviewed:

12/2/23

BRONCHIAL CULTURE, QUANTITATIVE (SQ: VCBRN)

VCBRN

TESTING INFORMATION

Ordering Recommendations:

For Bronchial biopsy please refer to Tissue Culture (EPIC: VCTIS)

Collect:

Specimen Type	Collection Container	Volume
Bronchial brushings, BAL secretions, washings or biopsy.	Sterile Container	

Unacceptable Conditions:

Non-sterile or leaking containers

Storage/Transport Temperature:

Sterile, leak-proof container. Send immediately to laboratory. Refrigerate if processing is delayed.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 hours	24 hours	unacceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedure for aerobic bacterial stain, culture and identification.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87070 - Culture Aerobic
87205 - Gram Stain

Last Reviewed:

1/19/24

BRUCELLA TOTAL AB, AGGLUTINATION, S (SQ: BRUABA)

BRUCS

TESTING INFORMATION

Ordering Recommendations:
Recommended serology test to detect recent infection from Brucella in the context of a clinically compatible illness and exposure history.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens.

Unacceptable Conditions:
Contaminated, heat-inactivated, hemolyzed, or severely lipemic specimens.

Remarks:
Mark specimens plainly as "acute" or "convalescent."

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 6 months (avoid repeated freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:
Less than 1:20 Negative

Reported:
2-4 days

Methodology:
Semi-Quantitative Agglutination

Interpretive Data:
Cross-reactions may occur between Brucella and F. tularensis antigens and antisera; therefore, parallel tests should be run with these antigens. A fourfold rise in titer is considered diagnostic. A single serum titer of 1:80 or 1:160 is suggestive of brucellosis when accompanied by a compatible clinical course in a patient with a history of potential exposures.

Performing Lab:
ARUP

ARUP Test Code:
0050135

ADMINISTRATIVE

CPT Codes:
86622

Last Reviewed:
12/1/2023

BUN (SQ: BUN)

BUN

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	2.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	2.0 mL
1 Green Lithium Heparin Tube	6.0 mL	2.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection.

Storage/Transport Temperature:
1 mL plasma or serum at 2-8°C. (Min: 0.5 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
3 days	7 days	Indefinitely

Performed:
Sunday-Saturday

Reference Interval:

Age	Female (mg/dL)	Male (mg/dL)
0-14 days	3-23	3-23
15d - 1 year	3-17	3-17
1-9 years	9-22	9-22
10-18 years	7-19	7-21
>18 years	7-18	7-18

Methodology:
Spectrophotometic

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84520

Last Reviewed:
2/1/24

BUN, BODY FLUID (SQ: FBUN)

BUNBF

TESTING INFORMATION

Collect:
Body fluid. Pleural and Peritoneal Fluids

Remarks:
Indicate source of body fluid.

Storage/Transport Temperature:
1 mL body fluid at 2-8 degrees C. (Min: 0.5 mL)

Performed:
Daily

Reference Interval:
A reference interval has not been established for this test on the supplied specimen type. This test was developed using enzymatic methodology developed by Siemens and its performance characteristics determined by UnityPoint Health Methodist. It has not been clared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes.

Methodology:
Spectrophotometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84520

C TRACH CULT (SQ:CATRCA)

CTRCA

TESTING INFORMATION

Ordering Recommendations:
Not recommended for routine detection of Chlamydia trachomatis (CT). Use to assess suspected treatment failure. May be considered for anatomic locations for which amplified testing has not been validated.

Collect:
Cervical, eye, rectal, urethral swab, or peritoneal fluid. Also acceptable for newborns: Nasopharyngeal aspirate, swab, or washing.

Specimen Preparation:
Immediately place swab, fluid, or washing in 3 mL universal transport medium such as M4, M4RT, M5, M6, UniTranz-RT, or UTM (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.

Unacceptable Conditions:
Urine. Specimens in transport media not designed to support the growth of Chlamydia. Calcium alginate, dry, or wood swabs.

Remarks:
Specimen source preferred.

Storage/Transport Temperature:
Frozen on dry ice.

Stability (from collection to initiation):
Ambient: 1 hour; Refrigerated: 48 hours; Frozen at -20°C: Unacceptable; Frozen at -70°C: 1 month

Performed:
Sun-Sat

Reference Interval:
Culture negative for Chlamydia trachomatis.

Reported:
2-5 days

Methodology:
Cell Culture/Immunofluorescence

Notes:
Nucleic acid amplification testing is recommended for detection of Chlamydia trachomatis from endocervical or urethral specimens. Refer to Chlamydia trachomatis by Transcription-Medicated Amplification (TMA) (ARUP test code 0060243). Specimen must be collected and transported with test-specific kit (ARUP supply #55224).

Positive Chlamydia cultures are confirmed for trachomatis by Chlamydia trachomatis by Transcription-Mediated Amplification (TMA) at no additional charge. Some specimen types acceptable for the Chlamydia trachomatis culture may require a disclaimer for the TMA confirmation assay.

Performing Lab:
ARUP

ARUP Test Code:
0060850

ADMINISTRATIVE

CPT Codes:
87110; 87140

Last Reviewed:
12/2/2023

C. DIFFICILE DETECTION (SQ: SCDMOL)

CDTX2

TESTING INFORMATION

Collect:

Both fresh stool and stool transported in Cary Blair may be usedfor testing. Since diarrhea is the major symptom with this diseasestate, formed stools are inappropriate for testing and suchspecimens will be rejected and cancelled.

Unacceptable Conditions:

Formed stool, stool preserved in formalin, samples with a previous clostridium difficile Toxin testing performed within 7 days or a previous positive result within 6 weeks will be rejected

Remarks:

Samples with a previous negative result for Clostridium difficile performed within 7 days or a previous positive result within 6 weeks will be rejected.

Storage/Transport Temperature:

Transport to lab at Ambient (Room Temperature)

Stability (from collection to initiation):

From collection to initiation:

Ambient		Refrigerated		Frozen
24 hours		5 days		N/A

Methodology:

Nucleic Acid amplification using PCR

Notes:

Clinical Significance: Clostridium difficile is an important cause of antibiotic-associated diarrhea, which in its most serious form can result in the clinical syndrome of pseudomembranous colitis and significant mortality. Although C. difficile may be part of the normal bacterial intestinal flora, it may become an opportunistic pathogen following the patient treatment with antibiotics and subsequent alteration of the normal intestinal flora. The clinical symptoms associated with the disease are thought to be due the toxins produced by the organism. Limitations of the Procedure: The level of toxin has not been shown to have a definitive correlation with the presence or severity of disease. Positive results will be followed by EIA C-diff toxic tests. Assay results should be interpreted by a physician in conjunction with clinical and other laboratory findings. No one single laboratory test can consistently confirm the diagnosis of antibiotic-associated diarrhea due to C. difficile. Results may remain positive after treatment;testing should not be ordered to determine a test of cure

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

C. TRACHOMATIS AND N. GONORRHOEAE BY TRANSCRIPTION-MEDIATED AMPLIFICATION (TMA) USED FOR THROAT AND RECTAL SPECIMENS ONLY (SQ:CTNGA)

CNTMA

TESTING INFORMATION

Ordering Recommendations:

Preferred test for detecting Chlamydia trachomatis and Neisseria gonorrhoeae in variety of specimens. This test does not include confirmation of positive results by an alternative nucleic acid target. If confirmation of positive results by an alternate nucleic acid target is required, refer to Chlamydia trachomatis and Neisseria gonorrhoeae (CTNG) by Transcription-Mediated Amplification (TMA) with Reflex to CT/NG Confirmation (2011164).

Collect:

Vaginal, throat, eye, or rectal specimen collected with pink swab from Aptima MultiTest Swab Specimen Collection kit (ARUP supply #55224 PK/50 or #55229 PK/10) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.
Also acceptable: Cervical, eye or male urethral specimen collected with blue swab from Aptima Unisex Swab Specimen Collection kit (ARUP supply #28907 PK/50 or #54555 PK/10) or first-catch urine in a sterile container.
Refer to "Sample Collection for the Diagnosis of STD" under Specimen Handling at www.aruplab.com for specific specimen collection and transport instructions.

Specimen Preparation:

Swab: Place swab in swab specimen transport tube, break shaft off at scoreline, then recap tube.
Urine: Transfer 2 mL urine within 24 hours to an Aptima Urine Specimen Transport Tube (ARUP supply #28908 PK/50 or 54556 PK/10). Liquid level must be between fill lines on tube.

Unacceptable Conditions:

Large white swab included in Aptima Unisex Swab Specimen Collection kit is for preparatory cleaning of the endocervix and is unacceptable for testing. Specimens in any transport media other than indicated above. Specimens in swab transport media without a swab.

Remarks:

Specimen source is required.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

MultiTest Swab or Unisex Swab: Ambient: 2 months; Refrigerated: 2 months; Frozen: 1 year
Aptima Urine Specimen Transport Tube: Ambient: 1 month; Refrigerated: 1 month; Frozen: 3 months

Performed:

Sun-Sat

Reference Interval:

Components	Reference Interval
C. trachomatis by TMA	Negative
N. gonorrhoeae by TMA	Negative

Reported:

1-4 days

Methodology:

Qualitative Transcription-Mediated Amplification (TMA)

Interpretive Data:

This test is intended for medical purposes only and is not valid for the evaluation of suspected sexual abuse or for other forensic purposes. In certain contexts, culture may be required to meet applicable laws and regulations for diagnosis of C. trachomatis and N. gonorrhoeae infections. Per 2014 CDC recommendations, this test does not include confirmation of positive results by an alternative nucleic acid target.

Performing Lab:

ARUP

ARUP Test Code:

0060241

ADMINISTRATIVE

CPT Codes:

87491; 87591

Last Reviewed:

12/2/2023

C1 ESTERASE INHIB, FUNCTIONAL ASSAY, S (SQ:C1ESF)

FC1EQ

TESTING INFORMATION

Ordering Recommendations:
Aids in diagnosis of hereditary angioedema and monitoring response to therapy.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.1 mL)

Unacceptable Conditions:
Non-frozen specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: 2 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Sun, Wed, Fri

Reference Interval:

Components	Reference Interval
C-1-Esterase Inhib. Functional	41% or greater

Reported:
1-4 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:

Component	Interpretation
C-1 Esterase Inhibitor Functional	68% or greater Normal 41-67% Indeterminate 40% or less Abnormal

Performing Lab:
ARUP

ARUP Test Code:
0050141

ADMINISTRATIVE

CPT Codes:
86161

C1 ESTERASE INHIBITOR AG, S (SQ:C1ESTA)

C1ES

TESTING INFORMATION

Ordering Recommendations:
Aids in diagnosis of hereditary angioedema and in monitoring response to therapy.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Ambient. Grossly hemolyzed and/or lipemic specimens

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 14 days; Frozen: 1 month.

Performed:
Sun-Sat

Reference Interval:
Effective November 15, 2021
21-38 mg/dL

Reported:
1-4 days

Methodology:
Quantitative Turbidimetry

Performing Lab:
ARUP

ARUP Test Code:
0050140

ADMINISTRATIVE

CPT Codes:
86160

Last Reviewed:
12/2/2023

C3 COMPLEMENT (SQ: C3)

C3

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Storage/Transport Temperature:
Preferred volume: 1.0mL serum or plasma. (Minimum: 0.5 mL serum or plasma)
Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):
After separation of cells:

Ambient	Refrigerated	Frozen
6 hours	7 days	3 months

Performed:
Sunday-Saturday

Reference Interval:
90.0-180.0 mg/dL

Methodology:
Nephelometry

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86160

Last Reviewed:
2/1/24

CA IONIZED, POCT (SQ: POCICA)

PCICA

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CALCITONIN, B (SQ:CALCTA)

CATN

TESTING INFORMATION

Ordering Recommendations:
Use to diagnose and monitor medullary thyroid carcinoma (MTC). Secondary test to assist in diagnosing multiple endocrine neoplasia type II and familial MTC.

Collect:
Serum separator tube or green (sodium or lithium heparin).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Tissue or urine. EDTA plasma. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 1 week; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
Male 3 years and older: 0.0-7.5 pg/mL
Female 3 years and older: 0.0-5.1 pg/mL

Reported:
1-2 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Interpretive Data:
Calcitonin levels greater than 100 pg/mL may occur in the following conditions: medullary thyroid carcinomas (MTC), leukemias, and myeloproliferative disorders.

Provocative testing (calcium) is suggested in patients with MTC if the calcitonin is not clearly diagnostic.

The Siemens Immulite® 2000 method is used. Results obtained with different assay methods or kits cannot be used interchangeably. Calcitonin is useful in monitoring medullary thyroid carcinoma. The calcitonin assay value, regardless of level, should not be interpreted as absolute evidence of the presence or absence of malignant disease.

Performing Lab:
ARUP

ARUP Test Code:
0070006

ADMINISTRATIVE

CPT Codes:
82308

Last Reviewed:
12/2/23

CALCIUM (SQ: CA)

CA

COLLECTION DEVICE

Preferred Collection Device:
Gold (SST)

TESTING INFORMATION

Collect:

Please note there is different requirements for different testing locations.

Preferred Specimen Collection:

Location	Priority	Specimen Type	Requested Volume	Minimum Volume
Methodist	Routine	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
Proctor & Pekin	Routine	1 Lithium Heparin Tube (Mint Green)		

Other Acceptable Specimen Type (s)

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	1 Plain Red Tube	6.0 mL	3.0 mL
Methodist	1 Green Top Tube	6.0 mL	3.0 mL
Pekin & Proctor	1 SST (Gold Top) Tube		

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection.

Storage/Transport Temperature:
Centrifuged gold top or 1 mL serum or heparinized plasma (Min: 0.3 mL); at Ambient (room temperature) or 2-8° C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	3 days	6 months

Performed:
Sunday-Saturday

Reference Interval:

Calcium, Total (mg/dL)

Age	Range
0-1 week	6.5-11.3
1week - 1 month	8.6-11.8
1 month-3 month	8.0-11.4
3 month-1year	8.0-11.0
1-12 year	8.9-10.1
12-19 year	9.0-10.7
19 years and greater	8.3-10.3

Critical Values: < 6.0 mg/dL and > 12.0 mg/dL

Methodology:
Spectrophotometric

Performing Lab:
Methodist, Pekin, Proctor

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82310

Last Reviewed:
1/25/24:JLM

CALCIUM, IONIZED (SQ: CAIONP)

CAION

TESTING INFORMATION

Ordering Recommendations:

It is not advised to have drawn offsite;due to short stability.;Recommended to have patients directed to main;Hospital Outpatient Laboratory for collection.

Collect:

Heparnized syringe - Ionized Calcium may be performed from arterial blood gas specimens, following the usual protocol for colleciton and transport. ; Sodium or Lithium Heparin Green top tube, DO NOT CENTRIFUGE, NO GEL. ; Pekin &Proctor will accept, Lithium Heparin gel seperator tube, unspun.

Specimen Preparation:

Tube must remain capped and be delivered immediately. It is important that all syringes and tubes be filled completely to minimized dilution and/or heparin effects. DO NOT open tube.

Storage/Transport Temperature:

Deliver immediately at Ambient (room temperature). DO NOT UNCAP TUBE. if tube has been uncapped prior to testing Ionized Calcium, testing will be rejected.

If transport will be delayed, refrigerate and transport at 2-8 C. Refrigerated whole blood must be received within 8 hours.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
30 min	8 Hours	unacceptable

Performed:

Sunday-Saturday

Methodology:

Potentiometry

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

82330

Last Reviewed:

12/2/2023

CALCIUM, RANDOM URINE (SQ: UCAL)

RCAU

COLLECTION DEVICE

Preferred Collection Device:
RANDOM URINE

TESTING INFORMATION

Collect:
Random urine in clean, dry container with secure lid. (Min: 2mL)

Unacceptable Conditions:
Urine containing blood or fecal matter.

Storage/Transport Temperature:
Send random urine sample, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
48 hours		4 days		3 weeks

Performed:
SUNDAY-SATURDAY

Reference Interval:
Reference Interval has not been established for this testing on random urine samples.

Methodology:
Spectrophotometric

Performing Lab:
Methodist, Proctor, and Pekin

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82340

Last Reviewed:
2/1/24

CALCIUM, URINE (24HR) (SQ: UCA24H)

CAU24

COLLECTION DEVICE

Preferred Collection Device:
24Hr Urine

TESTING INFORMATION

Collect:
Collect 24-hour urine in a clean container with secure lid . Urine must be Refrigerated

Unacceptable Conditions:
Urine containing blood or fecal matter.

Remarks:
If less than 24 hour collection, specify exact number of hours and order Calcium, Urine, Timed

Storage/Transport Temperature:
Transport sample refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
Unacceptable		14 days		3 weeks

Performed:
Sunday-Saturday

Reference Interval:
50-350 mg

Methodology:
Spectrophotometric

Performing Lab:
Methodist, Proctor, and Pekin

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82340

Last Reviewed:
2/1/24

CALPROTECTIN, FECAL (SQ:CALPRO)

CLPRA

TESTING INFORMATION

Ordering Recommendations:
Aids in differentiation of inflammatory bowel disease (IBD) from irritable bowel syndrome (IBS) and other functional disorders of the gastrointestinal (GI) system. Aids in monitoring IBD and prediction of relapse.

Collect:
Stool.

Specimen Preparation:
Transfer 5 g stool to an unpreserved stool transport vial (ARUP Supply #40910). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 1 g)

Unacceptable Conditions:
Specimens in media or preservatives.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 7 days; Frozen: 30 days

Performed:
Sun-Sat

Reference Interval:

49 µg/g or less	Normal
50-120 µg/g	Borderline elevated, test should be re-evaluated in 4-6 weeks.
121 µg/g	Elevated

Reported:
1-4 days

Methodology:
Quantitative Chemiluminescent Immunoassay (CLIA)

Interpretive Data:
Fecal Calprotectin is an indicator of the presence of neutrophils in stool and is not specific for IBD. Other intestinal ailments including GI infections and colorectal cancer can result in elevated concentrations of calprotectin. The diagnosis of IBD cannot be established solely on the basis of a positive calprotectin result. Patients with IBD fluctuate between active and inactive stages of disease. Calprotectin results may also fluctuate.

Performing Lab:
ARUP

ARUP Test Code:
3002859

ADMINISTRATIVE

CPT Codes:
83993

Last Reviewed:
12/1/2023

CAMPYLOBACTER JEJUNI ANTIBODY (SQ:CAMJEA)

CMJEA

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
not a test for us per Bob T.

Performing Lab:
ARUP

ARUP Test Code:
0098841

CANCER AG 15-3 (CA 15-3), S (SQ:CA153A)

C153

TESTING INFORMATION

Ordering Recommendations:
Monitor therapy and identify disease recurrence in individuals with metastatic breast cancer. Do not use for diagnosis or screening of breast cancer.

Collect:
Serum separator tube or plasma separator tube. Also acceptable: Green (lithium heparin), lavender (K_2EDTA), or pink (K_2EDTA).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 5 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
0-31 U/mL

Reported:
Within 24 hours

Methodology:
Quantitative Electrochemiluminescent Immunoassay

Interpretive Data:
The Roche CA 15-3 electrochemiluminescent immunoassay is used. Results obtained with different methods or kits cannot be used interchangeably. The CA 15-3 test is used to aid in the management of Stage II and III breast cancer patients. Serial testing for patient CA 15-3 values should be used in conjunction with other clinical methods for monitoring breast cancer. Patients with confirmed breast carcinoma frequently have CA 15-3 values in the same range as healthy individuals. Elevations may be observed in patients with nonmalignant disease. Therefore, a CA 15-3 value, regardless of level, should not be interpreted as absolute evidence of the presence or absence of malignant disease.

Performing Lab:
ARUP

ARUP Test Code:
0080464

ADMINISTRATIVE

CPT Codes:
86300

Last Reviewed:
12/3/2023

Cancer Antigen 125 (SQ: CA125Y)

C125E

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Lithium Heparin Tube	6.0 mL	4.0 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:

Samples that have been at room temperature for longer than 8 hours

Storage/Transport Temperature:

1 mL serum or plasma (lithium heparin) refrigerated.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	7 days	9 months

Performed:

Sunday-Saturday

Reference Interval:

1.5-35.0 U/mL

Methodology:

Chemiluminescent Immunoassay

Interpretive Data:

CA 125 performed by Siemens chemiluminescent immunoassay. It is important to note methodology if comparing resutls from another laboratory.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86304

Last Reviewed:

7/10/24

CAPILLARY BLOOD GASES, POCT (SQ: VCBG)

PCBG

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CARBAMAZEPINE LEVEL, TOTAL (SQ: CARBAM)

CARB

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Green Lithium Heparin Top Tube	6.0 mL	3.0 mL

Pediatric Collection:
Minimum Volume: 0.5 mL serum or plasma

Specimen Preparation:
Centrifuge sample to separate cells from serum/plasma ASAP or within two hours of collection.

Unacceptable Conditions:
EDTA contamination

Storage/Transport Temperature:
Transport 1.0 mL serum/plasma (minimum 0.5 mL) refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
5 days	5 days	6 months

Performed:
Sunday-Saturday

Reference Interval:
Therapeutic Range 4.0-12.0 ug/mL
Critical Value: 15ug/mL or greater

Methodology:
PETINIA immunoassay.

Interpretive Data:
Patients on multiple drugs may experience toxicity at levels within therapeutic range.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
80156

Last Reviewed:
2/1/24

CARBOHYDRATE ANTIGEN 19-9 (CA 19-9) (SQ: CA199)

CAG19

COLLECTION DEVICE

Preferred Collection Device:

Gold (SST)
Plain Red

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Gold (SST), plain Red	6mL	3mL
STAT:	Gold (SST), plain Red	6mL	3mL

Specimen Preparation:

Separate serum from cells ASAP or within two hours of collectin.

Unacceptable Conditions:

Plasma specimens.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	48 hours	2 months

Performed:

Daily

Reference Interval:

0-35 U/mL

Methodology:

Chemiluminescent Immunoassay

Interpretive Data:

The Siemens Centaur CA 19-9 Assay is performed at the Methodist Laboratory. Results obtained with different assay methods or kits cannot be used interchangeably. CA 19-9 is useful in monitoring pancreatic, hepatobiliary, gastric, hepatocellular, and colorectal cancer. The CA 19-9 assay value, regardless of level, should not be interpreted as absolute evidence of the presence or absence of malignant disease.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86301

Last Reviewed:

1/25/24:JLM

Carboxygemoglobin (SQ: COHGB)

ROCBL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Whole Blood in Dark Green (Lithium helparin), no gel	6.0 mL	3.0 mL
	Whole Blood in Heparinized syringe		

Specimen Preparation:

Tube: must remain capped DO NOT CENTRIFUGE!
Syringe must remain capped.

Unacceptable Conditions:

- Green Tubes container Gel
- centrifuged specimens

Storage/Transport Temperature:

Dark Green: 1 mL whole blood, tube MUST remained apped. DO NOT open tub
Syringe: 3 cc, must reamin capped.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
Best if analyzed immediately	3 days	unacceptable

Performed:

Sunday - Saturday

Reference Interval:

Non - smokers: 0.5 - 1.5%
Smokers: 4-9%

Methodology:

Co-oximetry (spectophotometric)

Performing Lab:

Methodist Hospital

Testing Region:

Carle Health West Region

ADMINISTRATIVE

CPT Codes:

82375

CARBOXY-THC CONFIRMATION, URINE (SQ:THCUA)

THCU

TESTING INFORMATION

Ordering Recommendations:
Use to obtain quantitative results or to follow up a presumptive result. For general screening, the preferred test is THC (Cannabinoids), Urine Screen with Reflex to Quantitation (2012270). This test does not distinguish between the delta-8 and delta-9 forms of THC or their metabolites.

Collect:
Random urine.

Specimen Preparation:
Transfer 1 mL urine with no additives or preservatives to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 1 Month

Performed:
Sun-Sat

Reference Interval:
Effective November 18, 2019

Drugs Covered	Cutoff Concentrations
11-Nor-9-carboxy-THC	15 ng/mL

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Compare to Pain Management, Marijuana Metabolite, Quantitative, with medMATCH, Urine; Pain Management, Marijuana Metabolite, with Confirmation with medMATCH, Urine.

Interpretive Data:
Methodology: Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 15 ng/mL

For medical purposes only; not valid for forensic use.

The drug analyte detected in this assay, 9-carboxy THC, is a metabolite of delta-9-tetrahydrocannabinol (THC). Detection of 9-carboxy THC suggests use of, or exposure to, a product containing THC. This test cannot distinguish between prescribed or non-prescribed forms of THC, nor can it distinguish between active or passive use. The 9-carboxy THC metabolite can be detected in urine for several weeks. Normalization of results to creatinine concentration can help document elimination or suggest recent use, when specimens are collected at least one week apart.

Performing Lab:
ARUP

ARUP Test Code:
0090369

ADMINISTRATIVE

CPT Codes:
80349 (Alt code: G0480)

Last Reviewed:
12/1/2023

CARDIOLIPIN IGA (SQ: PHLABA)

CLAP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
2 NaCit Blue Top Tubes	drawn to marked fill line	drawn to marked fill line

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 ml serum plasma or centrifuged gold top refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86147

CARDIOLIPIN IGG (SQ: PHLABG)

CLGP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
2 NaCit Blue Top Tubes	drawn to marked fill line	drawn to marked fill line

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum/plasma or centrifuged gold top refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86147

CARDIOLIPIN IGM (SQ: PHLABM)

CLMP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
2 NaCit Blue Top Tubes	drawn to marked fill line	drawn to marked fill line

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum/plasma or centrifuged gold top refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86147

Last Reviewed:
2/1/24

CARNITINE (SQ:CARNTA)

CARNA

TESTING INFORMATION

Ordering Recommendations:
Useful in the diagnosis of primary carnitine deficiency (carnitine uptake defect). Monitor carnitine status.

Collect:
Green (sodium or lithium heparin). Also acceptable: Plain red.

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP standard transport tube and freeze immediately. (Min: 0.2 mL) Avoid hemolysis.

Unacceptable Conditions:
Room temperature specimens. Specimens refrigerated greater than 12 hours.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 12 hours; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Tue-Sat

Reference Interval:

Age	Carnitine, Free, Serum/Plasma	Carnitine, Total, Serum/Plasma	Carnitine, Esterified, Serum/Plasma	Carnitine E/F Ratio, Serum/Plasma
1 - 31 days	15 - 55 µmol/L	21 - 83 µmol/L	4 - 29 µmol/L	0.2 - 0.8
32 days-12 months	29 - 61 µmol/L	38 - 73 µmol/L	7 - 24 µmol/L	0.1 - 0.8
13 months - 6 years	25 - 55 µmol/L	35 - 90 µmol/L	4 - 36 µmol/L	0.1 - 0.8
7 years -20 years	22 - 63 µmol/L	31 - 78 µmol/L	3 - 38 µmol/L	0.1 - 0.9
21 years or older	25 - 60 µmol/L	34 - 86 µmol/L	5 - 29 µmol/L	0.1 - 1.0

Reported:
1-4 days

Methodology:
Tandem Mass Spectrometry

Notes:
The concentration of esterified carnitine is derived from a mathematical calculation using free and total carnitine.

Performing Lab:
ARUP

ARUP Test Code:
0080068

ADMINISTRATIVE

CPT Codes:
82379

Last Reviewed:
12/2/2023

CARNITINE PANEL PLASMA (SQ:CARPA)

CARPA

TESTING INFORMATION

Ordering Recommendations:
Diagnose and monitor for fatty acid oxidation disorders and organic acidemias. Use in conjunction with urine organic acids and acylglycines testing.

Collect:
Green (sodium or lithium heparin). Also acceptable: Plain red.

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP standard transport tube and freeze immediately. (Min: 0.2 mL) Avoid hemolysis.

Unacceptable Conditions:
Room temperature specimens. Specimens that have been refrigerated for greater than 12 hours. Grossly hemolyzed specimens.

Remarks:
Clinical information is needed for appropriate interpretation. Additional required information includes age, gender, diet (e.g., TPN therapy), drug therapy, and family history. Biochemical Genetics Patient History Form is available on the ARUP Web site at aruplab.com/patienthistory or by contacting ARUP Client Services.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 12 hours; Frozen: 1 month

Performed:
Tue, Thu, Sat

Reference Interval:
Refer to Report

Reported:
2-7 days

Methodology:
Tandem Mass Spectrometry

Notes:
The concentration of esterified carnitine is derived from a mathematical calculation using free and total carnitine.

Performing Lab:
ARUP

ARUP Test Code:
0081110

ADMINISTRATIVE

CPT Codes:
82017; 82379

Last Reviewed:
12/1/2023

CASHEW (SQ: CASHEW)

CASH

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
Immuno CAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

CAT DANDER (SQ: CATEP)

CATD

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

CATECHOLAMINE FRACT, FREE, 24 HR, U (SQ:UCATSA)

CATU

TESTING INFORMATION

Ordering Recommendations:

Not recommended for the evaluation of pheochromocytoma or paraganglioma. Use to evaluate clinical symptoms of excess catecholamine secretion. For the assessment of pheochromocytoma or paraganglioma, refer to Metanephrines, Plasma (Free) (0050184) or Metanephrines Fractionated by HPLC-MS/MS, Urine (2007996).

Patient Preparation:

Drugs and medications may affect results and should be discontinued for at least 72 hours prior to specimen collection, if possible.

Collect:

24-hour or random urine. Refrigerate 24-hour specimen during collection.

Specimen Preparation:

Thoroughly mix entire collection (24-hour or random) in one container. Transfer a 4 mL aliquot to an ARUP standard transport tube. (Min: 2.5 mL) Catecholamines are not stable above pH 7. The pH of such specimens must be adjusted by the addition of 6M HCl acid or sulfamic acid prior to transport. A pH less than 2 can cause assay interference.
Specimen preservation can be extended to 1 month refrigerated by performing one of the following:
Option 1: Transfer a 4 mL aliquot to an ARUP standard transport tube and adjust pH to 2.0-4.0 with 6M HCl. (Min: 2.5 mL)
Option 2: Transfer a 4 mL aliquot to an ARUP standard transport tube containing 20 mg sulfamic acid (ARUP Supply #48098), available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 2.5 mL)

Unacceptable Conditions:

Specimens preserved with boric acid or acetic acid. Specimens with pH greater than 7.

Remarks:

Record total volume and collection time interval on transport tube and test request form.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

Unpreserved: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Undefined
Preserved: Ambient: Unacceptable; Refrigerated: 1 month; Frozen: 6 months

Performed:

Sun-Sat

Reference Interval:

Components

Creatinine, Urine - per 24h

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

Dopamine, Urine - per 24h

Age	ug/d
0-3 years	Not established
4-10 years	80-440
11-17 years	100-496
18 years and older	71-485

Norepinephrine, Urine - per 24h

Age	ug/d
0-3 years	Not established
4-10 years	7-65
11-17 years	12-96
18 years and older	14-120

Epinephrine, Urine - per 24h

Age	ug/d
0-3 years	Not established
4-10 years	1-14
11-17 years	1-18
18 years and okder	1-14

Norepinephrine, Urine - ratio to CRT

Age	ug/g CRT
0-11 months	25-310
1-3 years	25-290
4-10 years	27-110
11-17 years	4-105
18 years and older	0-45

Dopamine, Urine - ratio to CRT

Age	ug/g CRT
0-11 months	240-1290
1-3 years	80-1220
4-10 years	220-720
11-17 years	120-450
18 years and older	0-250

Epinephrine, Urine - ratio to CRT

Age	ug/g CRT
0-11 months	0-380
1-3 years	0-82
4-10 years	5-93
11-17 years	3-58
18 years and older	0-20

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Secreting neuroendocrine tumors are typically associated with catecholamine concentrations several times higher than the upper reference intervals. Large elevations can be seen in life-threatening illnesses and drug interferences. Common reasons for slight and moderate elevations include intense physical activity, emotional and physical stress, drug interferences, and improper specimen collection.

Medications which may physiologically interfere with catecholamines and metabolites include amphetamines and amphetamine-like compounds, appetite suppressants, bromocriptine, buspirone, caffeine, carbidopa-levodopa (Sinemet), clonidine, dexamethasone, diuretics (in doses sufficient to deplete sodium), ethanol, isoproterenol, methyldopa (Aldomet), MAO inhibitors, nicotine, nose drops, propafenone (Rythmol), reserpine, theophylline, tricyclic antidepressants, and vasodilators. The effects of some drugs on catecholamine results may not be predictable.

References: 1) Optimal collection and storage conditions for catecholamine measurements in human plasma and urine. (Clinical Chemistry. 1993;39:2503-8.); 2) Effect of urine pH, storage time, and temperature on stability of catecholamines, cortisol, and creatinine. (Clinical Chemistry1998;44:1759-62.).

Interpretive Data:
Smaller increases in catecholamine concentrations (less than two times the upper limit) usually are the result of physiological stimuli, drugs, or improper specimen collection. Significant elevation of one or more catecholamines (three or more times the upper reference limit) is associated with an increased probability of a neuroendocrine tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

Performing Lab:
ARUP

ARUP Test Code:
0080407

ADMINISTRATIVE

CPT Codes:
82384

Last Reviewed:
12/1/2023

CATECHOLAMINES, FRACTIONATED (SQ:CATSA)

CATSA

TESTING INFORMATION

Ordering Recommendations:

Not recommended for evaluation of pheochromocytoma or paraganglioma. Use to evaluate clinical symptoms of excess catecholamine secretion. For the assessment of pheochromocytoma and paraganglioma, refer to Metanephrines, Plasma (Free) (0050184) or Metanephrines Fractionated by HPLC-MS/MS, Urine (2007996).

Patient Preparation:

Patient should be calm and seated for 15 minutes prior to collection. Alternately, patient may be calm and supine for 30 minutes prior to collection. Drugs and medications may affect results and should be discontinued for 72 hours prior to specimen collection, if possible.

Collect:

Green (sodium or lithium heparin), lavender (EDTA). Collect on ice.

Specimen Preparation:

Specimen should be centrifuged and frozen within one hour (refrigerated centrifuge is preferred but not required). Transfer 3 mL plasma to an ARUP standard transport tube(Min: 1.1 mL)

Unacceptable Conditions:

Serum or urine.

Storage/Transport Temperature:

CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):

After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen at -20 C: 1 month; Frozen at -70 C: 1 year

Performed:

Sun-Sat

Reference Interval:

Components	Reference Interval	
Dopamine	**18 years and older**	
	Seated (15 min)	Less than or equal to 240 pmol/L
Epinephrine	**18 years and older**	
	Seated (15 min)	Less than or equal to 330 pmol/L
Norepinephrine	**18 years and older**	
	Seated (15 min)	1050-4800 pmol/L

Reported:

1-5 days

Methodology:

Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:

Medications may interfere with catecholamines and metabolites. The effect of drugs on catecholamine results may not be predictable. (N Rifai, A R Horvath, and C Wittwer. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Sixth edition. St. Louis, Missouri: Elsevier, 2018; Table 63.9.)

For optimum assessment, patient should be supine for 30 minutes prior to specimen collection.

Children, particularly those under 2 years of age, often show an elevated catecholamine response to stress.

Interpretive Data:

Small increases in catecholamines (less than 2 times the upper reference limit) are usually the result of physiological stimuli, drugs, or improper specimen collection. Significant elevation of one or more catecholamines (2 or more times the upper reference limit) can result from a neuroendocrine tumor. Measurement of plasma or urine fractionated metanephrines should be used for assessment of suspected pheochromocytoma or paraganglioma.

Lower catecholamine concentrations are observed in specimens collected from supine adults.

To convert to picograms per milliliter (pg/mL), multiply the reported concentration for dopamine by 0.153, epinephrine by 0.183, and norepinephrine by 0.169

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

Supine Reference Intervals	
Dopamine	Less than or equal to 240 pmol/L
Epinephrine	Less than or equal to 265 pmol/L
Norepinephrine	680-3100 pmol/L

Performing Lab:

ARUP

ARUP Test Code:

0080216

ADMINISTRATIVE

CPT Codes:

82384

Last Reviewed:

12/2/2023

CBC W/DIFF (SQ: CBCWD)

CBC2

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top Tupe	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250uL

Unacceptable Conditions:

Specimens in improper anticoagulant, Insufficient volume, Clotted or Evidence of Fibrin Strands, hemolyzed, Contaminated w/IV fluid, Incomplete or mislabeled specimens, Exceeding stability requirements, frozen or improperly stored.

Storage/Transport Temperature:

Whole blood transported at 2-8°C, refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	48 hours	unacceptable

Performed:

Daily

Reference Interval:

WBC Count

Age	Male	Female	Combined	Units
0-14d	8.00-15.40	8.20-14.60		$x10^3$/uL
15-34d	7.80-15.90	8.40-14.40		
35-55d	8.10-15.00	7.10-14.70		
56d-6m	6.50-13.30	6.00-13.30		
6m-2y	6.00-13.50	6.50-13.00		
2-3y	5.10-13.40	4.90-13.20		
3-6y			4.40-12.90	
6-18y			3.80-10.40	
>=18y			3.87-9.10	

RBC Count

Age	Male	Female	Combined	Units
0-14d	4.10-5.55	4.12-5.74		$x10^6$/uL
15-34d	3.16-4.63	3.32-4.80		
35-55d	3.02-4.22	2.93-3.87		
56d-6m	3.43-4.80	3.45-4.75		
6m-2y	4.03-5.07	3.97-5.01		
2-3y	3.89-4.97	3.84-4.92		
3-6y			4.00-5.10	
6-11y			4.10-5.20	
11-15y	4.20-5.30	4.10-5.10		
15-18y	4.30-5.70	3.80-5.00		
>=18y	4.33-5.44	3.92-4.97		

Hemoglobin (g/dL)

Age	Male	Female	Combined
0-14 days	13.9-19.1	13.4-20.0	
15-34 days	10.0-15.3	10.8-14.6	
35-55 days	8.9-12.7	9.2-11.4	
56 days-6 months	9.6-12.4	9.9-12.4	
6 months-2 yrs	10.1-12.5	10.2-12.7	
2-3 years			10.2-12.7
3-6 years			11.4-14.3

6-9 years			11.5-14.3
9-11 years			11.8-14.7
11-15 years	12.4-15.7	11.9-14.8	
15-18 years	13.3-16.9	11.9-14.8	
>=18 years	13.4-16.1	12.1-14.8	

Hematocrit (%)

Age	Male	Female	Combined
0-14 days	39.8-53.6	39.6-57.2	
15-34 days	30.5-45.0	32.0-44.5	
35-55 days	26.8-37.5	27.7-35.1	
56 days-6 months	28.6-37.2	29.5-37.1	
6 months-2 years	30.8-37.8	30.9-37.9	
2-3years	31.0-37.7	31.2-37.8	
3-8 years			34.0-42.0
8-12 years			35.0-43.0
12-16 years	38.0-47.0	35.0-43.0	
16-18 years	40.0-50.0	35.0-43.0	
>= 18 years	40.1-49.2	37.1-45.1	

MCV

Age	Male	Female	Combined	Units
0-14d	91.3-103.1	92.7-106.4		fL
15-34d	89.4-99.7	90.1-103.0		
35-55d	84.3-94.2	83.4-96.4		
56d-6m	74.1-87.5	74.8-88.3		
6m-2y	69.5-81.7	71.3-82.6		
2-3y	71.3-84.0	72.3-85.0		
3-6y			77.2-89.5	
6-12y			77.8-91.1	
12-15y			79.9-93.0	
15-18y			82.5-98.0	
>= 18 years			82.0-99.0	

MCH

Age	Male	Female	Combined	Units
0-1m			31.0-37.0	pg
1-3m			27.0-36.0	
3-6m			25.0-35.0	
6m-5y			23.0-31.0	
5-11y			25.0-33.0	
11-18y			25.0-35.0	
>= 18 years			28.5-32.1	

MCHC

Age	Male	Female	Combined	Units
0-6m			28.0-36.0	g/dL
6m-18y			32.0-36.0	
>= 18 years			31.4-34.5	

RDW

Age	Male	Female	Combined	Units
0-14d	14.8-17.0	14.6-17.3		%
15-34d	14.3-16.8	14.4-16.2		
35-55d	13.8-16.1	13.6-15.8		
56d-6m	12.4-15.3	12.2-14.3		
6m-2y	12.9-15.6	12.7-15.1		
2-3y	12.5-14.9	12.4-14.9		

3-6y			11.3-13.4	
6-18y			11.4-13.5	
>= 18 years			11.4-14.0	

nRBC Count

All Ages	Combined: 0.00	$x10^3$/uL

Platelet Count

Age	Male	Female	Combined	Units
0-14d	218-419	144-449		$x10^3$/uL
15-34d	248-586	279-571		
35-55d	229-562	331-597		
56d-6m	244-529	247-580		
6m-2y	206-445	214-459		
2-3y	202-403	189-394		
3-6y			187-445	
6-10y			187-400	
10-14y			177-381	
14-18y	139-320	158-362		
>= 18 years			150-400	

Absolute Neutrophil Count

Age	Male	Female	Combined	Units
0-14d	1.60-6.06	1.73-6.75		$x10^3$/uL
15-34d	1.18-5.45	1.23-4.80		
35-55d	0.83-4.23	1.00-4.68		
56d-6m	0.97-5.45	1.04-7.20		
6m-2y	1.19-7.21	1.27-7.18		
2-3y	1.54-7.92	1.60-8.29		
3-6y			1.60-7.80	
6-15y	1.40-6.10	1.50-6.50		
15-17y	1.40-6.10	2.00-7.40		
17-18y	1.80-7.20	2.00-7.40		
>= 18 years			1.57-6.01	

Absolute Lymphocyte Count

Age	Male	Female	Combined	Units
0-14d	2.07-7.53	1.75-8.00		$x10^3$/uL
15-34d	2.11-8.38	2.42-8.20		
35-55d	2.47-7.95	2.29-9.14		
56d-6m	2.45-8.89	2.14-8.99		
6m-2y	1.56-7.83	1.52-8.09		
2-3y	1.13-5.52	1.25-5.77		
3-6y			1.60-5.30	
6-12y			1.40-3.90	
12-18y			1.00-3.20	
>= 18 years			0.92-2.93	

Absolute Monocyte Count

Age	Male	Female	Combined	Units
0-14d	0.52-1.77	0.57-1.72		$x10^3$/uL
15-34d	0.28-1.38	0.42-1.21		
35-55d	0.28-1.05	0.28-1.21		
56d-6m	0.28-1.07	0.24-1.17		
6m-2y	0.25-1.15	0.26-1.08		
2-3y	0.19-0.94	0.24-0.92		
3-6y			0.30-0.90	
6-18y			0.20-0.80	

>= 18 years			0.26-0.87	

Absolute Eosinophil Count

Age	Male	Female	Combined	Units
0-14d	0.12-0.66	0.09-0.64		$x10^3$/uL
15-34d	0.08-0.80	0.06-0.75		
35-55d	0.05-0.57	0.04-0.63		
56d-6m	0.03-0.61	0.02-0.74		
6m-2y	0.02-0.82	0.02-0.58		
2-3y	0.03-0.53	0.03-0.46		
3-12y			0.00-0.50	
12-18y			0.10-0.20	
>= 18 years			0.00-0.35	

Absolute Basophil Count

Age	Male	Female	Combined	Units
0-14d	0.02-0.11	0.02-0.07		$x10^3$/uL
15-34d	0.01-0.07	0.01-0.06		
35-55d	0.01-0.07	0.01-0.05		
56d-6m	0.01-0.06	0.01-0.07		
6m-3y			0.01-0.06	
3-18y			0.00-0.10	
>= 18 years			0.01-0.09	

Absolute Immature Granulocyte Count

All Ages	Combined: 0.00-0.05	Units: $x10^3$/uL

Methodology:
Hydrodynamic focusing, flow cytometry, and SLS-hemoglobin

Notes:
One sodium citrate light blue top may be sent with the lavender tube for accurate platelet counts in patients with EDTA platelet clumping. Sodium citrate must be completely filled with whole blood to the volume indicator and should not be spun or aliquotted.

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

Components:
WBC Count
RBC Count
Hemoglobin
Hematocrit
MCV
MCH
MCHC
RDW
nRBC Count
Platelet Count
MPV
Absolute Neutrophil Count
Absolute Lymphocyte Count
Absolute Monocyte Count
Absolute Eosinophil Count
Absolute Basophil Count
Absolute Immature Granulocyte Count

ADMINISTRATIVE

Last Reviewed:
1/18/24:ME

CBC W/O DIFF (SQ: CBCND)

CBCWO

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top Tube	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum volume: 250uL

Unacceptable Conditions:

Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Exceeded stability
Frozen

Storage/Transport Temperature:

Whole blood transported at 2-8°C, refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	48 hours	Unacceptable

Performed:

Daily

Reference Interval:

WBC Count				
Age	Male	Female	Combined	Units
0-14d	8.00-15.40	8.20-14.60		$x10^3$/uL
15-34d	7.80-15.90	8.40-14.40		
35-55d	8.10-15.00	7.10-14.70		
56d-6m	6.50-13.30	6.00-13.30		
6m-2y	6.00-13.50	6.50-13.00		
2-3y	5.10-13.40	4.90-13.20		
3-6y			4.40-12.90	
6-18y			3.80-10.40	
>=18y			3.87-9.10	

RBC Count				
Age	Male	Female	Combined	Units
0-14d	4.10-5.55	4.12-5.74		$x10^6$/uL
15-34d	3.16-4.63	3.32-4.80		
35-55d	3.02-4.22	2.93-3.87		
56d-6m	3.43-4.80	3.45-4.75		
6m-2y	4.03-5.07	3.97-5.01		
2-3y	3.89-4.97	3.84-4.92		
3-6y			4.00-5.10	
6-11y			4.10-5.20	
11-15y	4.20-5.30	4.10-5.10		
15-18y	4.30-5.70	3.80-5.00		
>=18y	4.33-5.44	3.92-4.97		

Hemoglobin (g/dL)			
Age	Male	Female	Combined

0-14 days	13.9-19.1	13.4-20.0	
15-34 days	10.0-15.3	10.8-14.6	
35-55 days	8.9-12.7	9.2-11.4	
56 days-6 months	9.6-12.4	9.9-12.4	
6 months-2 yrs	10.1-12.5	10.2-12.7	
2-3 years			10.2-12.7
3-6 years			11.4-14.3
6-9 years			11.5-14.3
9-11 years			11.8-14.7
11-15 years	12.4-15.7	11.9-14.8	
15-18 years	13.3-16.9	11.9-14.8	
>=18 years	13.4-16.1	12.1-14.8	

Hematocrit (%)			
Age	Male	Female	Combined
0-14 days	39.8-53.6	39.6-57.2	
15-34 days	30.5-45.0	32.0-44.5	
35-55 days	26.8-37.5	27.7-35.1	
56 days-6 months	28.6-37.2	29.5-37.1	
6 months-2 years	30.8-37.8	30.9-37.9	
2-3years	31.0-37.7	31.2-37.8	
3-8 years			34.0-42.0
8-12 years			35.0-43.0
12-16 years	38.0-47.0	35.0-43.0	
16-18 years	40.0-50.0	35.0-43.0	
>= 18 years	40.1-49.2	37.1-45.1	

MCV				
Age	Male	Female	Combined	Units
0-14d	91.3-103.1	92.7-106.4		fL
15-34d	89.4-99.7	90.1-103.0		
35-55d	84.3-94.2	83.4-96.4		
56d-6m	74.1-87.5	74.8-88.3		
6m-2y	69.5-81.7	71.3-82.6		
2-3y	71.3-84.0	72.3-85.0		
3-6y			77.2-89.5	
6-12y			77.8-91.1	
12-15y			79.9-93.0	
15-18y			82.5-98.0	
>= 18 years			82.0-99	

MCH				
Age	Male	Female	Combined	Units
0-1m			31.0-37.0	pg
1-3m			27.0-36.0	
3-6m			25.0-35.0	
6m-5y			23.0-31.0	
5-11y			25.0-33.0	
11-18y			25.0-35.0	
>= 18 years			28.5-32.1	

MCHC				
Age	Male	Female	Combined	Units
0-6m			28.0-36.0	

6m-18y			32.0-36.0	g/dL
>= 18 years			31.4-34.5	

RDW				
Age	Male	Female	Combined	Units
0-14d	14.8-17.0	14.6-17.3		%
15-34d	14.3-16.8	14.4-16.2		
35-55d	13.8-16.1	13.6-15.8		
56d-6m	12.4-15.3	12.2-14.3		
6m-2y	12.9-15.6	12.7-15.1		
2-3y	12.5-14.9	12.4-14.9		
3-6y			11.3-13.4	
6-18y			11.4-13.5	
>= 18 years			11.4-14.0	

nRBC Count		
All Ages	Combined: 0.00	$x10^3$/uL

Platelet Count				
Age	Male	Female	Combined	Units
0-14d	218-419	144-449		$x10^3$/uL
15-34d	248-586	279-571		
35-55d	229-562	331-597		
56d-6m	244-529	247-580		
6m-2y	206-445	214-459		
2-3y	202-403	189-394		
3-6y			187-445	
6-10y			187-400	
10-14y			177-381	
14-18y	139-320	158-362		
>= 18 years			150-400	

Mean Platelet Volume		
All Ages	Combined: 8.8-12.2	Units: fL

Methodology:
Hydrodynamic focusing, flow cytometry, and SLS-hemoglobin

Notes:
One sodium citrate light blue top tube may be sent with the lavender tube for accurate platelet counts in patients with EDTA platelet clumping. Sodium citrate tube must be completely filled with whole blood to the volume indicator and should not be spun or aliquotted.

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

Components:
WBC Count
RBC Count
Hemoglobin
Hematocrit
MCV
MCH
MCHC
RDW
nRBC Count
Platelet Count
MPV

ADMINISTRATIVE

Last Reviewed:
1/18/24:ME

CCP (SQ: CCPIGG)

CCPP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Lavendar Tube	4.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum/plasma or centrifuged gold top. Refrigerated.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	7 days	1 month

Reference Interval:
Negative

Methodology:
Multiplex Flow Immuno Assay

Notes:

< 3.0 U/mL	Negative
>= 3.0 U/mL	Positive

Interpretive Data:
Approximately 70% of patients with Rheumatoid Arthritis are positive for CCP IgG Antibody, while only 2% of random blood donors and disease control are positive. The diagnostic value of CCP antibodies in Juvenile Rheumatoid Arthritis has not been determined.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
86200

Last Reviewed:
2/1/24

CEA (SQ: CEA)

CEAE

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Gold top, plain Red, or Green (Lithium Heparin)	6mL	3mL
STAT:	Gold top, plain Red, or Green (Lithium Heparin)	6mL	3mL

Specimen Preparation:
Separate serum/plasma from cells within two hours of collection.

Remarks:
There is a chance of interference that Biotin can potentially alter results by 10%. If patients are on Biotin supplemenation, be aware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory tesing.

Storage/Transport Temperature:
Send serum/plasma, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	4 months

Performed:
Sunday-Saturday

Reference Interval:
Non-smokers: 0.0-3.0 ng/mL
Smokers: 0.0-5.0 ng/mL

Methodology:
Chemiluminescent Immunoassay

Notes:
Elevated levels of CEA may occur in non-neoplastic conditions; therefore, this test is not intended for diagnosis or screening for cancer.

Interpretive Data:
This test is performed by Siemens chemiluminescent immunoassay. CEA results obtained with different manufacturers' CEA assays cannot be used interchangeably.

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82378

Last Reviewed:
1/25/24:JLM

CELIAC ASSOCIATED HLA-DQ TYPING (SQ:CDGFA)

CELI

TESTING INFORMATION

Ordering Recommendations:
Not recommended for use in the initial evaluation of celiac disease. May be useful to rule out celiac disease in selective clinical situations (eg, when a patient has started a gluten-free diet prior to testing or when small bowel histologic findings are equivocal) or to identify risk (eg, in individuals who have first-degree family members with celiac disease). For more information, refer to the Celiac Disease HLA-DQ Genotyping Test Fact Sheet.

Collect:
Lavender (EDTA). Also acceptable: Yellow (ACD solution A).

Specimen Preparation:
Transport 3 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Specimens collected in yellow (ACD solution B). Clotted, grossly hemolyzed, or heparinized specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Performed:
Mon-Fri

Reference Interval:
By report

Reported:
8-15 days

Methodology:
Polymerase Chain Reaction/Massively Parallel Sequencing/Sequence-Specific Oligonucleotide Probe Hybridization

Interpretive Data:

Background Information for Celiac Disease HLA-DQ Genotyping:
Characteristics: Celiac disease is a systemic autoimmune disease of the gastrointestinal system caused by exposure to cereal gluten in genetically susceptible individuals.
Incidence: On average, 1 in 133 individuals in the United States is affected.
Inheritance: Multifactorial.
Cause: The presence of either HLA-DQ2 or the HLA-DQ8 alleles in combination with dietary gluten.
Clinical Sensitivity: greater than 99 percent.
Methodology: Polymerase Chain Reaction/Massively Parallel Sequencing, or Polymerase Chain Reaction/Sequence-Specific Oligonucleotide Probe Hybridization.
Analytical Sensitivity and Specificity: greater than 99 percent.
Limitations: Rare diagnostic errors may occur due to primer site mutations. Other genetic and nongenetic factors that influence celiac disease are not evaluated. In cases where an HLA allele cannot be resolved unambiguously, the allele assignment will be reported as the most common, based on allele frequencies from the common, intermediate and well-documented alleles catalogue version 3.0.0 (Hurley CK, et al, 2020).
Alleles tested: HLA-DQA1 and HLA-DQB1 alleles.
Most celiac disease patients (approximately 90 percent) carry HLA-DQ2.5 heterodimers encoded by HLA-DQA1*05 and HLA-DQB1*02 alleles. The remaining 5-10 percent of the patients carry HLA-DQ8, encoded by HLA-DQB1*03:02 allele, most commonly in combination with HLA-DQA1*03 alleles. A minority of patients negative for the above genotypes may carry HLA-DQB1*02 but without the DQA1*05 alpha chain, most commonly with DQA1*02. The presence of the DQB1*02 allele in combination with either DQ2.5 or DQ8 may further increase celiac disease risk.

Stratified overall genetic risk for patients carrying the celiac disease-associated HLA-DQ genotypes:

Genotype	Risk**
DQ2.5 homozygous	Very high (greater than 1:10)
DQ2.5 + DQB1*02	Very high (greater than 1:10)
DQ2.5 + DQ8	High (greater than 1:20)
DQ8 homozygous	High (greater than 1:20)
DQ8 + DQB1*02 (without DQA1*05)	Intermediate (greater than 1:50)
DQ2.5 heterozygous	Intermediate (greater than 1:50)
DQ8 heterozygous	At risk (greater than 1:100)
Population risk for unknown genotype	1:100
DQB1*02 (without DQA1*05)	Low
DQA1*05 (without DQB1*02)	Minimal
Negative for DQ2 and DQ8	Not at risk

**Risk is provided from the references below, and defined according to HLA allele combinations, considering a disease prevalence of 1:100. However, these alleles are common in the general population and the majority of individuals positive for celiac-associated alleles do not develop the disease. Detection of these alleles can support a clinical diagnosis but should not be interpreted as diagnostic of celiac disease.

References:
1. Megiorni F, Mora B, Bonamico M, et al. HLA-DQ and risk gradient for celiac disease. Hum Immunol. 2009;70(1):55-59.
2. Pietzak MM, Schofield TC, McGinnis MJ, et al. Stratifying risk for celiac disease in a large at-risk United States population by using HLA alleles. Clin Gastroenterol and Hepatol. 2009;7(9):966-971.
3. Almeida LM, Gandolfi L, Pratesi R, et al. Presence of DQ2.2 associated with DQ2.5 increases the risk for celiac disease. Autoimmune Dis. 2016;2016:5409653.
4. Vader W, Stepniak D, Kooy Y, et al. The HLA-DQ2 gene dose effect in celiac disease is directly related to the magnitude and breadth of gluten-specific T cell responses. Proc Natl Acad Sci U S A. 2003;100(21):12390-12395.

Disclaimer Information:
This test was developed and its performance characteristics determined by the Histocompatibility & Immunogenetics Laboratory at the University of Utah Health. It has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary. This test is used for clinical purposes. It should not be regarded as investigational or for research. The Histocompatibility & Immunogenetics Laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88) as qualified to perform high complexity clinical laboratory testing.
Performed at: Histocompatibility & Immunogenetics Laboratory, University of Utah Health, 417 Wakara Way, Suite 3220, Salt Lake City, UT 84108.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

Performing Lab:
ARUP

ARUP Test Code:
3004445

ADMINISTRATIVE

CPT Codes:
81382 x2

Last Reviewed:
12/2/2023

CELIAC CASCADE BELOW LOW IGA CUTOFF (SQ: CELALO)

CELLO

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
removed due to lab test only

Ordering Recommendations:
NOT FOR EXTERNAL ORDERS. IN-LAB USE ONLY.

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CELIAC CASCADE TTG IGA ABOVE LOW IGA CUTOFF (SQ: CELTTA)

CELTA

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
Removed - as this is a lab order charge only

Ordering Recommendations:
NOT FOR EXTERNAL ORDERS. IN-LAB USE ONLY.

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CELIAC DISEASE SEROLOGY CASCADE 2 YEARS OF AGE AND ABOVE (SQ: CELCAS)

CELCS

TESTING INFORMATION

Ordering Recommendations:

For 2 Years of Age and Above

Click here to see Celiac Disease Cascade

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:

Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:

Contaminated, icteric, lipemic, and hemolyzed or heat inactivated samples may cause erroneous results and should be avoided.

Storage/Transport Temperature:

1mL serum or centrifuged gold top tube, transported at refrigerated temperature 2-8°C. Minimum volume 0.5 mL.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	3 months

Performed:

Variable

Reference Interval:

Anti-tTG IgA and Anti-DGP IgA	
< 15 U/mL	Negative
>= 15 U/mL	Positive

Anti-tTG IgG and Anti-DGP IgG	
< 15 U/mL	Negative
>= 15 U/mL	Positive

Methodology:

Multiplex Flow Immunoassay

Interpretive Data:

When Clinicians order the Celiac Disease Cascade reflex (CELCAS) the following reflex steps occur:

- If the IgA is flagged low based on age dependent reference range, the reflex CELALO will be ordered. This includes testing for tTG AB IgA, tTG AB IgG, Gliadin AB IgA, and Gliadin AB IgG.
- If the IgA is flagged normal or high based on the age dependent reference range, reflex order CELTTA will be ordered. This includes testing for tTG AB IgA.

Performing Lab:

Methodist Hospital

Clinical Information:

The celiac IgA or IgG is not, in and of itself, diagnostic for celiac disease (gluten-sensitive enteropathy). It should be considered in conjunction with other laboratory test results and the clinical presentation of the patient.

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

2/1/24

Celiac Genetics (SQ: CELEGN)

TESTING INFORMATION

Unacceptable Conditions:
Frozen samples

Storage/Transport Temperature:
Transportation Kit Requirements: Ambient or cold pack acceptable
Storage Conditions: Room temperature or refrigerated

Stability (from collection to initiation):
Room temperature: 7 days
Refrigerated: 30 days

Reported:
4 days once received at testing laboratory

Performing Lab:
Prometheus Laboratory

Testing Region:
Carle West Region

CELIAC PLUS, SEND OUT (SQ: CEPLUS)

CELIP

TESTING INFORMATION

Ordering Recommendations:

Celiac Plus - combines serologic, genetic and inflammation markers to help identify active celiac disease and stratify relative risk.

Collect:

Serum and Whole Blood in Serum seperator or Red Top Tube AND EDTA/Lavendar Top Tube

2.0 mL Serum AND 2.0 mL Whole Blood

Specimen Preparation:

Specimens should be labeled with 2 identifiers and date of collection. Examples of acceptable identifiers include but are not limited to patient name, date of birth, hospital number.

Storage/Transport Temperature:

Ambient or cold pack acceptable.

Stability (from collection to initiation):

Room Temp: 7 days
Refrigerated: 30 days

Reported:

3 days from date received at testing lab.

Performing Lab:

Prometheus Laboratories

ADMINISTRATIVE

Last Reviewed:

2/23/24

CELIAC SEROLOGY, SEND OUT

CELIS

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
Preauthorization may be needed by insurance, that should be provided at time of collection of testing.
Celiac Serology Pre-Authorization

Collect:
Serum in Serum Separator or Red Top Tube

Volume: 2.0 mL

Pediatric Collection:
Volume: 0.5 mL

Specimen Preparation:
Specimens should be labeled with 2 identifiers and date of collection. Examples of acceptable identifiers include but are not limited to patient name, date of birth, hospital number.

Unacceptable Conditions:

- Unlabeled specimens
- Frozen samples

Storage/Transport Temperature:
Ambient or cold pack acceptable

Stability (from collection to initiation):
Room Temp: 7 days
Refrigerated: 30 days

Reported:
2-3 days from date of receipt at testing laboratory.

Performing Lab:
Prometheus Laboratories

Components:

- Anti-Gliadin ELISA, IGA specific
- Anti-Giliadin ELISA, IgG specific
- Anti-Human Tissue Transglutaminase (Hu-tTG) ELISA, IgA Recombinant antigen
- Anti-Endomysial (EMA) IgA antibody by IFA
- Total serum IgA, by Nephelometry

Billing Aids:
Preauthorization may be required by insurance provider - see section Special Notes for Testing Performed at other Laboratories.

ADMINISTRATIVE

CPT Codes:
83520 x 3, 88346 and 82784

Billing Aids:
Preauthorization may be required by insurance provider - see section Special Notes for Testing Performed at other Laboratories.

Last Reviewed:
2/23/24

CELL CT + DIFF, BODY FLUID (SQ: FCNTY)

BODFL

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume	Minimum Vol
Body Fluid	Sterile container with secure lid	3 mL	500 uL
Synovial Fluid	Sterile container and lavendar K2EDTA tube		

Specimen Preparation:

Specimens should be tested as soon as possible to avoid cell degradation.

Specify source of fluid

Unacceptable Conditions:

- Insufficient volume
- Frozen
- Collection container containing additive other than K2EDTA
- Contaminated
- Incompletely labeled or mislabeled
- Exceeding stability requirements

Storage/Transport Temperature:

2 - 8° C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	24 hours	Unacceptable

Performed:

Sunday-Saturday

Reference Interval:

The reference interval(s) and other method performance specifications are unavailable for this body fluid. Comparison of the result with concentration in the blood, serum or plasma is recommended.

Methodology:

Manual hemocytometer or hydrodynamic focusing and manual differential.

Performing Lab:

Methodist, Pekin and Proctor Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

89051

Last Reviewed:

1/19/24

CELL CT + DIFF, CSF (SQ: SFCNTX)

CSF

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
CSF Collection Tube 3	3.0 mL	0.5 mL

Specimen Preparation:

Specimens should be tested as soon as possible to avoid cell degradation.

Unacceptable Conditions:

Insufficient volume
Frozen
Collection container containing additive
Contaminated
Incompletely labeled or mislabeled
Stability exceeded

Storage/Transport Temperature:

CSF at ambient (room temperature) or 2-8°C. Deliver immediately

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	24 hours	Unacceptable

Performed:

Daily

Reference Interval:

Total nucleated cell count: <10 cells/uL

For all other analytes, the reference interval(s) and other method performance specifications are unavailable for this body fluid. Comparison of the result with concentration in the blood, serum, or plasma is recommended.

Methodology:

Manual hemocytometer or hydrodynamic focusing and manual differential.

Notes:

Testing will automatically be performed on tube 3 or the last tube if less than three tubes are collected. Specify if testing is to be performed on a different tube number. Multiple orders should be placed if multiple tubes are to be tested.

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

89051

Last Reviewed:

1/18/24:ME

CELL CT+DIFF, BRONCHIAL LAVAGE/WASH (SQ: BALFCT)

BRLAV

TESTING INFORMATION

Collect:

Washing from Bronchial Lavage

Specimen Type	Collection Container	Volume	Minimum Volume
Body Fluid	Sterile container	3 mL	500 uL

Specimen Preparation:

Specimens should be tested as soon as possible to avoid cell degradation.

Unacceptable Conditions:

- Insufficient volume
- Frozen
- Collection container containing additive
- Contaminated
- Incompletely labeled or mislabeled
- Exceeding stability requirements.

Storage/Transport Temperature:

Refrigerated (2-8° C)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	24 hours	Unacceptable

Performed:

Daily

Reference Interval:

The reference interval(s) and other method performance specifications are unavailable for this body fluid. Comparison of the result with concentration in the blood, serum or plasma is recommended.

Methodology:

Manual hemocytometer and differential

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

89051

Last Reviewed:

1/19/24

CENTROMERE (SQ: CENTA)

CENTP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
This test is included in the following test panels:
ANASN
ANASEN
CENAPN

ADMINISTRATIVE

Last Reviewed:
2/1/24

CERULOPLASMIN (SQ:CERULA)

CERLP

TESTING INFORMATION

Ordering Recommendations:
May be used as initial screening test in Wilson disease or copper transport disorders.

Collect:
Serum Separator Tube (SST). Also acceptable: Plasma collected in Green (Lithium Heparin).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
EDTA plasma or hemolyzed specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 days; Refrigerated: 2 weeks; Frozen: 1 years

Performed:
Sun-Sat

Reference Interval:
Effective February 22, 2022

6 months-6 years	18-37 mg/dL
7-17 years	20-43 mg/dL
18 years and older Male	15-30 mg/dL
18 years and older Female	16-45 mg/dL

Reported:
Within 24 hours

Methodology:
Quantitative Immunoturbidimetry

Notes:
Fasting specimen preferred.

Performing Lab:
ARUP

ARUP Test Code:
0050160

ADMINISTRATIVE

CPT Codes:
82390

Last Reviewed:
12/2/2023

CHLAMYDIA SEROLOGY, S (SQ:CHLAB)

CHAMY

TESTING INFORMATION

Ordering Recommendations:
Differentiate between Chlamydophila species (C. psittaci, C. pneumoniae). Differentiate early IgM response to infection from persistent low-level titer. Because of cross-reactivity, a C. pneumoniae-specific reaction will exhibit titers two-fold or greater than C. trachomatis or C. psittaci serology. Limited value in the diagnosis of most oculogenital (eg, eyes, genitalia) chlamydial infections.

Collect:
Plain red or serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or hyperlipemic sera.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Fri

Reference Interval:
< 1:64 C. pneumoniae IgG.
< 1:64 C. psittaci IgG.
< 1:64 C. trachomatis IgG.
< 1:20 C. pneumoniae IgM.
< 1:20 C. psittaci IgM.
< 1:20 C. trachomatis IgM.

Reported:
1-4 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Interpretive Data:
Refer to individual components.

Performing Lab:
ARUP

ARUP Test Code:
0065100

ADMINISTRATIVE

CPT Codes:
86631 x3; 86632 x3

Last Reviewed:
12/2/2023

CHLAMYDIA TRACHOMATIS, DNA, AMP PROBE (SQ: CHPRV)

CHPRV

TESTING INFORMATION

Ordering Recommendations:

Use this test when patients have suspected STI.

Collect:

Urine preferred specimen
Male and Female Urine specimens
Collect: Use only the COBAS PCR urine sample kit to collect urine specimens for the COBAS CTNG.

Female endocervical or vaginal specimens
Collect: Use only the COBAS PCR female Dual swab sample kit.

For endocervical collection, use the woven swab to remove excess mucus and collect the specimen with the flocked swab (brush). The collection tube should only contain the flocked swab. The specmen will be rejected if the tube contains no swab or 2 swabs.

For vaginal collection, use the woven swab from the collection kit. Discard the flocked swab-do not use for the vaginal collection.

For both samples types, after collecting carefully leverage the swab against the tube rim to break the swab shaft at the dark line. Discard the top portion of the swab. Tightly re-cap the cobas PCR media tube.

For Eye collection: Use an Aptima Swab Collection kit and order an ARUP Miscellaneous Test (MISA1 in EPIC) with a comment "Chlamydia Trachomatis". This will then get ordered as the ARUP test - Chlamydia trachomatis and Neisseria gonorhoeae by Transcription-Mediated Amplification (TMA)/ARUP Code: 0060241

Pediatric Collection:

Ordering Chlamydia trachomatis and Neisseria gonorrhea For Pediatrics Under Age 14

Chlamydia trachomatis and Neisseria gonorrhea molecular testing at Carle Health Peoria utilizes the Roche Cobas 6800 instrument. This assay is validated for patients 14 years and older. Specimens on patients 13 years or younger will be sent to OSF. Additionally, for patients under 12 years old, positive molecular results require a secondary test as confirmation.

For patients 13 years or younger, order a Miscellaneous (MISCA1) and Free Text CT/NG PCR testing to OSF.

Patients 13 years of age:
Using the current collection media, transfer urine into a standard Cobas PCR Urine sample kit and submit to laboratory.

Patients under 12 years of age:
Prior to sampling, the patient should not have urinated for at least one hour. The patient should collect first -catch urine (about 10-50mL) of the initial urine stream into a cup. Using the current collection media, transfer urine into a standard Cobas PCR Urine Sample kit. Submit the Cobas PCR urine sample kit AND the original urine in the UA cup to the laboratory within 12 hours of collection. The original urine sample should be stored between 2-8 degrees C after collected. If positive, the additional urine sample will be submitted by OSF for reference testing confirmation. If the original urine is not sent with the molecular collection kit, the test will be cancelled

Unacceptable Conditions:

Swab used for preparatory cleaning is unacceptable for testing. Specimens other than vaginal endocervical or voided urine are not acceptable. Excessive mucous, moderate or grossly bloody specimens may cause inhibition in the assay.

Recent information has come out that carbomer, an ingredient in lubricant, will interfere with Chlamydia and Gonorrhea testing within the Central Illinois Laboratory, producing an invalid result. We are now requiring that any Ct/Ng test collected with lubricant must not contain any carbomer. Invalid results will be rejected and patients will need to be recollected.

Remarks:

This assay should not be used for the evaluation for suspected sexual abuse or for other medico-legal indications.

This assay is validated for 14 years and older.
Patients ages 12-13 years: sample will be sent to referral laboratory for testing (same collection device-Cobas PCR Urine Sample Kit)

Patients 12 and younger years of age: Must send sample in Cobas PCR Urine sample kit AND the original urine in the UA cup.
Testing will be sent to referral laboratory. If positive, then confirmaiton test using the urine from the UA cup will be sent out to another referral laboratory.

Stability (from collection to initiation):
Swabs and urine stabilized in PCR media 12 months at 2-3 degrees C.
Unpreserved Urine 24 hours at 2-3 degrees C.

Performed:
Monday - Friday

Reference Interval:
Negative

Reported:
1-3 days

Methodology:
DNA Probe, RT-PCR

Performing Lab:
Methodist Hospital

Clinical Information:
Culture is recommended as the standard for Neiserria Gonorrhoeae in suspected sexual abuse or for other medico-legal purposes.

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87491

Last Reviewed:
4/2/24

CHLORIDE, CSF (SQ: SFCL)

CSFCL

TESTING INFORMATION

Collect:
CSF in clean glass or plastic container with secure lid..

Storage/Transport Temperature:
1 mL CSF. (Min: 0.5 mL) promptly at Ambient (room temperature) temperature. Refrigerate and transport at 2-8oC if delivery will be delayed.

Performed:
Sunday-Saturday

Methodology:
Ion Selective Electrode

Interpretive Data:
A reference interval has not been established for this test on the supplied specimen type. This test was developed using enzymatic methodology developed by Siemens and its performance characteristics determined by UnityPoint Health Methodist. It has not been cleared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82438

CHLORIDE, RANDOM URINE (SQ: UCL)

RCLU

TESTING INFORMATION

Collect:
Random urine collection in clean container with secure lid. Acceptable: Timed urine collection.

Unacceptable Conditions:
Urine specimen containing preservatives, blood or fecal matter

Performed:
Sunday-Saturday

Methodology:
Indirect Potentiometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

CHOLESTEROL, BODY FLUID (SQ: FCHOL)

CHOBF

TESTING INFORMATION

Collect:
Pleural and Peritoneal (Min: 1 mL)

Unacceptable Conditions:
Frozen Samples

Remarks:
Specify source of fluid.

Performed:
Daily

Methodology:
Polychromatic endpoint

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

CHOLESTEROL, TOTAL (SQ: CHOL)

CHOL3

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Gold (SST), Plain Red, or Green lithium heparin	6mL	2mL
STAT:	Gold (SST), Plain Red, or Green lithium heparin	6mL	2mL

Specimen Preparation:
Separate serum/plasma from cells within two hours of collection.

Storage/Transport Temperature:
Centrifuged gold top, or 1 mL serum or plasma (Min: 0.5 mL) at Ambient (room temperature) or 2-8^{o}C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	7 days	3 months

Performed:
Daily

Reference Interval:

Total Cholesterol (mg/dL)	
<200	Desirable
200-240	Borderline
>240	High Risk

Methodology:
Polychromatic endpoint.

Performing Lab:
Methodist, Pekin, Proctor

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82465

Last Reviewed:
1/19/24: JLM

CHROMATIN ANTIBODY, IGG (SQ:CHRNUA)

CHRNA

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

CHROMIUM, S (SQ:CHRMA)

CRS

TESTING INFORMATION

Ordering Recommendations:
May be useful in the assessment of chromium deficiency or overload. For the assessment of hexavalent chromium exposure, Chromium, RBC (2014505) is preferred.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).

Collect:
Royal Blue (No Additive).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma. Royal Blue (EDTA) or separator tubes. Specimens that are not separated from the clot within 2 hours. Specimens transported in tubes other than specified.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated or frozen.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Performed:
Sun-Sat

Reference Interval:
Less than or equal to 5.0 µg/L

Reported:
1-3 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum chromium, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Serum chromium levels can be significantly higher in patients with metal-on-metal total hip replacement implants than in control patients without metal implants. Serum chromium levels may be increased in asymptomatic patients with metal-on-metal prosthetics and should be considered in the context of the overall clinical scenario. Whole blood is the specimen type recommended by the U.S. Food and Drug Administration for assessing the risks of metal-on-metal hip implants in symptomatic patients.

Symptoms associated with chromium toxicity vary based on route of exposure and dose, and may include dermatitis, impairment of pulmonary function, gastroenteritis, hepatic necrosis, bleeding, and acute tubular necrosis.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0098830

ADMINISTRATIVE

CPT Codes:
82495

Last Reviewed:
12/2/2023

CHROMOGRANIN A, S (SQ:CHROMA)

CGA

TESTING INFORMATION

Ordering Recommendations:
Aids in monitoring but is not recommended for diagnosis of carcinoid tumors. May be useful in monitoring nonsecretory sympathetic and parasympathetic neuroendocrine tumors.

Collect:
Serum separator tube or plain red.

Specimen Preparation:
Allow serum specimen to clot completely at room temperature. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
After separation from cells: Room Temperature: 48 hours; Refrigerated: 3 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
0-187 ng/mL

Reported:
1-4 days

Methodology:
Immunofluorescence

Interpretive Data:
This test is performed using the BRAHMS CGA II Kryptor kit. Results obtained with different methods or kits cannot be used interchangeably. Results cannot be interpreted as absolute evidence of the presence or absence of malignant disease and should be evaluated in combination with clinical symptoms, diagnostic evidence, and/or other laboratory parameters. The change ofCgA concentration over time provides diagnostic information whether a tumor progression has occurred.

An increase of CgA serum concentrations of more than 50% to avalue of greater than 100 ng/ml between consecutive monitoring visits defines a positive test result, representing a higher probability that a tumor progression has occurred.

A change of CgA serum concentrations of equal or less than 50% increase between monitoring visits or to a value of 100 ng/ml or less defines a negative test result, representing a lower probability that a tumor progression has occurred. Nontumor related elevations of Chromogranin A can be observed in gastrointestinal, cardiovascular, and renal disorders, cancers other than neuroendocrine tumors, as well as with proton pump inhibitor (PPI) therapy. It is recommended to stop PPI treatment for at least 14 days prior to testing.

Performing Lab:
ARUP

ARUP Test Code:
3002867

ADMINISTRATIVE

CPT Codes:
86316

CITRATE UR 24 HR (SQ:UCITRA)

UCTRA

TESTING INFORMATION

Collect:
24-hour urine. Refrigerate during collection. Also acceptable: Random urine.

Specimen Preparation:
Adjust pH to less than or equal to 2 by adding 6M HCl. Transfer a 4 mL aliquot of urine to an ARUP Standard Transport Tube. (Min: 0.5 mL) Record total volume, collection time interval, and pH on transport tube and test request form. Also acceptable: Specimens previously preserved with boric acid.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 2 weeks; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Citric Acid, Urine - per 24h	18 years and older: 320-1240 mg/d
Citric Acid/Creatinine Ratio, Urine	1 year and older: greater than or equal to 150 mg/g.

Reported:
Within 24 hours

Methodology:
Quantitative Enzymatic Assay

Interpretive Data:
Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0020852

ADMINISTRATIVE

CPT Codes:
82507

Last Reviewed:
12/2/2023

CK TOTAL (SQ: CK)

CKTOT

COLLECTION DEVICE

Preferred Collection Device:
Gold (SST)

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Gold (SST), green, plain red	6mL	3mL
STAT:	Gold (SST), green, plain red	6mL	3mL

Specimen Preparation:
Separate serum/plasma from cells within two hours of collection.

Unacceptable Conditions:
Gross hemolysis

Storage/Transport Temperature:
Gold, green, or plain red promptly sent to lab at ambient (room) temperature.
If transport is expected to be delayed, separate serum/plasma and transport 1mL (minimum 0.3mL) at 2-8°C

Stability (from collection to initiation):

Stability of serum/plasma after separation from cells:		
Ambient	Refrigerated	Frozen
12 hours	7 days	29 days

Performed:
Sunday-Saturday

Reference Interval:
Males: 39-308 U/L
Females: 26-192 U/L

Methodology:
Enzymatic Vista

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82550

Last Reviewed:
1/19/24:JLM

CK-MB (SQ: CPKMB)

MB

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Gold (SST), Green, or plain Red	6mL	3mL
STAT:	Gold (SST), Green, or plain Red	6mL	3mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Remarks:
The chance of interference is remote but can potentially alter results by 10%. If patient is on Biotin supplementation, be aware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory testing

Storage/Transport Temperature:
Centrifuged gold top, plasma or serum (Min: 0.5 mL) at refrigerated 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
12 hours	3 days	1 month

Performed:
Sunday-Saturday

Reference Interval:
0.5-3.6 ng/mL

Methodology:
Chemiluminescence/LOCI

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82553

Last Reviewed:
1/19/24:JLM

CLADOSPORIUM HERBARUM (SQ: CHMOLD)

CLHE

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

CLOBAZAM QUANT (SQ:FCLBZA)

FCLBZ

TESTING INFORMATION

Ordering Recommendations:
Use to optimize drug therapy and monitor patient adherence.

Collect:
Plain red, lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate from cells ASAP or within two hours of collection. Transfer 2 mL serum or plasma to an ARUP standard transport tube. (Min: 0.3 mL)

Unacceptable Conditions:
Gel separator tubes. Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated. Also acceptable: Room temperature or frozen.

Stability (from collection to initiation):
Ambient: 3 days; Refrigerated: 2 weeks; Frozen: 2 months (Avoid repeated freeze thaw cycles)

Performed:
Mon, Wed, Sat

Reference Interval:

Components	Reference Interval
Clobazam	30-300 ng/mL
N-Desmethylclobazam	300-3000 ng/mL

Reported:
1-6 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Clobazam is a benzodiazepine drug indicated for adjunctive treatment for seizures associated with Lennox-Gastaut syndrome in patients 2 years and older. The therapeutic range is based on serum, predose (trough) draw collection at steady-state concentration. The pharmacokinetics of clobazam are influenced by drug-drug interactions and by poor CYP2C19 metabolism. Adverse effects may include constipation, somnolence, sedation, and skin rash. The concomitant use of clobazam with other central nervous system (CNS) depressants may increase the risk of somnolence and sedation.

Components	Interpretive Data
Clobazam	Toxic: Greater than 500 ng/mL
N-Desmethylclobazam	Toxic: Greater than 5000 ng/mL

Performing Lab:
ARUP

ARUP Test Code:
3002508

ADMINISTRATIVE

CPT Codes:
80339 (Alt code: G0480)

CLOMIPRAMINE (SQ:CLOMIA)

CLOMI

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady-state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Fri

Reference Interval:
Effective February 19, 2013

Therapeutic Range	Total (clomipramine and norclomipramine): 220-500 ng/mL
Toxic Level	Greater than 900 ng/mL

Reported:
2-8 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
The therapeutic range listed relates to the antidepressant characteristics of the drug. A therapeutic range for treating obsessive compulsive disorder is not well established. Toxic concentrations may cause anticholinergic effects, CNS depression, cardiac abnormalities, seizures, and hypotension.

Performing Lab:
ARUP

ARUP Test Code:
0099336

ADMINISTRATIVE

CPT Codes:
80335 (Alt code: G0480)

CLONAZEPAM (SQ:CLONAA)

CLNAA

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady state concentration

Collect:
Gray (potassium oxalate/sodium fluoride). Also acceptable: Plain red, green (sodium heparin), lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP standard transport tube. (Min: 1 mL)

Unacceptable Conditions:
Gel separator tubes. Plasma or whole blood collected in light blue (sodium citrate). Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years (Avoid repeated freeze/thaw cycles).

Performed:
Tue, Fri

Reference Interval:
Effective November 18, 2013

Dose-Related Range	20-70 ng/mL - Dose (Adult) 1-8 mg/d
Toxic	Greater than 80 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Adverse effects may include drowsiness, headache, fatigue, and ataxia.

Performing Lab:
ARUP

ARUP Test Code:
0090055

ADMINISTRATIVE

CPT Codes:
80346 (Alt code: G0480)

Last Reviewed:
12/1/2023

CLOZAPINE SERUM (SQ: CLOZAP)

CLZAO

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose(trough) draw - at steady -state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube.(Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:

Therapeutic Range	Not well established
Toxic Level	Total Clozapine and Metabolites: Greater than or equal to 1500 ng/mL

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Therapeutic ranges are not well established. Clozapine is metabolized to norclozapine and clozapine-N-oxide. Clozapine concentrations between 100 and 700 ng/mL may correlate more with clinical response; however, nonresponsiveness may also occur within this range. For refractory schizophrenia, clozapine concentrations greater than 350 ng/mL are suggested to achieve a therapeutic response.

Toxicity: Adverse effects to clozapine therapy may include tachycardia, drowsiness, hypotension, and seizures.

Therapeutic and toxic ranges are not well established in children.

Performing Lab:
Methodist Hospital

ARUP Test Code:
2013433

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
80159

CMV IGG AB (SQ: CMIGG)

CMVGV

TESTING INFORMATION

Collect:
One 6 mL gold, red, green, or lavendar top tube. Separate serum or plasma from cells ASAP.

Pediatric Collection:
0.5 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum or plasma Refrigerated (2-8 °C) or centrifuged gold top refrigerated

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Interpretive Data:
Negative:;0.8 AI Equivocal: 0.9-1.0 AI Positive:;1.1 AI

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

CMV IGG AB AVIDITY (SQ:FCMIGA)

FCMIG

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of cytomegalovirus (CMV) infection during pregnancy after initial testing for CMV IgM and IgG has been performed.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Tue

Reference Interval:
0.50 Index or less: Low Avidity
0.51-0.59 Index: Intermediate Avidity
0.60 Index or greater: High Avidity

Reported:
1-8 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
Identifying CMV infections in pregnant women during the first trimester is of significant importance for clinical care. Acute infection is typically characterized by increased CMV-specific IgM and IgG antibodies. However, CMV IgM antibodies may persist for several months or even years after initial infection, which limits their utility in the accurate diagnosis of recent CMV infection. CMV IgM antibodies can also be detected during viral reactivation, thus complicating the diagnosis of a recent primary infection. Therefore, measuring IgG antibody avidity to CMV antigens can aid in discriminating recent from prior CMV infections. Index values of 0.5 or less generally indicate recent infection (within the previous 3 to 4 months). However low avidity values cannot exclude the possibility of persistent IgG antibodies with low avidity. Index values of 0.6 or greater indicate an infection occurring more than 3 months prior to testing. Because IgG avidity testing for CMV after the first trimester is not easily interpreted, detection of high avidity CMV IgG antibodies during the first trimester (12 to 16 weeks gestation) helps exclude a diagnosis of an acute CMV infection post-conception.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2011813

ADMINISTRATIVE

CPT Codes:
86644

Last Reviewed:
12/1/2023

CMV IGM AB (SQ: CMIGM)

CMVMV

COLLECTION DEVICE

Preferred Collection Device:
GOLD(SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green (lithium heparin) Top Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum/plasma or centrifuged gold top (Minimum: 0.5 mL) refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Reference Interval:
Negative <= 0.8 AI
Equivocal: 0.9-1.0 AI
Positive: >= 1.1 AI

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86645

Last Reviewed:
2/1/24

CO2 (CARBON DIOXIDE) (SQ: CO2)

CO2

TESTING INFORMATION

Collect:
One 6 mL Gold top, Red top STAT: Green (Min: 3 mL)

Unacceptable Conditions:
Uncapped specimens

Storage/Transport Temperature:
0.3 mL serum at 2-8 degrees ;C: for one allergen;Add 0.1 mL for each additional allergen.

Performed:
Sunday-Saturday

Methodology:
Enzymatic

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

COBALT, S (SQ:COBALA)

COS

TESTING INFORMATION

Ordering Recommendations:
May be used in the assessment of occupational exposure or toxic ingestion.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).

Collect:
Royal blue (No Additive), Royal blue (K2EDTA), or Royal blue (NaHep).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens collected in containers other than specified. Specimens transported in containers other than specified.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated or frozen.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Performed:
Sun-Sat

Reference Interval:
Less than or equal to 1.0 µg/L

Reported:
1-3 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum/plasma cobalt, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Serum cobalt levels can be used in the assessment of occupational exposure or toxic ingestion. Symptoms associated with cobalt toxicity vary based on route of exposure, and may include cardiomyopathy, allergic dermatitis, pulmonary fibrosis, cough, and dyspnea.

Serum cobalt levels can be significantly higher in patients with metal-on-metal total hip replacement implants than in control patients without metal implants. Serum cobalt levels may be increased in asymptomatic patients with metal-on-metal prosthetics and should be considered in the context of the overall clinical scenario. Whole blood is the specimen type recommended by the U.S. Food and Drug Administration for assessing the risks of metal-on-metal hip implants in symptomatic patients.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0025037

ADMINISTRATIVE

CPT Codes:
83018

COCAINE AND METABOLITE CONF, URINE (MML) (SQ:COKEUA)

COKEU

TESTING INFORMATION

Ordering Recommendations:
Use to obtain quantitative results or to follow up a presumptive result. For general screening, the preferred test is Cocaine, Urine Screen with Reflex to Quantitation (2012231).

Collect:
Random urine.

Specimen Preparation:
Transfer 1 mL urine with no additives or preservatives to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years

Performed:
Sun-Sat

Reference Interval:
Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Benzoylecgonine	50 ng/mL

Reported:
1-6 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Compare to Pain Management, Cocaine Metabolite with Confirmation with medMATCH, Urine; Pain Management, Cocaine Metabolite, Quantitative, with medMATCH, Urine.

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 50 ng/mL

For medical purposes only; not valid for forensic use.

The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
0090359

ADMINISTRATIVE

CPT Codes:
80353 (Alt code: G0480)

Last Reviewed:
12/1/2023

COCCIDIOIDES AB COMPLEMENT FIXATION IMMDIF, SERUM (SQ:COCSA)

COCSA

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of coccidioidomycosis. Includes testing by complement fixation and immunodiffusion. For comprehensive diagnostic testing that includes immunoassay (IgM and IgG), complement fixation, and immunodiffusion, refer to Coccidioides Antibodies Panel, Serum (0050588).

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP standard transport tube. (Min: 0.8 mL). Parallel testing is preferred, and convalescent specimens must be received within 30 days from receipt of the acute specimens.

Unacceptable Conditions:
Other body fluids. Contaminated, hemolyzed, icteric, or lipemic specimens.

Remarks:
Mark specimens plainly as "acute" or "convalescent".

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Coccidioides Antibody by CF	Less than 1:2
Coccidioides by Immunodiffusion, Serum	Not detected.

Reported:
2-6 days

Methodology:
Semi-Quantitative Complement Fixation/Qualitative Immunodiffusion

Notes:
This immunodiffusion test uses culture filtrates of Coccidioides immitis and includes CF and TP antigens.

Interpretive Data:
Refer to report

Performing Lab:
ARUP

ARUP Test Code:
3002995

ADMINISTRATIVE

CPT Codes:
86635 x2

Last Reviewed:
12/2/2023

COCCIDIOIDES AB PANL (SQ:COCCID)

COCCI

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of coccidioidomycosis. Includes testing by immunoassay (IgM and IgG), complement fixation, and immunodiffusion. For reflex testing, refer to Coccidioides Antibodies Reflexive Panel, Serum (3001982).

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP standard transport tube. (Min: 1.2 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens.

Unacceptable Conditions:
Other body fluids. Contaminated, hemolyzed, icteric, or lipemic specimens.

Remarks:
Mark specimens plainly as "acute" or "convalescent."

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Coccidioides Antibody by CF	Less than 1:2
Coccidioides by Immunodiffusion, Serum	Not detected.
Coccidioides Antibody, IgM by ELISA	0.9 IV or less
Coccidioides Antibody, IgG by ELISA	0.9 IV or less

Reported:
3-6 days

Methodology:
Semi-Quantitative Complement Fixation/Qualitative Immunodiffusion /Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)

Notes:
The immunodiffusion component of this test uses culture filtrates of Coccidioides immitis and includes CF and TP antigens.

Interpretive Data:
A titer of 1:2 or greater suggests past or current infection. However, greater than 30 percent of cases with chronic residual pulmonary disease have negative complement fixation (CF) tests. Titers of less than 1:32 (even as low as 1:2) may indicate past infection or self-limited disease; anticoccidioidal CF antibody titers in excess of 1:16 may indicate disseminated infection. CF serology may be used to follow therapy. Antibody in CSF is considered diagnostic for coccidioidal meningitis, although 10 percent of patients with coccidioidal meningitis will not have antibody in CSF.

Component	Unit Of Measure	Interpretation
Coccidioides Antibody, IgG by ELISA	0.9 IV or less 1.0-1.4 IV 1.5 IV or greater	Negative - No significant level of Coccidioides IgG antibody detected. Equivocal - Questionable presence of Coccidioides IgG antibody detected. Repeat testing in 10-14 days may be helpful. Positive - Presence of IgG antibody to Coccidioides detected, suggestive of current or past infection.
Coccidioides Antibody, IgM by ELISA	0.9 IV or less 1.0-1.4 IV 1.5 IV or greater	Negative - No significant level of Coccidioides IgM antibody detected. Equivocal - Questionable presence of Coccidioides IgM antibody detected. Repeat testing in 10-14 days may be helpful. Positive - Presence of IgM antibody to Coccidioides detected, suggestive of current or recent infection.

Performing Lab:
ARUP

ARUP Test Code:
0050588

ADMINISTRATIVE

CPT Codes:
86635 x4

Last Reviewed:
12/1/2023

COCCIDIOIDES ANTIBODIES, IGM AND IGG BY IMMUNOASSAY, CSF (SQ:CCOCMA)

CCOCM

TESTING INFORMATION

Ordering Recommendations:
Use to screen for the presence of coccidioidal IgM and IgG antibodies in CSF. Not recommended as a standalone test. For comprehensive diagnostic testing that includes immunoassay (IgM and IgG), complement fixation, and immunodiffusion, refer to Coccidioides Antibodies Panel, CSF (3000061).

Collect:
CSF.

Specimen Preparation:
Transfer 2 mL CSF to an ARUP Standard Transport Tube. (Min: 0.3 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens.

Unacceptable Conditions:
Other body fluids. Contaminated, hemolyzed, xanthochromic, or severely lipemic specimens.

Remarks:
Mark specimens plainly as "acute" or "convalescent".

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Coccidioides Antibody IgG ELISA, CSF	0.2 IV or less
Coccidioides Antibody IgM ELISA, CSF	0.2 IV or less

Reported:
1-3 days

Methodology:
Enzyme-Linked Immunosorbent Assay (ELISA)

Notes:
This immunoassay uses recombinant and native Coccidioides antigens, including CF and TP antigens.

Interpretive Data:

Component	Interpretation
Coccidioides Antibodies IgG by Immunoassay, CSF	0.2 IV or less Negative - No significant level of Coccidioides IgG antibody detected. 0.3 IV or greater Positive - Presence of IgG antibody to Coccidioides detected, suggestive of current or past infection.
Coccidioides Antibodies IgM by Immunoassay, CSF	0.2 IV or less Negative - No significant level of Coccidioides IgM antibody detected. 0.3 IV or greater Positive - Presence of IgM antibody to Coccidioides detected, suggestive of current or recent infection.

Performing Lab:
ARUP

ARUP Test Code:
3000057

ADMINISTRATIVE

CPT Codes:
86635 x2

Last Reviewed:
12/2/2023

COCKROACH, IGE (SQ: CROAC)

COCKR

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

CODFISH, IGE (SQ: COD)

COD

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

COLD AGGLUTININS (SQ:COLDA)

CAGG

TESTING INFORMATION

Collect:
Serum separator tube or plain red.

Specimen Preparation:
Keep in warm water (37°C) until processed for transport by laboratory; refrigeration of specimen before separation of serum from cells will adversely affect test results. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.25 mL)

Unacceptable Conditions:
Plasma or CSF. Refrigerated whole blood. Contaminated, severely hemolyzed, or lipemic, specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Tue, Thu, Sat

Reference Interval:
< 1:32 Negative

Reported:
2-7 days

Methodology:
Semi-Quantitative Hemagglutination (HA)

Interpretive Data:
Titers of 1:32 or higher are considered elevated by this technique. Elevated titers are rarely seen except in primary atypical pneumonia and in certain hemolytic anemias. If the agglutination is not reversible after incubation at 37°C, then the reaction is not due to cold agglutinins.

Primary atypical pneumonia can be caused by Mycoplasma pneumoniae, influenza A, influenza B, parainfluenza, and adenoviruses. However, a fourfold rise in the cold agglutinins usually begins to appear late in the first week or during the second week of the disease and begins to decrease between the fourth and sixth weeks. Low titers of cold agglutinins have been demonstrated in malaria, peripheral vascular disease, and common respiratory disease.

Performing Lab:
ARUP

ARUP Test Code:
0050175

ADMINISTRATIVE

CPT Codes:
86157

Last Reviewed:
12/2/2023

COMMON RAGWEED (SHORT) (SQ: SRAG)

RAGW

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

COMPLEMENT C1Q, B (SQ:C1QA)

C1Q

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of C1q deficiency. For testing to detect circulating immune complexes, refer to Circulating Immune Complex, C1q Binding (0050301).

Collect:
Lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.1 mL)

Unacceptable Conditions:
Grossly hemolyzed, hyperlipemic, or room temperature specimens. Serum or non-EDTA plasma.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: 1 month

Performed:
Tue, Fri

Reference Interval:
109-242 µg/mL

Reported:
5-10 days

Methodology:
Radial Immunodiffusion

Notes:
For the C1q Binding assay, refer to ARUP test code 0050301. The C1q Binding assay detects circulating immune complexes. The Complement Component 1q Level assay quantifies the active fraction component, C1q, of the C1 complement protein complex.

Performing Lab:
ARUP

ARUP Test Code:
0099130

ADMINISTRATIVE

CPT Codes:
86160

Last Reviewed:
12/2/2023

Complement Component 4 (SQ: C4)

C4

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Pediatric Collection:

Minimum volume: 0.5mL serum or plasma

Unacceptable Conditions:

Grossly lipemic (that cannot be clarified by centrifugation)

Storage/Transport Temperature:

0.5 mL serum/plasma. Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

10-40 mg/dL

Reported:

1 day

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86160

Last Reviewed:

1/24/24

COMPLEMENT, TOTAL (CH50), B (SQ:CH50A)

COMP

TESTING INFORMATION

Ordering Recommendations:
Initial screening for suspected deficiency in the classical complement pathway.

Collect:
Plain red.

Specimen Preparation:
Allow specimen to clot for one hour at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Separator tubes. Specimens left to clot at 2-8°C. Specimens exposed to repeated freeze/thaw cycles. Non-frozen specimens. Grossly hemolyzed or severely lipemic specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Low	38.6 U/mL or less
Normal	38.7-89.9 U/mL
High	90.0 U/mL or greater

Reported:
1-2 days

Methodology:
Quantitative Immunoturbidimetry

Performing Lab:
ARUP

ARUP Test Code:
3002575

ADMINISTRATIVE

CPT Codes:
86162

COMPREHENSIVE METABOLIC PANEL - FASTING (SQ: COMPNF)

COMPF

TESTING INFORMATION

Ordering Recommendations:
Testing is for use in Outpatient settings Only

Patient Preparation:
Fasting defined as: No caloric intake (beverage or food) for 8 hours before the lab test No intake of artificial sweeteners for 8 hours before the lab test.

Collect:

Priority	Specimen Type	Requested Vol.	Min Vol.
Routine:	1 Serum Separator Tube (God Top)	6 mL	3 mL
STAT:	1 Green Top	6 mL	3 mL

Specimen Preparation:
Separate serum/plasma from cells within two hours of collection.

Unacceptable Conditions:
Grossly hemolyzed or contamination.

Storage/Transport Temperature:
Transport 1.0mL serum/plasma refrigerated.

Stability (from collection to initiation):

	Ambient	Refrigerated	Frozen	
Methodist	8 Hours	72 Hours	Indefinitely	
Pekin	4 Hours	7 Days	Indefinitely	
Proctor	4 Hours	7 Days	Indefinitely	

Performed:
Sunday-Saturday

Reference Interval:
See individual components for reference intervals.

Methodology:
Refer to invidual components

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

Components:

- Albumin
- Alkaline Phosphatase
- Alanine Transaminase
- Asparate Aminotransferase
- Bilirubin Total
- Blood Urea Nitrogen
- Calcium
- Chloride
- CO2
- Creatinine
- Glucose
- Potassium
- Total Protein

ADMINISTRATIVE

CPT Codes:
80053

Last Reviewed:
1/24/24

COMPREHENSIVE METABOLIC PANEL (SQ: COMPNL)

CMP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Vol.	Min Vol.
Routine:	1 Serum Seperator Tube	6mL	3mL
STAT:	1 Green Top	6mL	3mL

Other Acceptable Specimen(s):

Specimen Type	Requested Vol.	Min Vol.
1 Red Top Tube	6mL	3mL

Specimen Preparation:

Separate serum/plasma from cells within two hours of collection.

Unacceptable Conditions:

Gross hemolysis or contamination.

Storage/Transport Temperature:

Transport 1.0 mL serum/plasma. refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 Hours	Methodist: 3 Days	7 Days
	Proctor and Pekin: 7 Days	

Performed:

Sunday - Saturday

Reported:

2-4 Hours (STAT - 1 Hour)

Methodology:

Refer to invidual components

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

80053

Last Reviewed:

1/24/24

CONGENITAL ADRENAL HYPERPLASIA TREATMENT PANEL (SQ:CAHMA)

CAHMA

TESTING INFORMATION

Ordering Recommendations:
Use to monitor treatment of individuals with classic or nonclassic congenital adrenal hyperplasia.

Patient Preparation:
Collect between 6-10 a.m.

Collect:
Serum separator tube or green (sodium or lithium heparin). Also acceptable: Pink (K_2EDTA).

Specimen Preparation:
Transfer 1.2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.7 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:

Components: Testosterone by Mass Spec

Age	Male (ng/dL)	Female (ng/dL)
Premature (26-28 weeks)	59-125	5-16
Premature (31-35 weeks)	37-198	5-22
Newborn	75-400	20-64
1-5 months	14-363	Less than 20
6-24 months	Less than 37	Less than 9
2-3 years	Less than 15	Less than 20
4-5 years	Less than 19	Less than 30
6-7 years	Less than 13	Less than 7
8-9 years	2-8	1-11
10-11 years	2-165	3-32
12-13 years	3-619	6-50
14-15 years	31-733	6-52
16-17 years	158-826	9-58
18-39 years	300-1080	9-55
40-59 years	300-890	9-55
60 years and older	300-720	5-32
Premenopausal (18 years and older)	Not Applicable	9-55
Postmenopausal	Not Applicable	5-32
Tanner Stage I	2-15	2-17
Tanner Stage II	3-303	5-40
Tanner Stage III	10-851	10-63
Tanner Stage IV-V	162-847	11-62

Age	Male (ng/dL)	Female (ng/dL)
Premature (26-28 weeks)	124-841	124-841
Premature (29-35 weeks)	26-568	26-568
Full term Day 3	7-77	7-77
4 days-30 days	Less than 200	7-106
1 month-2 months	Less than 200	13-106
3 months-5 months	3-90	13-106
6 months-1 year	Less than or equal to 148	Less than or equal to 148
2-3 years	Less than or equal to 228	Less than or equal to 256

17-Hydroxyprogesterone, HPLC-MS/MS

4-6 years	Less than or equal to 208	Less than or equal to 299
7-9 years	Less than or equal to 63	Less than or equal to 71
10-12 years	Less than or equal to 79	Less than or equal to 129
13-15 years	9-140	9-208
16-17 years	24-192	Less than or equal to 178
18 years and older	Less than 139	Less than 207
Follicular	Not Applicable	15-70
Luteal	Not Applicable	35-290
Tanner Stage I	Less than or equal to 62	Less than or equal to 74
Tanner Stage II	Less than or equal to 104	Less than or equal to 164
Tanner Stage III	Less than or equal to 151	13-209
Tanner Stage IV-V	20-173	7-170

Androstenedione by TMS

Age	Male (ng/mL)	Female (ng/mL)
Premature Infants (26-28 weeks Day 4)	0.92-2.82	0.92-2.82
Premature Infants (31-35 weeks Day 4)	0.80-4.46	0.80-4.46
Full Term Infants (1-7 days)	0.20-2.90	0.20-2.90
8-30 days	0.18-0.80	0.18-0.80
1-5 months	0.06-0.68	0.06-0.68
6-24 months	0.03-0.15	Less than 0.15
2-3 years	Less than 0.11	Less than 0.16
4-5 years	0.02-0.17	0.02-0.21
6-7 years	0.01-0.29	0.02-0.28
8-9 years	0.03-0.30	0.04-0.42
10-11 years	0.07-0.39	0.09-1.23
12-13 years	0.10-0.64	0.24-1.73
14-15 years	0.18-0.94	0.39-2.00
16-17 years	0.30-1.13	0.35-2.12
18-39 years	0.33-1.34	0.26-2.14
40 years and older	0.23-0.89	0.13-0.82
Premenopausal	Not Applicable	0.26-2.14
Postmenopausal	Not Applicable	0.13-0.82
Tanner Stage I	0.04-0.32	0.05-0.51
Tanner Stage II	0.08-0.48	0.15-1.37
Tanner Stage III	0.14-0.87	0.37-2.24
Tanner Stage IV-V	0.27-1.07	0.35-2.05

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Free or bioavailable testosterone measurements may provide supportive information.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2002029

ADMINISTRATIVE

CPT Codes:
82157; 83498; 84403

Last Reviewed:
12/2/2023

CONTACTIN-ASSOC PRO-2 AB, IGG CBA-IFA WITH RFLX TITER, CSF (SQ:CS2CSA)

CS2PA

TESTING INFORMATION

Ordering Recommendations:
Aids in diagnosis of contactin-associated protein-2 (CASPR2) antibody disorders associated with acquired neuromyotonia, limbic encephalitis, painful neuropathy, and Morvan syndrome. Use to manage antibody-positive (CASPR2) individuals following immunotherapy and/or plasmapheresis. Serum is the preferred specimen; refer to Contactin-Associated Protein-2 Antibody, IgG CBA-IFA with Reflex to Titer, Serum (2009452).

Collect:
CSF.

Specimen Preparation:
Transfer 0.5 mL CSF to an ARUP standard transport tube. (Min: 0.15 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Performed:
Wed

Reference Interval:
Less than 1:1

Reported:
1-8 days

Methodology:
Semi-Quantitative Cell-Based Indirect Fluorescent Antibody

Notes:
If CASPR2 antibody IgG is positive, then CASPR2 antibody IgG titer will be added. Additional charges apply.

Interpretive Data:
Contactin-associated protein-2 (CASPR2) IgG antibody may occur as part of the voltage-gated potassium channel (VGKC) complex antibodies.

The presence of CASPR2 IgG antibody is associated with a wide spectrum of clinical manifestations, including acquired neuromyotonia, limbic encephalitis, painful neuropathy, and Morvan syndrome. Tumors such as thymoma, small cell lung cancer, and other rarer tumors may occur. The full spectrum of clinical disorders and tumors associated with the CASPR2 IgG antibody continues to be defined. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes CASPR2 transfected cell lines for the detection and semiquantification of the CASPR2 IgG antibody.

Performing Lab:
ARUP

ARUP Test Code:
3001986

ADMINISTRATIVE

CPT Codes:
86255; if reflexed, add 86256

COPPER, 24 HR, U (SQ:UCU24A)

CPR24

TESTING INFORMATION

Ordering Recommendations:
Useful in the assessment of overload.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and nonessential over-the-counter medications (upon the advice of their physician). Collection from patients receiving iodinated or gadolinium-based contrast media must be avoided for a minimum of 72 hours postexposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days postcontrast media exposure.

Collect:
24 hour urine. Refrigerate during collection. Specimen must be collected in a plastic container. Also acceptable: Random urine.

Specimen Preparation:
Transfer an 8 mL aliquot from a well-mixed collection to ARUP Trace Element-Free Transport Tubes (ARUP supply #43116). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 1 mL)

Unacceptable Conditions:
Specimens collected within 72 hours after administration of iodinated or gadolinium-based contrast media.. Acid preserved urine. Specimens transported in containers other than specified. Specimens contaminated with blood or fecal material.

Remarks:
Record total volume and collection time interval on transport tube and on test request form.

Storage/Transport Temperature:
Refrigerated. Also acceptable: Room temperature or frozen.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Copper, Urine - per volume</td><td>Less than or equal to 3.2 µg/dL</td></tr>
<tr><td>Copper, Urine - per 24h</td><td>3.0-45.0 µg/d</td></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
<tr><td>Copper, Urine - ratio to CRT</td><td>10.0-45.0 µg/g CRT</td></tr>
</table>

Reported:
1-5 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Notes:
High concentrations of iodine or gadolinium may interfere with elemental testing.

Interpretive Data:
Individuals with symptomatic Wilson disease usually excrete more than 100 µg copper per day. Other conditions associated with elevated urine copper include cholestatic liver disease, proteinuria, some medications, and contaminated specimens. Although random specimens may contain diagnostic information, a 24-hour collection is a more consistent indicator of copper urine.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

Performing Lab:
ARUP

ARUP Test Code:
0020461

ADMINISTRATIVE

CPT Codes:
82525

Last Reviewed:
12/1/2023

COPPER, S (SQ:CUA)

CUS

TESTING INFORMATION

Ordering Recommendations:
Useful in the assessment of deficiency or overload. Measures both protein-bound and free forms of copper in serum or plasma.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).

Collect:
Royal blue (No Additive), Royal blue (K2EDTA), or Royal blue (NaHep).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens that are not separated from the red cells or clot within 2 hours. Specimens collected in containers other than specified. Specimens transported in containers other than specified.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated or frozen.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Performed:
Sun-Sat

Reference Interval:

Age	Male	Female
0-10 years	75.0-153.0 µg/dL	75.0-153.0 µg/dL
11 years-12 years	64.0-132.0 µg/dL	64.0-132.0 µg/dL
13 years-18 years	57.0-129.0 µg/dL	57.0-129.0 µg/dL
19 years and older	70.0-140.0 µg/dL	80.0-155.0 µg/dL

Reported:
1-3 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum/plasma copper, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Serum copper may be elevated with infection, inflammation, stress, and copper supplementation. In females, elevated copper may also be caused by oral contraceptives and pregnancy (concentrations may be elevated up to 3 times normal during the third trimester).

Serum copper may be reduced by use of corticosteroids and zinc and by malnutrition or malabsorption.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0020096

ADMINISTRATIVE

CPT Codes:
82525

Last Reviewed:
12/2/2023

CORD BLOOD GASES VENOUS, POCT (SQ: VVCORG)

PVCOR

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CORD PROFILE (SQ: CORD)

CORDP

TESTING INFORMATION

Collect:
Methodist: Cord Blood in a lavender tube (EDTA)or container

Unacceptable Conditions:
Frozen Samples

Remarks:
Do not freeze.

Performed:
Sunday-Saturday

Methodology:
Hemagglutination

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

CORN ALLERGEN (SQ: CORN)

CORN

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:

0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
Immuno CAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

CORTISOL (SQ: CORTR)

CORT2

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Min Volume
Routine:	Serum Seperator Tube (Gold)	6 mL	3 mL
STAT			

Specimen Preparation:

Separate serum from cells and refrigerate if transport will be delayed.

Unacceptable Conditions:

Plasma samples, gross hemolysis, samples stored at room temperature longer than 8 hours.

Storage/Transport Temperature:

Centrifuged gold top or 1 mL serum

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	2 days	

Performed:

Sunday - Saturday

Reference Interval:

AM: 5.3 - 22.5 ug/dL
PM: 3.4-16.8 ug/dL

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist, Pekin and Proctor Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

82533

Last Reviewed:

12/2/2023

CORTISOL STIMULATION (SQ: CORSTM)

CORTM

TESTING INFORMATION

Patient Preparation:
Injections should be done as an inpatient, at a physician office or scheduled at Methodist or Pekin hopsital infusion center. Specimens labeled appropriately and sent to lab.

Collect:
In conjunction with 0.25 mg Cortrosyn administration: Three samples (cortisol levels): at 0 min. (baseline prior to Cortrosyn injection);30 min. and 60 min. post injection. One SST or plain red at each interval. (Min: 6 mL each draw.) Specify collection time or interval on each specimen.

Specimen Preparation:
Each specimen must be labeled with time drawn.

Unacceptable Conditions:
Plasma, Collection interval times not provided on specimens, Gross hemolysis

Storage/Transport Temperature:
SST centrifuged or plain red centrifuged and 1 mL serum seperated and poured off for each time interval;at 2 -8°C. (Min: 0.5 mL each)

Performed:
Monday - Friday

Methodology:
Chemiluminescent Immunoassay

Interpretive Data:
Normal peak serum cortisol is 2 –3 times baseline.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

CORTISOL, FREE (SQ: CORTFA)

CRTFA

TESTING INFORMATION

Ordering Recommendations:
Screen, diagnose, and monitor diseases associated with excess or deficient cortisol production.

Patient Preparation:
Recommended collection times are 8-10 a.m. or 4-6 p.m.

Collect:
Plain red or serum separator tube, lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.6 mL)

Unacceptable Conditions:
Grossly hemolyzed, icteric, lipemic or heparinized specimens.

Remarks:
Indicate time of draw on test request form and specimen tube.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 6 months

Performed:
Sun, Tue, Thu, Fri

Reference Interval:

Age	Time of Collection	Reference Range
0 - 17 years		Not established
18 years of age and older	8-10 a.m. collection	0.21 - 1.04 µg/dL
18 years of age and older	4-6 p.m. collection	0.10 - 0.63 µg/dL

Reported:
2-5 days

Methodology:
Equilibrium Dialysis/Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
To convert to nmol/L, multiply µg/dL by 27.6.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2012697

ADMINISTRATIVE

CPT Codes:
82530

Last Reviewed:
12/2/2023

CORTISOL, FREE, 24 HR, U (SQ:CORTUA)

CRTFR

TESTING INFORMATION

Ordering Recommendations:
Rule-out Cushing syndrome.

Collect:
24-hour or random urine. Refrigerate 24-hour specimen during collection.

Specimen Preparation:
Transport one 4 mL aliquot of urine. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Room temperature specimens. Acidified specimens or specimens with preservatives.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:

Components: Creatinine, Urine - per 24h

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

Components: Cortisol, Urine Free - ratio to CRT

Age	Male (ug/g CRT)	Female (ug/g CRT)
Prepubertal	Less than 25	Less than 25
18 years and older	Less than 32	Less than 24
Pregnancy	Not Applicable	Less than 59

Components: Cortisol, Urine Free - per 24h

Age	Male (ug/24 h)	Female (ug/24 h)
3-8 years	Less than or equal to 18	Less than or equal to 18
9-12 years	Less than or equal to 37	Less than or equal to 37
13-17 years	Less than or equal to 56	Less than or equal to 56
18 years and older	Less than or equal to 60	Less than or equal to 45

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Reference intervals based on literature from Taylor R.L. et al., Validation of a High-Throughput Liquid Chromatography-Tandem Mass Spectrometry Method for Urine Cortisol and Cortisone. Clinical Chemistry 2002; 48:1511-1519.

Interpretive Data:
Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0097222

ADMINISTRATIVE

CPT Codes:
82530

Last Reviewed:
12/2/2023

CORTISOL,SALIVA (SQ:SALCTA)

SALCT

TESTING INFORMATION

Ordering Recommendations:

Use to rule out Cushing syndrome or screen for thymic and bronchial carcinoid tumors.

Patient Preparation:

Collect 1 mL or more of saliva (fully saturated swab).
Do not eat for 60 minutes prior to collecting specimen.
Do not consume alcohol 12 hours prior to collecting specimen.
Do not brush teeth or use toothpaste immediately before collecting specimen, as gums may bleed and contaminate specimen, causing a falsely elevated result.
Do not use mouthwash products prior to sample collection.
Avoid using lipstick, ChapStick, and other lip items prior to sample collection.
Avoid use of exogenous sources of cortisol (e.g., topical or oral hydrocortisone) or similar products during collection to reduce contamination.
Rinse mouth thoroughly with water 10 minutes before collecting specimen.
Recommended collection time is generally between 11:00 p.m. and 1 a.m. Your healthcare provider may also require different or additional collection times. Be sure to clearly label each tube collected with correct date and time.
Specimens visibly contaminated with blood, cellular debris, food particles, or mucus must be recollected.

Collect:

Saliva. Swab must be completely saturated to ensure sufficient volume for testing.

Specimen Preparation:

Transfer saturated swab to plain (noncitric acid) cotton Salivette collection device (ARUP Supply #52056). Record the time of collection on the test request form and on Salivette transport container.

Unacceptable Conditions:

Specimens not collected using the Salivette collection device. Sodium azide preservative. Specimens visibly contaminated with blood, cellular debris, food particles, or mucus.

Storage/Transport Temperature:

Refrigerated or frozen

Stability (from collection to initiation):

Ambient: 1 week
Refrigerated: 3 weeks
Frozen: 6 months

Performed:

Sun-Sat

Reference Interval:

By report

Reported:

1-4 days

Methodology:

Quantitative: Mass Spectrometry

Interpretive Data:

Reference Intervals:

7 a.m. to 9 a.m.: 0.1-0.75 ug/dL

3 p.m. to 5 p.m.: <0.401 ug/dL

11 p.m. to midnight: <0.1 ug/dL

Performing Lab:

ARUP

ARUP Test Code:

3016866

ADMINISTRATIVE

CPT Codes:

82533

Last Reviewed:

12/1/2023

COTTONWOOD (POPULOUS DELTOIDES), ALLERGEN (SQ: COTWOD)

COTW

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Purple Top Tube	6.0 mL	4.0 mL

Pediatric Collection:

Minimum volume: 0.3 mL serum or plasma

Specimen Preparation:

Separate serum or plasma from cells ASAP. Collect 0.3 mL serum or plasma for one allergen. Collect additional 0.1mL for each additional allergen.

Unacceptable Conditions:

Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:

0.3 mL serum at 2-8 degrees C for one allergen. Add 0.1 mL for each additional allergen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Longterm storage

Performed:

Variable

Reference Interval:

Negative/Undetected

Methodology:

ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:

Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86003

COVID-19 VIRUS PCR (2019 NOVEL CORONAVIRUS) (SQ: SCV2)

COVID

TESTING INFORMATION

Collect:
Nasopharyngeal Swab Nares. Use one swab to collect both nares

Specimen Preparation:
This test detects the 2019 novel coronavirus (SARS CoV-2). Place in viral transport media or saline. Place each specimen in an individually sealed bag. Also acceptable: Media that is equivalent to viral transport media or universal transport media. E-swabs are acceptable.

Unacceptable Conditions:
Wood swabs or calcium alginate swabs. Samples that are obviously leaking will be rejected.

Remarks:
Specimen source required. Submit only one collection tube per patient. Required questions must be answered

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After collection, swabs in viral transport media should be stored at 2-8 degrees C and processed within 48 hours.

Performed:
Daily

Reference Interval:
Negative

Methodology:
Qualitative Real-Time Reverse Transcription Polymerase Chain Reaction

Interpretive Data:
This test should be ordered for the detection of the 2019 novel coronavirus SARS-CoV-2 in individuals who meet SARS Cov_2 clinical and/or epidemiological criteria.This Coronavirus SARS-CoV-2 by PCR test is a laboratory developed test that is based on modification of an assay with an existing FDA Emergency use Authorization. This test has not been cleared or approved by the US Food and Drug Administration. Such approval is not required for clinical implementation, and the test results have been shown to be clinically useful. This laboratory is CAP accredited and CLIA certified to perform high complexity testing.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87635

COVID-19/INFLUENZA PCR (SQ: S2FPC)

CVDFL

TESTING INFORMATION

Collect:

Effective February 1, 2025,

- In-Patient and Emergency Department SARS-CoV-2/Influenza testing, including the Respiratory Panel, must be collected using viral transport media (VTM), as it is the only acceptable medium at our reference laboratories for confirmatory testing. A grace period between February 1st - 15th will be provided without specimen rejection; however, subtyping may not be possible due to improperly collected specimens.
- Outpatient/Clinic Collections: Currently, the Cobas PCR Media Uni Swab is still acceptable for Outpatient SARS-CoV-2/Influenza testing. However, if your patient is at high risk for contracting H5N1, please use VTM in case further testing is needed
- Peoria Region Swab ID and use reference card

Unacceptable Conditions:

- eswabs

Storage/Transport Temperature:

Transport promptly to lab following stability guidelines

Stability (from collection to initiation):

Specimens collected in viral transport media may be stored:

Ambient		Refrigerated		Frozen
4 hours		72 hours		

After testing, can be stored for at least 3 days at 2-8 degrees C.

Performed:

Daily

Reference Interval:

Detected
Non-Detected

Methodology:

Nucleic Acid Amplification using PCR

Notes:

In accordance with the CDC and IDPH guidelines, Carle Health Peoria Service Area Laboratories will begin, February 1, 2025 testing several of our patient tests for Influenza A subtypes.

Performing Lab:

Methodist (Liat/6800), Pekin (Liat) and Proctor (Liat)

Testing Region:

Carle West Region

COXSACKIE B VIRUS AB (SQ:COXABB)

COXAB

TESTING INFORMATION

Ordering Recommendations:
PCR testing is preferred for diagnosis of acute infection. Detect neutralizing antibodies to coxsackie B virus.

Collect:
Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of acute specimens.

Unacceptable Conditions:
CSF or plasma. Contaminated, hemolyzed, or severely lipemic specimens.

Remarks:
Mark specimens plainly as "acute" or "convalescent."

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:
Coxsackie B1: Less than 1:10
Coxsackie B2: Less than 1:10
Coxsackie B3: Less than 1:10
Coxsackie B4: Less than 1:10
Coxsackie B5: Less than 1:10
Coxsackie B6: Less than 1:10

Reported:
6-12 days

Methodology:
Semi-Quantitative Serum Neutralization

Interpretive Data:
Single positive antibody titers of greater than or equal to 1:80 may indicate past or current infection. Seroconversion or an increase in titers between acute and convalescent sera of at least fourfold is considered strong evidence of current or recent infection.

Performing Lab:
ARUP

ARUP Test Code:
0060055

ADMINISTRATIVE

CPT Codes:
86658 x6

C-PEPTIDE (SQ: CPEPT)

CPTD

TESTING INFORMATION

Collect:

Preferred Specimen Collection:
Serum gold, or red, top tube.

Priority	Specimen Type	Requested Vol	Min Volume
Routine	1 Serum Seperator Tube (Gold)	6 mL	3 mL
STAT			

Other Acceptable Specimen(s):

Specimen Type	Requested Volume	Min. Volume
Red Top Tube	6 mL	3 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within two hours of collectin.

Unacceptable Conditions:

Heparin or Sodium Fluoride plasma samples. Heterophilic antibodies may interfere with testing.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Daily

Reference Interval:

C-Peptide: 0.48-5.05 ng/mL

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84681

Last Reviewed:

1/24/24

C-REACTIVE PROTEIN (SQ: CRP)

CRP3

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

Severely lipemic, contaminated, or hemolyzed specimens.

Storage/Transport Temperature:

1 mL serum/plasma (Min: 0.5 mL) at Ambient (room temperature) or 2-8 degrees C. Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	6 months

Performed:

Sunday-Saturday

Reference Interval:

Expected Values: 0.00-0.29 mg/dL

Methodology:

Turbidimetric

Notes:

For cardiac risk assessment, see high sensitivity CRP

Interpretive Data:

CRP is part of the body's non-specific inflammatory response to infection or injury.

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86140

CREATINE KINASE (CK) ISOENZ ELEC, S (SQ:CPKISA)

CKEL

TESTING INFORMATION

Ordering Recommendations:
Aid in determining the etiology of elevated total creatine kinase. May aid in identifying the presence of macro creatine kinase. Troponin testing is recommended for diagnosis and management of acute coronary syndrome; refer to Troponin T (cTnT) 5th Generation (3001831).

Collect:
Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens preserved in citrate, EDTA, fluoride, heparin, or iodoacetate. Grossly hemolyzed specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
CK-MM	96-100%
CK-MB	0-4%
CK-BB	0%
CK-Macro Type I	0%
CK-Macro Type II	0%
CK Total	

Age	Male (U/L)	Female (U/L)
0-30 days	108-564	108-564
31 days-5 months	72-367	72-367
6-35 months	50-272	38-261
3-6 years	56-281	40-222
7-17 years	60-393	46-250
18 years and older	39-308	26-192

Reported:
2-3 days

Methodology:
Quantitative Enzymatic Assay/Electrophoresis

Notes:
This test will detect CK macroenzymes.

Performing Lab:
ARUP

ARUP Test Code:
0020414

ADMINISTRATIVE

CPT Codes:
82552; 82550

Last Reviewed:
12/2/2023

CREATININE CLEARANCE (BLOOD + 24 HR URINE) (SQ: UCCLR)

CRCL

TESTING INFORMATION

Collect:

- Collect the 24-hour urine in a clean container with secure lid, refrigerated AND
- Gold top, green or red top (Min: 3 mL) drawn at beginning or end of the urine collection.

Specimen Preparation:

Separate serum/plasma from cells within two hours of collection.

Unacceptable Conditions:

Urine Containing fecal matter

Remarks:

Specify total volume and hours of urine collection. Provide patient height (cm) and weight (kg).

Storage/Transport Temperature:

- Transport 24-hour urine jug labeled with hours collected, refrigerated OR
- 5.0 mL aliquot of 24-hour urine collection,refrigerated, with hours collected and 24-hour urine total volume.

NOTE: Both urine jug or aliquot must have patient height(cm) and weight (kg) recorded.

- 1.0mL serum/plasma, refrigerated.

Stability (from collection to initiation):

Ambient		Refrigerated	
Urine: 8 hours		Urine: 4 days	
Serum/Plasma: 24 hours		Serum/Plasma: 7 days	

Performed:

Sunday-Saturday

Reference Interval:

Females: 88-128 ml/min/1.73m^2

Males: 97-137 ml/min/1.73m^2

Methodology:

Jaffe Method/Bichromatic

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

CREATININE POC (SQ: POCCRE)

CRPOC

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CREATININE, BODY FLUID (SQ: FCREAT)

CREBF

TESTING INFORMATION

Collect:
Peritoneal, pleural and drain fluids

Unacceptable Conditions:
Specimen types other than those listed

Remarks:
Indicated source on the test request form.

Storage/Transport Temperature:
Centrifuge and separate to remove cellular material. Transport 1 mL body fluid (Min: 0.2 mL) at 2-8 degrees C.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		2 days		NA

Performed:
Sunday-Saturday

Reference Interval:
No reference interval established.

Methodology:
Bichromatic Rate

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
1/24/24

CREATININE, RANDOM URINE (SQ: UCREA)

RUCR

TESTING INFORMATION

Collect:
Random urine in dry clean container with secured lid.

Storage/Transport Temperature:
Send urine sample at 2-8 degrees C.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		4 days		NA

Performed:
Sunday-Saturday

Reference Interval:
No reference range established.

Methodology:
Jaffe Method/Bichromatic

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

CREATININE, SERUM (SQ: CREAT)

CREAT

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold), Red, or Green (heparin) Tube	6.0 mL	2.0 mL

Specimen Preparation:

Separate serum or plasma from cells within 2 hours of collection.

Unacceptable Conditions:

Hemolyzed specimens

Storage/Transport Temperature:

Gold, Red, or Green (heparin) tube immediately at room temperature. If delivery will be delayed, separate, refrigerate and transport serum or plasma (min 0.3mL) at 2-8C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	7 days	3 months

Performed:

Sunday-Saturday
2-4 Hours (Stat: 1 Hour)

Reference Interval:

AGE	FEMALE	MALE
0-15 days	0.3-0.9	0.3-0.9
15 days- 2 yr	0.1-0.4	0.1-0.4
2-4 yr	0.2-0.4	0.2-0.4
5-11 yr	0.3-0.6	0.3-0.6
12-14 yr	0.4-0.8	0.4-0.8
15-18 yr	0.5-0.8	0.6-1.1
19 yr or older	0.55-1.02	0.70-1.30

Methodology:

Jaffe

Performing Lab:

Carle West Methodist Hospital
Carle West Pekin Hospital
Carle West Proctor Hospital

ADMINISTRATIVE

CPT Codes:

82565

CREATININE, URINE (24HR) (SQ: UCR24H)

CRU24

TESTING INFORMATION

Collect:
A 24-hour urine in a clean container with secure lid. Sample must be Refrigerated (2-8 degree C) during collection.

Unacceptable Conditions:
Urine Containing fecal matter

Remarks:
Must specify hours of collection and total volume of urine.

Storage/Transport Temperature:
Send 24-hour urine jug or 5mL aliquot, refrigerated. If sending aliquot, must include both hours collected AND urine total volume.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		4 days		NA

Performed:
Sunday-Saturday

Reference Interval:
Males: 870-2410 mg/day
Females: 670-1590 mg/day

Methodology:
Jaffe Method/Bichromatic

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
1/24/24

CRITICAL PANEL, POCT (ARTERIAL SAMPLES) (SQ: VEPOCP)

AEPCP

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CRITICAL PANEL, POCT (VENOUS SAMPLES) (SQ: VVEPOC)

VEPCP

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

Crohn's Prognostic (SQ: MISCLB)

TESTING INFORMATION

Collect:
Specimen Type: Serum and Whole Blood
Speciment Collection Tube: Serum Seperator Tube or Red Top Tube (2.0 mL) AND EDTA/Lavendar-Top Tube (2.0 mL whole blood)

Unacceptable Conditions:
Frozen

Storage/Transport Temperature:
Ambient or cold pack acceptable

Stability (from collection to initiation):
Room Temp: 7 days
Refrigerated: 7 days

Reported:
7 days once received at testing lab

Performing Lab:
Prometheus Laboratory

CRYOGLOBULIN, QUAL (SQ:CRYOGA)

CYOGA

TESTING INFORMATION

Ordering Recommendations:
Aids in evaluation of patients with vasculitis, macroglobulinemia, or multiple myeloma in whom symptoms occur with exposure to cold.

Patient Preparation:
Fasting specimen required: overnight or minimum of 8 hours fasting.

Collect:
Plain red tube.

Specimen Preparation:
1) Draw approximately 7 mL of blood into a prewarmed (37°C) plain red tube. Alternatively: draw into a prewarmed (37°C) syringe and immediately transfer blood to a prewarmed (37°C) plain red tube. 2) Maintain collected blood at 37°C until clotting is complete. 3) Separate serum from cells within 1 hour of collection. Transfer 3 mL serum to an ARUP standard transport tube. (Min: 1 mL) See Remarks.

Unacceptable Conditions:
Plasma. Serum separator tubes (SST or clot-activating tubes). Grossly hemolyzed or lipemic specimens.

Remarks:
Proper collection and transport of specimen is critical to the outcome of the test. Submitting quantities less than 3 mL may affect the sensitivity of the test.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 1 week; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Negative at 72 hours.

Reported:
3-5 days

Methodology:
Qualitative Cold Precipitation

Notes:
The specimen is examined daily for the presence or absence of cryoglobulins over a period of three days. Cryoglobulins are usually associated with certain plasma cell and lymphoproliferative disorders, but have also been demonstrated in collagen vascular diseases, hepatitis C infection, and infections such as infectious mononucleosis and cytomegalovirus disease. They may also be found in low levels in apparently healthy individuals.

Performing Lab:
ARUP

ARUP Test Code:
0050185

ADMINISTRATIVE

CPT Codes:
82595

CRYPTOCOCCAL TTR CSF (SQ:CRYCSF)

CRYCS

TESTING INFORMATION

Ordering Recommendations:
Screening test and titer for the detection of Cryptococcus species, an etiologic agent of fungal meningitis. Confirmation by culture is required. Order Fungal Culture (0060149) if culture is not performed at client site.

Collect:
CSF.

Specimen Preparation:
Transfer 1 mL CSF to a sterile ARUP standard transport tube (ARUP supply #43115). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 0.25 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 1 hour; Refrigerated: 1 week; Frozen: 1 week

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
Within 24 hours

Methodology:
Semi-Quantitative Enzyme Immunoassay (EIA)

Notes:
A titer is performed on all positive specimens. Titer results are reported to the client. The College of American Pathologists (CAP) requires that Cryptococcal antigen detection testing performed on CSF specimens be confirmed by culture (CAP MIC.42005). All specimens will be tested with the assumption that a culture was performed before sending to ARUP Laboratories unless a specific request for culture is added to the test order (Fungal Culture, ARUP test code 0060149).

Performing Lab:
ARUP

ARUP Test Code:
0050195

ADMINISTRATIVE

CPT Codes:
87327

Last Reviewed:
12/2/2023

CRYPTOCOCCUS AG, SERUM (SQ:CRYAGA)

CYAGA

TESTING INFORMATION

Ordering Recommendations:
Identify C. neoformans as the infectious agent of invasive cryptococcal disease.

Collect:
Plain Red or Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.25 mL)

Unacceptable Conditions:
Plasma.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 1 hour; Refrigerated: 1 week; Frozen: 1 week

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
Within 24 hours

Methodology:
Semi-quantitative Enzyme Immunoassay

Notes:
Positive specimens are titered.

Performing Lab:
ARUP

ARUP Test Code:
0050196

ADMINISTRATIVE

CPT Codes:
87327

Last Reviewed:
12/2/2023

CSF CULTURE WITH GRAM STAIN (SQ: VCCSF)

VCCSF

TESTING INFORMATION

Ordering Recommendations:

For CSF Shunts, please order Body Fluid Culture (EPIC: VCBFC)

Collect:

Priority	Specimen Type	Collection Container	Volume
	Cerebrospinal Fluid	Sterile Container	>1 mL Fluid

Unacceptable Conditions:

Non-sterile or leaking containers

Remarks:

- Positive stain/culture are critical values and customer is notified immediately.
- For CSF Shunt, Please order Body Fluid Culture (Epic: VCBFC)

Storage/Transport Temperature:

Sterile, leak-proof container. Send immediately to laboratory. Refrigerate if processing is delayed.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 hours	24 hours	unacceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedure for aerobic bacterial stain, culture and identification.

Notes:

Gram stain, identification and susceptibility test are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87070 - Culture Aerobic
87205 - Gram Stain

Last Reviewed:

1/19/24

CT & NG DNA PROBE COMBINED TESTS (SQ: CTNGV)

CTNGV

TESTING INFORMATION

Ordering Recommendations:

Use this test when patients have suspected STI.

Collect:

Urine preferred specimen
Male and Female Urine specimens
Collect: Use only the COBAS PCR urine sample kit to collect urine specimens for the COBAS CTNG.

Female endocervical or vaginal specimens
Collect: Use only the COBAS PCR female Dual swab sample kit.

For endocervical collection, use the woven swab to remove excess mucus and collect the specimen with the flocked swab (brush). The collection tube should only contain the flocked swab. The specmen will be rejected if the tube contains no swab or 2 swabs.

For vaginal collection, use the woven swab from the collection kit. Discard the flocked swab-do not use for the vaginal collection.

For both samples types, after collecting carefully leverage the swab against the tube rim to break the swab shaft at the dark line. Discard the top portion of the swab. Tightly re-cap the cobas PCR media tube.

Pediatric Collection:

Ordering Chlamydia trachomatis and Neisseria gonorrhea For Pediatrics Under Age 14

Chlamydia trachomatis and Neisseria gonorrhea molecular testing at Carle Health Peoria utilizes the Roche Cobas 6800 instrument. This assay is validated for patients 14 years and older. Specimens on patients 13 years or younger will be sent to OSF. Additionally, for patients under 12 years old, positive molecular results require a secondary test as confirmation.

For For patients 13 years or younger, order a Miscellaneous (MISCA1) and Free Text CT/NG PCR testing to OSF.

Patients 13 years of age:
Using the current collection media, transfer urine into a standard Cobas PCR Urine sample kit and submit to laboratory.

Patients under 12 years of age:
Prior to sampling, the patient should not have urinated for at least one hour. The patient should collect first -catch urine (about 10-50mL) of the initial urine stream into a cup. Using the current collection media, transfer urine into a standard Cobas PCR Urine Sample kit. Submit the Cobas PCR urine sample kit AND the original urine in the UA cup to the laboratory within 12 hours of collection. The original urine sample should be stored between 2-8 degrees C after collected. If positive, the additional urine sample will be submitted by OSF for reference testing confirmation. If the original urine is not sent with the molecular collection kit, the test will be cancelled

Unacceptable Conditions:

Swab used for preparatory cleaning is unacceptable for testing. Specimens other than vaginal endocervical or voided urine are not acceptable. Excessive mucous, moderate or grossly bloody specimens may cause inhibition in the assay.

Recent information has come out that carbomer, an ingredient in lubricant, will interfere with Chlamydia and Gonorrhea testing within the Central Illinois Laboratory, producing an invalid result. We are now requiring that any Ct/Ng test collected with lubricant must not contain any carbomer. Invalid results will be rejected and patients will need to be recollected.

Remarks:

This assay should not be used for the evaluation for suspected sexual abuse or for other medico-legal indications.

This assay is validated for 14 years and older. Patients ages 12-13 years: sample will be sent to referral laboratory for testing (same collection device-Cobas PCR Urine Sample Kit)

Patients 12 and younger years of age: Must send sample in Cobas PCR Urine sample kit AND the original urine in the UA cup.
Testing will be sent to referral laboratory. If positive, then confirmaiton test using the urine from the UA cup will be sent out to another referral laboratory.

Stability (from collection to initiation):

Swabs and urine stabilized in PCR media 12 months at 2-3 degrees C.
Unpreserved Urine 24 hours at 2-3 degrees C.

Performed:

Monday - Friday

Reference Interval:
Negative

Reported:
1-3 days

Methodology:
DNA Probe, RT-PCR

Notes:
Culture is recommended as the standard for Neiserria Gonorrhoeae in suspected sexual abuse or for other medico-legal purposes.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
87491 and 87591

Last Reviewed:
2/1/24

CULTURE BETA STREP A (SQ: VCSNT)

VCSNT

COLLECTION DEVICE

Preferred Collection Device:
E-swab

TESTING INFORMATION

Collect:
E-swab
Sterile, leak-proof container

Unacceptable Conditions:
Non-sterile or leaking container.

Remarks:
No susceptibility performed on this culture.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
48 hours		48 hours		Not acceptable

Performed:
Daily

Methodology:
Standard reference procedures for aerobic bacterial culture and identification.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

CULTURE SINUS (SQ: SSASSB)

SSABB

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

CULTURE SINUS (SQ: VCSINC)

VCSIN

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Sinus aspiration or sinus washings	Sterile, Leak Proff container, preferred	
	nasopharyngeal Eswab	

Remarks:

Protocols are specific for sinus aspirations or sinus washings. Nasopharyngeal culture results do not correlate well with sinus aspirates and should not be used to diagnose sinus infections.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
48 hours	48 hours	Not acceptable

Performed:

Sunday - Saturday

Methodology:

Standard reference procedures for aerobic and anerobic bacterial culture and identification

Notes:

Identification and susceptibility tests are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

Last Reviewed:

2/6/2024

CULTURE YEAST SCREEN (SQ: VCYEAS)

VCYEA

TESTING INFORMATION

Collect:
Urine, vaginal, or throat . Specimen source is required.

Unacceptable Conditions:
Non-sterile or leaking container

Storage/Transport Temperature:

- Fluid Specimen in a sterile, leak-proof container at 2-8°C
- eSwab for vaginal or throat transport at ambient or refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
1 week		1 week		Unacceptable

Performed:
Sunday-Saturday

Methodology:
Standard reference procedures for yeast culture and identification.

Notes:
Yeast identification is billed separately from culture.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87102

Last Reviewed:
2/1/24

Culture, Aerobic and Anaerobic with Gram Stain (SQ: VCAANC)

VCAAN

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Areas without normal flora inwhich tissue Sources without norm microbiota including tissue or swabs, collected from a sterile procedure.	Swab	

Unacceptable Conditions:

- Non-sterile or leaking container
- Non-anaerobic container
- Dry material or eswab
- Syringe with needle attached
- Delayed transport to lab
- Frozen

Storage/Transport Temperature:

eSwab: send at Ambient temperature or refrigerated

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
48 hours	48 hours	not acceptable

Performed:

Sunday - Saturday

Methodology:

Standard reference procedures for bacterial stain, anaerobic culture & identification

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

Gram Stain - 87205
Culture, Anaerobic - 87075
Culture, Aerobic - 87070

Last Reviewed:

10/9/24

Culture, Aerobic with Gram Stain (SQ: VCAERC)

VCAER

TESTING INFORMATION

Ordering Recommendations:
Please notify the lab prior to sending a specimen if you are concerned about a potential Francisella or Brucella infection.

Collect:
Purulent Material

Unacceptable Conditions:

- Non-sterile or leaking cotnainer
- Dry material or eSwab
- Syringe with needle attached
- Frozen Specimens

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
48 hours	48 hours	unacceptable

Performed:
Variable

Reference Interval:
by report

Methodology:
Standard reference procedures for bacterial culture and identification

Notes:
Gram stain, identification and susceptibility tests are billed seperately from culture.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
87070
87205

Last Reviewed:
12/2/23

CYCLOSPORINE, B (SQ:CYCLA)

CYSPR

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Predose (trough) levels should be drawn.

Collect:
Lavender (EDTA) or pink (K2EDTA).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.25 mL)

Unacceptable Conditions:
Serum or plasma. Specimens left at room temperature for longer than 24 hours. Clotted specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
Effective November 17, 2014

	Therapeutic Range:
Cyclosporine A, Therapeutic Range	100-400 ng/mL
Kidney transplant (in combination with Everolimus)	1 month post-transplant: 100-200 ng/mL 2-3 months post-transplant: 75-150 ng/mL 4-5 months post-transplant: 50-100 ng/mL 6-12 months post-transplant: 25-50 ng/mL
Heart transplant	Up to 3 months post-transplant: 350-525 ng/mL 4 months and older post-transplant: 145-350 ng/mL
Liver transplant	290-525 ng/mL
Toxic value	Greater than 700 ng/mL

Reported:
1-2 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Cyclosporine (Sandimmune) whole blood concentrations can be measured by either chromatographic or immunoassay methodologies. These two methodologies are not directly interchangeable, and the measured cyclosporine whole blood concentration depends on the methodology used. Reference ranges may vary according to the specific immunoassay or HPLC-MS/MS test. Generally, immunoassays have been reported to have a positive bias relative to HPLC-MS/MS assays due to the detection of antibody cross-reactivity with cyclosporine metabolites.

Interpretive Data:
The general therapeutic range for cyclosporine A is 100-400 ng/mL. The optimal therapeutic range for a given patient may differ from this suggested range based on the indication for therapy, treatment phase (initiation or maintenance), use in combination with other drugs, time of specimen collection relative to prior dose, type of transplanted organ, and/or the therapeutic approach of the transplant center.

Performing Lab:
ARUP

ARUP Test Code:
0070035

ADMINISTRATIVE

CPT Codes:
80158

Last Reviewed:
12/2/2023

CYSTATIN C W/EGFR (SQ:CYSTCA)

CSTCA

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0095229

ADMINISTRATIVE

Last Reviewed:
12/1/2023

CYSTATIN C, SERUM WITH REFLEX TO EGFR (SQ: CYSTCA)

CSTCA

TESTING INFORMATION

Ordering Recommendations:
Use to calculate glomerular filtration rate when serum creatinine may be misleading, e.g., in individuals who are elderly, have severe obesity, or are malnourished.

Collect:
Serum separator tube, plasma separator tube, K2EDTA, K3EDTA, or lithium heparin

Specimen Preparation:
Allow serum tube to clot completely at room temperature. Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL plasma or serum or plasma to an ARUP standard transport tube. (Min: 0.2 mL)

Unacceptable Conditions:
Blood collected in capillary blood collection tubes is unsuitable for use in this assay.

Remarks:
Patient age and sex are required for calculation.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 7 days; Refrigerated: 7 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
Refer to Report

Calculated GFR - >= 60 mL/min / 1.73 square meters

Reported:
Within 24 hours

Methodology:
Quantitative Enzymatic Assay

Interpretive Data:
The estimated glomerular filtration rate (eGFR) was calculated using the 2021 CKD-EPI eGFR creatinine-cystatin equation. This equation is validated in individuals 18 years of age and older. Accurate estimation of GFR requires stable day-to-day filtration markers (creatinine and cystatin C). Filtration markers are influenced by non-GFR determinants, including generation from cells and diet, tubular secretion and reabsorption, and extra-renal elimination. These determinants may affect eGFR accuracy. The eGFR is normalized to a body surface area of 1.73 square meters.

GFR Categories in Chronic Kidney Disease (CKD)		
GFR Category	**GFR (mL/min/1.73 square meters)**	**Interpretation**
G1	90 or greater	Normal to high*
G2	60-89	Mild decrease*
G3a	45-59	Mild to moderate decrease
G3b	30-44	Moderate to severe decrease
G4	15-29	Severe decrease
G5	14 or less	Kidney failure
		*In the absence of evidence of kidney damage, neither GFR category G1 nor G2 fulfill the criteria for CKD (Kidney Int Suppl 2013;3:1-150)

Performing Lab:
ARUP Laboratories

ARUP Test Code:
3018316

ADMINISTRATIVE

CPT Codes:
82610; 82565

CYSTINE QUANTITATIVE, URINE (SQ:UCYSQA)

UCYSA

TESTING INFORMATION

Ordering Recommendations:
Use for monitoring treatment of patients previously diagnosed with cystinuria. To diagnose or rule out cystinuria, refer to Cystinuria Panel (0081105) or Amino Acids Quantitative by LC-MS/MS, Urine (2009419).

Collect:
24-hour or other timed urine collection. Avoid dilute urine when possible. Refrigerate 24-hour/timed specimens during collection.

Specimen Preparation:
Mix urine well. Transfer 4 mL aliquot urine to ARUP Standard Transport Tubes and freeze immediately. (Min: 3 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Refrigerated or room temperature specimens.

Remarks:
Clinical information is needed for appropriate interpretation. Additional required information includes age, gender, diet (eg, TPN therapy), drug therapy, and family history. Biochemical Genetics Patient History Form is available on the ARUP Web site or by contacting ARUP Client Services.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Effective November 18, 2019

Components	Reference Interval
Cystine, Urine - Quantitative	

Age	Reference Interval
0-2 months	Less than or equal to 870 µmol/g creatinine
3-11 months	Less than or equal to 300 µmol/g creatinine
1-2 years	Less than or equal to 150 µmol/g creatinine
3-5 years	Less than or equal to 125 µmol/g creatinine
6-11 years	Less than or equal to 100 µmol/g creatinine
12 years and older	Less than or equal to 150 µmol/g creatinine

Reported:
3-7 days

Methodology:
Liquid Chromatography-Tandem Mass Spectrometry

Notes:
This test is indicated only to monitor patients with cystinuria on therapy.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0081106

ADMINISTRATIVE

CPT Codes:
82131

Last Reviewed:
12/1/2023

CYTOLOGY ORDER REQUEST (SQ: CYTOLO)

O196839

TESTING INFORMATION

Ordering Recommendations:

This is an orderable code to alert the Cytology Department that there are specimens to be processed on a particular patient. (Paper copy should accompany specimen).

Performing Lab:

Methodist

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

2/1/24

CYTOMEGALOVIRUS (CMV) PCR, U (SQ:CMVPCR)

CMVPCR

TESTING INFORMATION

Ordering Recommendations:
Use to detect cytomegalovirus; does not quantify viral load. If submitting plasma, refer to Cytomegalovirus by Quantitative NAAT, Plasma (3005895).

Collect:
Bone marrow aspirate in lavender (EDTA) or pink (K2EDTA), amniotic fluid, bronchoalveolar lavage (BAL), CSF, ocular fluid, tissue, urine, or dried blood spot (DBS).

Specimen Preparation:
Transfer 1 mL bone marrow, amniotic fluid, BAL, CSF, ocular fluid, or urine to a sterile container (Min: 0.5 mL).
Dried Blood Spot: Whole blood collected on newborn screening card (3/16 inch punch). Transport punch in an ARUP standard transport tube.
Tissue: Transfer to a sterile container and freeze immediately.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.
Saliva (Refer to ARUP test code 2008555, CMVPCR SAL.)

Remarks:
Specimen source is required.

Storage/Transport Temperature:
Dried Blood Spot: Room temperature.
All others: Frozen

Stability (from collection to initiation):
Bone Marrow: Ambient: 1 week; Refrigerated: 1 week; Frozen: 1 week
Dried Blood Spot: Ambient: 90 days; Refrigerated: 8 days; Frozen: 8 days
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 months
All others: Ambient: 8 hours; Refrigerated: 72 hours; Frozen: 3 months

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Performing Lab:
ARUP

ARUP Test Code:
0060040

ADMINISTRATIVE

CPT Codes:
87496

CYTOMEGALOVIRUS DNA DETECT/QUANT, P (SQ:CMVQNA)

CMVQU

TESTING INFORMATION

Ordering Recommendations:
Use to detect and quantify cytomegalovirus (CMV). For additional information regarding updates to ARUP's quantitative CMV testing, please visit www.aruplab.com/infectious-disease/cmv_test_updates.

Collect:
Lavender (EDTA), pink (K2EDTA), or plasma preparation tube (PPT).

Specimen Preparation:
Separate from cells within 24 hours of collection. Transfer 2 mL plasma to an ARUP standard transport tube (ARUP supply #15824). Available online through eSupply using ARUP Connect or contact ARUP Client Services at 800-522-2787. (Minimum volume, 1mL)

Unacceptable Conditions:
Heparinized specimens, whole blood, serum, respiratory specimens, CSF.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hrs; Refrigerated: 6 days; Frozen: 12 weeks

Performed:
Sun-Sat

Reference Interval:
Not detected

Reported:
1-2 days

Methodology:
Quantitative Polymerase Chain Reaction

Notes:
The limit of quantification for this assay is 1.54 log IU/mL (34.5 IU/mL). If the assay DETECTED the presence of the virus but was not able to accurately quantify the viral load, the test result will be reported as "Not Quantified, Detected."

Interpretive Data:
The quantitative range of this test is 1.54-7.00 log IU/mL (34.5-10,000,000 IU/mL).

An interpretation of "Not Detected" does not rule out the presence of inhibitors or CMV DNA concentration below the level of detection of the assay. Care should be taken in the interpretation of any single viral load determination.

International standardization has improved comparability of assay results across laboratories, but discrepancies still exist due to commutability issues with the standard.

Performing Lab:
ARUP

ARUP Test Code:
3005895

ADMINISTRATIVE

CPT Codes:
87497

Last Reviewed:
12/1/2023

CYTOPLASMIC NEUTROPHILIC AB, S (MML) (SQ:ANCIGG)

CNAS

TESTING INFORMATION

Ordering Recommendations:
Not a recommended first-line screening test for ANCA-associated vasculitis. Detection of ANCA should be followed by testing for MPO-ANCA/PR3-ANCA to determine antibody specificity; ANCA may be positive in the absence of PR3-ANCA and MPO-ANCA in a number of other systemic or inflammatory diseases.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.15 mL)

Unacceptable Conditions:
Plasma, urine, or other body fluids. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 30 days (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
ANCA IFA Titer	Less than 1:20
ANCA IFA Pattern	None Detected

Reported:
1-3 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Notes:
ANCA IFA is simultaneously tested on ethanol- and formalin-fixed slides to allow differentiation of C- and P-ANCA patterns.

Interpretive Data:
Neutrophil Cytoplasmic Antibodies (C-ANCA = granular cytoplasmic staining, P-ANCA = perinuclear staining) are found in the serum of over 90 percent of patients with certain necrotizing systemic vasculitides, and usually in less than 5 percent of patients with collagen vascular disease or arthritis.

Performing Lab:
ARUP

ARUP Test Code:
3003747

ADMINISTRATIVE

CPT Codes:
86036

Last Reviewed:
12/1/2023

D-DIMER (SQ: DDIMR)

DDIME

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume
One 2.7mL or 1.8mL 3.2% sodium citrate light blue top tube	Must be filled to marked volume line

Specimen Preparation:

Freeze plasma separated from the red cells if testing cannot be performed within 4 hours.
Preferred volume: 2.0 mL plasma, minimum 0.5mL

Unacceptable Conditions:

Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Stability exceeded
Refrigerated

Storage/Transport Temperature:

Lt. blue top tube at room temperature up to 4 hours (18-25°). If testing will not be performed within 4 hours specimen must be spun and separated. Plasma should be transferred to a separate tube and frozen (<-20°C).
.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	Unacceptable	2 weeks

Performed:

Daily

Reference Interval:

<0.50 ug/mL FEUs

Methodology:

Photometric measurement, Stago Compact Max

Interpretive Data:

Studies have shown thata D-Dimer result of less than or equal to 0.50 ug/mL {FEU} has a negative predictive value (cutoff) of approximately 95% for excluding PE and DVT.

D-Dimer is useful for excluding the diagnosis of venous thromboembolism when results are combined with clinical information including pretest disease probability. Use of age adjusted Dimer cutoff with probability assessment can be used to rule out suspected PE in emergency department patients and is associated with low likelihood of subsequent syptomatic VTE.

Performing Lab:

Methodist, Proctor, and Pekin

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

85379

Last Reviewed:

1/18/2024

DEHYDROEPIANDPHOSTERONE SULFATE (DHEAS) (SQ: DHEASI)

DHEA2

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection

Unacceptable Conditions:
Plasma EDTA

Storage/Transport Temperature:
Send 1mL serum/plasma (Minimum: 0.5mL) at refrigerated 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	6 days	1 month

Performed:
Daily

Reference Interval:
Females: 26-460 ug/dL
Males: 35-569 ug/dL

Serum concentrations of DHEA-SO4 are high at birth (newborn range 36-250 ug/dL) and even higher in sick and premature infants. Values decrease precipitously during the first week of life, and then down to 3-24 ug/dL for children 6 months to 4 years.

Methodology:
Chemiluminescent Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82627

Last Reviewed:
1/18/24:JN

DEHYDROEPIANDROSTERONE (DHEA) (SQ: DHEATA)

DHE

TESTING INFORMATION

Ordering Recommendations:
Adjunct test for the investigation of hyperandrogenic and adrenal disorders. Not recommended for initial evaluation of polycystic ovarian syndrome.

Patient Preparation:
Collect between 6-10 a.m.

Collect:
Serum separator tube or green (sodium or lithium heparin). Also acceptable: Lavender (EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.3 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
Effective August 19, 2013

Age	Female	Male
Premature	Less than 40 ng/mL	Less than 40 ng/mL
0-1 day	Less than 11 ng/mL	Less than 11 ng/mL
2-6 days	Less than 8.7 ng/mL	Less than 8.7 ng/mL
7 days-1 month	Less than 5.8 ng/mL	Less than 5.8 ng/mL
1-5 months	Less than 2.9 ng/mL	Less than 2.9 ng/mL
6-24 months	Less than 1.9 9 ng/mL	Less than 2.5 ng/mL
2-3 years	Less than 0.85 ng/mL	Less than 0.63 ng/mL
4-5 years	Less than 1.03 ng/mL	Less than 0.95 ng/mL
6-7 years	Less than 1.79 ng/mL	0.06-1.93 ng/mL
8-9 years	0.14-2.35 ng/mL	0.10-2.08 ng/mL
10-11 years	0.43-3.78 ng/mL	0.32-3.08 ng/mL
12-13 years	0.89-6.21 ng/mL	0.57-4.10 ng/mL
14-15 years	1.22-7.01 ng/mL	0.93-6.04 ng/mL
16-17 years	1.42-9.00 ng/mL	1.17-6.52 ng/mL
18-39 years	1.33-7.78 ng/mL	1.33-7.78 ng/mL
40 years and older	0.63-4.70 ng/mL	0.63-4.70 ng/mL
Postmenopausal	0.60-5.73 ng/mL	Does Not Apply
Tanner Stage I	0.14-2.76 ng/mL	0.11-2.37 ng/mL
Tanner Stage II	0.83-4.87 ng/mL	0.37-3.66 ng/mL
Tanner Stage III	1.08-7.56 ng/mL	0.75-5.24 ng/mL
Tanner Stage IV-V	1.24-7.88 ng/mL	1.22-6.73 ng/mL

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Performing Lab:
ARUP

ARUP Test Code:
2001640

ADMINISTRATIVE

CPT Codes:
82626

Last Reviewed:
12/2/2023

DENGUE VIRUS ANTIBODIES (IGG,IGM) (SQ:DENGMA)

DENGU

TESTING INFORMATION

Ordering Recommendations:
May aid in the diagnosis of dengue when timing of infection is uncertain. Testing should also be considered for other arthropod-borne viruses with similar symptomology based on clinical presentation and travel history.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute or convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon, Wed, Fri

Reference Interval:

Components	Reference Interval
Dengue Fever Virus Antibody, IgG	1.64 IV or less
Dengue Fever Virus Antibody, IgM	1.64 IV or less

Reported:
1-5 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
Dengue Fever Virus Antibody, IgG	1.64 IV or less: Negative - No significant level of detectable dengue fever virus IgG antibody. 1.65-2.84 IV: Equivocal - Questionable presence of antibodies. Repeat testing in 10-14 days may be helpful. 2.85 IV or greater: Positive - IgG antibody to dengue fever virus detected, which may indicate a current or past infection.
Dengue Fever Virus Antibody, IgM	1.64 IV or less: Negative - No significant level of detectable dengue fever virus IgM antibody. 1.65-2.84 IV: Equivocal - Questionable presence of antibodies. Repeat testing in 10-14 days may be helpful. 2.85 IV or greater: Positive - IgM antibody to dengue fever virus detected, which may indicate a current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.

Performing Lab:
ARUP

ARUP Test Code:
0093096

ADMINISTRATIVE

CPT Codes:
86790 x2

Last Reviewed:
12/2/2023

DERMATOPHAGOIDES FARINAE D2 (SQ: DFMITE)

DMFA

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:

Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

DERMATOPHAGOIDES PTERONYSSINUS (SQ: DPMITE)

DMPT

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

DIAZEPAM (SQ:DIAZA)

DIAZA

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady state concentration

Collect:
Gray (potassium oxalate/sodium fluoride). Also acceptable: Plain red, green (sodium heparin), lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP standard transport tube. (Min: 1 mL)

Unacceptable Conditions:
Gel separator tubes. Plasma or whole blood collected in light blue (sodium citrate). Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years (Avoid repeated freeze/thaw cycles)

Performed:
Tue, Fri

Reference Interval:
Dose-Related Range:

Components	Dose-Related Range
Diazepam	Effective November 16, 2015 200-1000 ng/mL - Based on normal dosage amounts
Nordiazepam	Effective November 16, 2015 100-1500 ng/mL - Based on normal dosage amounts Toxic: Greater than 2500 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Adverse effects may include drowsiness, fatigue, ataxia, and muscle weakness.

Performing Lab:
ARUP

ARUP Test Code:
0090076

ADMINISTRATIVE

CPT Codes:
80346 (Alt code: G0480)

Last Reviewed:
12/1/2023

DIGOXIN (SQ: DIG)

DIGOX

TESTING INFORMATION

Patient Preparation:

Samples must be collected 6 to 8 hours after teh administration of oral dose: 4 hours after IV dose.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	2.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Specimen Preparation:

Seperate Serum from Cells ASAP or within 2 hours of collection

Remarks:

There is a chance of interference that Biotin can potentially alter results by 10% If patients is on Biotin supplementation, be aware of any abnormal results and have patient discontinue supplemenation prior to drawing laboratory testing. Dextran and Digibind may falsely affect result.

Storage/Transport Temperature:

Transport 1mL serum/plasma, refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	6 months

Performed:

Sunday - Saturday

Reference Interval:

Therapeutic Range: 0.8-2.0 ng/mL
Critical Limit: >2.0 ng/mL

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist, Pekin and Proctor Hospitals

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

80162

Last Reviewed:

1/24/24

DIHYDROTESTOSTERONE, S (SQ:DIHTA)

DHTS

TESTING INFORMATION

Collect:
Plain red or serum separator tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube and freeze immediately. (Min: 0.6 mL)

Unacceptable Conditions:
Hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 5 days; Frozen: 6 months

Performed:
Sun, Wed, Thu, Fri, Sat

Reference Interval:

Components	Reference Interval

5-a-Dihydrotestosterone, LC-MS/MS

Age	Male (pg/mL)	Female (pg/mL)
Premature	100.0-530.0	20.0-130.0
Full Term	50.0-600.0	20.0-150.0
1 week-6 months	120.0-850.0	Not Applicable
1 week-9 years	Not Applicable	0.0-49.9
7 months-9 years	0.0-49.9	Not Applicable
10-19 years	0.0-533.0	50.0-170.0
20 years and older	106.0-719.0	24.0-208.0
Tanner Stage I	1.0-47.6	1.0-64.3
Tanner Stage II	3.5-397.9	5.5-95.9
Tanner Stage III	14.8-574.6	11.4-158.3
Tanner Stage IV-V	44.9-511.8	18.7-193.8

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Performing Lab:
ARUP

ARUP Test Code:
2002349

ADMINISTRATIVE

CPT Codes:
82642

Last Reviewed:
12/2/2023

DIPHTHERIA/TETANUS AB IGG (SQ:DPVAC)

DPVAC

TESTING INFORMATION

Ordering Recommendations:
Evaluate the ability of a patient to produce antibody to pure protein vaccines after vaccination to rule out antibody deficiency.

Collect:
Serum separator tube. "Pre" and "post" vaccination specimens should be submitted for testing. "Post" specimen should be drawn 30 days after immunization.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL) Mark specimens clearly as "Pre-Vaccine" or "Post-Vaccine". If shipped separately, "Post" specimen must be received within 60 days of "Pre" specimen.

Unacceptable Conditions:
Plasma or other body fluids.

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Antibody concentrations of > 0.1 IU/mL are usually considered protective for diphtheria or tetanus.

Reported:
1-3 days

Methodology:
Quantitative Multiplex Bead Assay

Interpretive Data:
Responder status is determined according to the ratio of a one-month post-vaccination sample to pre-vaccination concentration of IgG antibodies as follows:

Diphtheria and tetanus:
1. If the post-vaccination concentration is less than 1.0 IU/mL, the patient is considered a nonresponder.
2. If the post-vaccination concentration is greater than or equal to 1.0 IU/mL, a patient with a ratio of less than 1.5 is a nonresponder, a ratio of 1.5 to less than 3.0, is a weak responder, and a ratio of 3.0 or greater, is a good responder.
3. If the pre-vaccination concentration is greater than 1.0 IU/mL, it may be difficult to assess the response based on a ratio alone. A post-vaccination concentration above 2.5 IU in this case is adequate.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0050595

ADMINISTRATIVE

CPT Codes:
86317 x2

Last Reviewed:
12/2/2023

DIRECT ANTIGLOBULIN TEST (SQ: DAT)

DAT2

TESTING INFORMATION

Collect:
One pink top tube (6ml).

Specimen Preparation:
Do not freeze.

Storage/Transport Temperature:
Whole blood, pink;Ambient (room temperature) or 2-8°C.

Performed:
Daily

Methodology:
Tube Method/Solid Phase

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

DNASE-B ANTIBODY, B (SQ:DNASEA)

DNASB

TESTING INFORMATION

Ordering Recommendations:
Confirm current or recent infection with group A Streptococcus in patients suspected of having a nonsuppurative complication such as acute glomerulonephritis (AGN) or acute rheumatic fever (ARF). DNase-B Antibody (0050220) and Streptolysin O Antibody (ASO) (0050095) are generally ordered concurrently. Preferred test for rheumatic chorea since it remains elevated longer.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL)

Unacceptable Conditions:
Plasma or severely hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 2 hours; Refrigerated: 8 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
0-6 years: Less than 250 U/mL
7-17 years: Less than 310 U/mL
18 years and older: Less than 260 U/mL

Reported:
1-4 days

Methodology:
Quantitative Nephelometry

Interpretive Data:
Elevated titers of antideoxyribonuclease B antibody (anti-DNase B) or antistreptolysin O antibody (ASO) indicate a recent group A Streptococcus infection. Anti-DNase B antibodies typically remain elevated longer than ASO and may remain elevated for several months after infection. Patients suspected of having complications related to a recent Streptococcus infection such as acute glomerulonephritis or acute rheumatic fever may have elevated anti-DNase B but normal ASO antibody titers. A negative or very low anti-DNase B and ASO antibody titers, especially from a specimen tested 2 weeks after a suspected infection, indicates unlikely incidence of a recent Streptococcus infection.

Performing Lab:
ARUP

ARUP Test Code:
0050220

ADMINISTRATIVE

CPT Codes:
86215

Last Reviewed:
12/2/2023

DOG DANDER, IGE (SQ: DOGEP)

DOGD

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

Double-Stranded DNA (dsDNA) Ab IgG ELISA (SQ: DNAABA)

DSDAB

TESTING INFORMATION

Ordering Recommendations:
Secondary screening for systemic lupus erythematosus (SLE) based on ANA results.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval (IUs)
Double-Stranded DNA (dsDNA) Ab IgG ELISA	24 IUs or less

Reported:
1-3 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Semi-Quantitative Indirect Fluorescent Antibody

Notes:
If dsDNA IgG antibody is detected, the result will be confirmed by Double-Stranded DNA (dsDNA) Antibody, IgG by IFA (using Crithidia luciliae). Additional charges apply.

Interpretive Data:
Positivity for anti-double stranded DNA (anti-dsDNA) IgG antibody is a diagnostic criterion of systemic lupus erythematosus (SLE). Specimens are initially screened by enzyme-linked immunosorbent assay (ELISA). If ordered as reflex (0050215), positive ELISA results (>24 IU) will be reflexed to a highly specific IFA titer (Crithidia luciliae indirect fluorescent test [CLIFT]) for confirmation. Some patients with early or inactive SLE may be positive for anti-dsDNA IgG by ELISA but negative by CLIFT. If the patient is negative by CLIFT but positive by ELISA and clinical suspicion remains, consider antinuclear antibody (ANA) testing by IFA. Additional information and recommendations for testing may be found at https://arupconsult.com/content/systemic-lupus-erythematosus.

Components	Interpretation
dsDNA (Double Stranded DNA) Antibody, IgG	24 IUs or less : Negative 25 to 30 IUs : Borderline Positive 30 to 60 IUs : Low Positive 60 to 200 IUs : Positive 201 IUs or greater : Strong Positive

Performing Lab:
ARUP

ARUP Test Code:
0050215

ADMINISTRATIVE

CPT Codes:
86225; if reflexed, add 86256

Last Reviewed:
12/2/2023

DOXEPIN (SQ:DOXEPA)

DOXEP

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady-state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Fri

Reference Interval:
Effective February 19, 2013

Therapeutic Range	Total (doxepin and nordoxepin): 100-300 ng/mL
Toxic Level	Greater than 500 ng/mL

Reported:
2-8 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Toxic concentrations may cause anticholinergic effects and cardiac abnormalities.

Performing Lab:
ARUP

ARUP Test Code:
0090102

ADMINISTRATIVE

CPT Codes:
80335 (Alt code: G0480)

DRUG DETECTION PANEL, CORD, QUAL (SQ: DCORDA)

DCORD

TESTING INFORMATION

Ordering Recommendations:

Use to detect and document fetal drug exposure during approximately the last trimester of a full-term pregnancy. For panel testing that includes THC metabolite, refer to Drug Detection Panel and THC Metabolite, Umbilical Cord Tissue, Qualitative (3006371).

Collect:

Umbilical cord (At least 8 inches, approximately the width of a sheet of paper.)

Specimen Preparation:

Drain and discard any blood. Rinse the exterior of the cord segment with normal saline or water. Pat the cord dry and transport at least 8 inches of umbilical cord in a routine urine collection cup or Security Kit for Meconium/Umbilical Drug Detection (ARUP supply #51548) available online through eSupply using ARUP Connect(TM) or by contacting ARUP Client Services at 800-522-2787.

Unacceptable Conditions:

Cords soaking in blood or other fluid. Formalin fixed. Tissue that is obviously decomposed.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

Ambient: 1 week; Refrigerated: 3 weeks; Frozen: 1 year

Performed:

Sun-Sat

Reference Interval:

Effective February 20, 2018

Drugs covered and range of cutoff concentrations.			
Drugs/Drug Classes	**Cutoff Concentrations (ng/g)**	**Drugs/Drug Classes**	**Cutoff Concentrations (ng/g)**
Buprenorphine	1	Amphetamine	5
Norbuprenorphine	0.5	Benzoylecgonine	1
		m-OH-Benzoylecgonine	1
Codeine	0.5	Cocaethylene	1
Dihydrocodeine	1	Cocaine	1
Fentanyl	0.5	MDMA (Ecstasy)	5
Hydrocodone	0.5	Methamphetamine	5
Norhydrocodone	1	Phentermine	8
Hydromorphone	0.5	Alprazolam	0.5
Meperidine	2	Alpha-OH-Alprazolam	0.5
Methadone	2	Butalbital	25
Methadone metabolite	1	Clonazepam	1
6-Acetylmorphine	1	7-Aminoclonazepam	1
Morphine	0.5	Diazepam	1
Naloxone	1	Lorazepam	5
Oxycodone	0.5	Midazolam	1
Noroxycodone	1	Alpha-OH-Midazolam	2
Oxymorphone	0.5	Nordiazepam	1
Noroxymorphone	0.5	Oxazepam	2
Propoxyphene	1	Phenobarbital	75
Tapentadol	2	Temazepam	1
Tramadol	2	Zolpidem	0.5
N-desmethyltramadol	2	Phencyclidine (PCP)	1
O-desmethyltramadol	2	Gabapentin	10

Reported:

1-3 days

Methodology:

Qualitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:

Absolute Minimum: 6 inches. For marijuana metabolite, order Marijuana Metabolite, Umbilical Cord Tissue, Qualitative (ARUP test code 3000256). For alcohol metabolite, order Ethyl Glucuronide, Umbilical Cord Tissue, Qualitative (ARUP test code 3000443).
For kratom analyte, order Kratom, Umbilical Cord, Qualitative (ARUP test code 3005874).
When ordering multipleumbilical cord tests, unless ARUP is otherwise notified, testing will be performed in the following order of priority:

Drug Detection Panel (1.0g)
Marijuana Metabolite (1.0g)
Ethyl Glucuronide (1.0g)
Kratom(1.0 g)

Interpretive Data:

Methodology: Qualitative Liquid Chromatography/Tandem Mass Spectrometry

Detection of drugs in umbilical cord tissue is intended to reflect maternal drug use during approximately the last trimester of a full-term pregnancy. The pattern and frequency of drug(s) used by the mother cannot be determined by this test. A negative result does not exclude the possibility that a mother used drugs during pregnancy. Detection of drugs in umbilical cord tissue depends on extent of maternal drug use, as well as drug stability, unique characteristics of drug deposition in umbilical cord tissue, and the performance of the analytical method. Drugs administered during labor and delivery may be detected. Detection of drugs in umbilical cord tissue does not insinuate impairment and may not affect outcomes for the infant. Interpretive questions should be directed to the laboratory.

For medical purposes only; not valid for forensic use.

Performing Lab:

ARUP

ARUP Test Code:

2006621

ADMINISTRATIVE

CPT Codes:

80346; 80348; 80353; 80361; 80356; 80365; 80373; 80354; 80362; 80355; 80359; 80325; 80345; 80372; 80358; 83992; 80368; 80367 (Alt code: G0482)

Last Reviewed:

12/2/2023

DRUG PROFILE, EXPANDED TARGETED PANEL BY LC-MS/MS (SQ: DSCRA)

DSCRA

TESTING INFORMATION

Ordering Recommendations:
Use to detect drug exposure from among a targeted list of prescriptions, over-the-counter medications, and illicit drugs; for a complete list of drugs and drug metabolites detected, refer to Additional Technical Information. Not recommended to determine medication compliance or to assess for undisclosed drug/substance use in the context of pain management, substance use disorder treatment, or any other pharmacotherapies involving controlled substances.

Collect:
Plain red (no additives, serum gel or SST tubes are not acceptable), gray top (NaF/oxalate), lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 4 mL of serum or plasma into an ARUP standard transport tube. (Min: 2 mL)

Unacceptable Conditions:
Gel separator tubes or light blue (sodium citrate). Specimens exposed to repeated freeze/thaw cycles. Postmortem specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 2 months.

Performed:
Mon, Fri

Reference Interval:
By report

Reported:
1-8 days

Methodology:
Qualitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
If a drug class is reported as present, the test will report the specific drug present from the drug class. (Classes include ARUP test codes 3005045, 3005046, 3005047, 3005048, 3005049, 3005050, 3005051, 3005052, 3005053, 3005054, 3005055, 3005056, 3005057, 3005058, or 3005059.)

Interpretive Data:
The qualitative drug panel can detect 127 drugs and drug metabolites by LC-MS/MS. The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. The concentration at which the test can detect a drug or metabolite varies within a drug class. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

This assay is for medical purposes only; not valid for forensic use

For a complete list of drugs and drug metabolites detected, refer to the Additional Technical Information.

Performing Lab:
ARUP

ARUP Test Code:
3004833

ADMINISTRATIVE

CPT Codes:
80323; 80326; 80329; 80334; 80337; 80338; 80341; 80344; 80346; 80348; 80353; 80354; 80356; 80357; 80358; 80359; 80360; 80361; 80363; 80365; 80366; 80368; 80370; 80371; 80372; 80373; 80377; 83992 (Alt code: G0482)

Last Reviewed:
12/2/2023

DRUG PROFILE, TARGETED W/ INTERP BY TMS and ENZYME IA, URINE (SQ: PMDPMA)

PMDPA

TESTING INFORMATION

Ordering Recommendations:

Qualitative test to monitor medication compliance and to detect undisclosed drug/substance use in support of pain management, substance use disorders treatment, and other pharmacotherapies involving controlled substances. Expert result interpretation is provided by a faculty clinical toxicologist.Submission of a medication history is required to optimize reporting; refer to ARUP's Medication Submission Guidelines for details. If a medication history is not available or interpretation is not desired, refer to Drug Profile, Targeted by Tandem Mass Spectrometry and Enzyme Immunoassay, Urine (2007479).This test does not distinguish between the delta-8 and delta-9 forms of THC or their metabolites.

Patient Preparation:

Information on the patient's current medications must be submitted with the order. Include trade name, generic name, dosing frequency, and date of last dose, if known. Alternatively, please indicate if no prescription medication or drugs are being taken.

Collect:

Random urine.

Specimen Preparation:

Transfer 4 mL each into two (2) ARUP standard transport tubes of urine with no additives or preservatives. (Min: 2 mL each)

Unacceptable Conditions:

Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:

Refrigerated

Stability (from collection to initiation):

Ambient: 1 week (Clonazepam may be unstable at ambient condition beyond three days); Refrigerated: 1 month; Frozen: 1 month

Performed:

Sun-Sat

Reference Interval:

Drugs covered and range of cutoff concentrations. Note: Some drugs are identified based on the presence of unique drug metabolites not listed below.	
Drugs/Drug Classes	**Range of Cutoff Concentrations**
Barbiturates	200 ng/mL
Benzodiazepine-like: alprazolam, clonazepam, diazepam, lorazepam, midazolam, nordiazepam, oxazepam, temazepam, zolpidem	20 - 60 ng/mL
Cannabinoids (11-nor-9-carboxy-THC)	50 ng/mL
Ethyl Glucuronide	500 ng/mL
Muscle Relaxant(s): carisoprodol, meprobamate	100 ng/mL
Opiates/Opioids: buprenorphine, codeine, fentanyl, heroin, hydrocodone, hydromorphone, meperidine, methadone, morphine, naloxone, oxycodone, oxymorphone, tapentadol, tramadol	2-200 ng/mL
GABA analogues: Gabapentin, pregabalin	3,000 ng/mL
Phencyclidine (PCP)	25 ng/mL
Stimulants: amphetamine, cocaine, methamphetamine, methylphenidate, MDMA (Ecstasy), MDEA (Eve), MDA, phentermine	50-200 ng/mL

Reported:

1-4 days

Methodology:

Quantitative Tandem Mass Spectrometry/Qualitative Enzyme Multiplied Immunoassay Technique (EMIT)/Quantitative Spectrophotometry

Notes:

Creatinine concentration is also provided. The carisoprodol immunoassay has cross-reactivity to carisoprodol and meprobamate.

Interpretive Data:

Methodology: Qualitative Enzyme Immunoassay and Qualitative Liquid Chromatography-Tandem Mass Spectrometry, Quantitative Spectrophotometry

The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration must be greater than or equal to the cutoff concentration to be reported as present. If specific drug concentrations are required, contact the laboratory within two weeks of specimen collection to request confirmation and quantification by a second analytical technique. Interpretive questions should be directed to the laboratory.

Results based on immunoassay detection that do not match clinical expectations should be interpreted with caution. Confirmatory testing by mass spectrometry for immunoassay-based results is available if ordered within two weeks of specimen collection. Additional charges apply.

For medical purposes only; not valid for forensic use.

Performing Lab:

ARUP

ARUP Test Code:

2009288

ADMINISTRATIVE

CPT Codes:

80307; 80326; 80359; 80360; 80361; 80364; 80365; 80372; 80348; 80345; 80356; 80347; 80368; 80366; 80355 (Alt code: G0482)

Last Reviewed:

12/2/2023

DRUG SCREEN NONFORENSIC (SQ:DSNFA)

DSNFA

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0090499

ADMINISTRATIVE

Last Reviewed:
12/2/2023

DRUG SCREEN PANEL, URINE (SQ: ODRUGS)

CDOA

TESTING INFORMATION

Collect:
Random urine into clean container with secure lid. (Min: 5 mL) Do not submit in boric acid preservative container.

Unacceptable Conditions:
Urine containing fecal matter

Remarks:
Includes screening for the following drugs/drug groups at the stated cutoff concentrations. Amphetamines; Barbiturates; Benzodiazepine; Phencyclidine; Cannabinoids; Cocaine; Opiates; Methadone

Storage/Transport Temperature:
Random urine at Ambient (room temperature) or 2-8oC.

Performed:
Sunday-Saturday

Methodology:
Enzyme Immunoassay Rate

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
80307

DRVVT W RFLX TO DRVVT 1:1 MIX AND CONFIRMATION (SQ:DRVVTA)

DRVTA

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0030461

ADMINISTRATIVE

Last Reviewed:
12/1/2023

DS-DNA (SQ: DSDNAB)

DSDN

TESTING INFORMATION

Ordering Recommendations:

Secondary screening for systemic lupus erythematosus (SLE) based on ANA results.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:

Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Variable

Methodology:

Multiplex Flow Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

2/1/24

DS-DNA AB BY CRITHIDA IFA, IGG, S (SQ:DSDNAC)

CRITH

TESTING INFORMATION

Ordering Recommendations:
Secondary screening for systemic lupus erythematosus (SLE) based on ANA results.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Plasma. Cerebral spinal fluid. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Less than 1:10

Reported:
1-3 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Notes:
Double Stranded DNA (dsDNA) antibodies (1:10 or greater) are found in 50-60 percent of systemic lupus erythematosus (SLE), 20-30 percent in Sjögren syndrome, 20-25 percent in mixed connective tissue disease (MCTD), and less than 5 percent in progressive systemic sclerosis (PSS). High titers of antibody to native (double stranded) DNA are specific for SLE.

Interpretive Data:
Positivity for anti-double stranded DNA (anti-dsDNA) IgG antibody is a diagnostic criterion of systemic lupus erythematosus (SLE). The presence of the anti-dsDNA IgG antibody is identified by IFA titer (Crithidia luciliae indirect fluorescent test [CLIFT]). CLIFT is highly specific for SLE with a sensitivity of 50-60 percent.

Some patients with early or inactive SLE may be positive for anti-dsDNA IgG by ELISA but negative by CLIFT. If the CLIFT result is negative but the patient has a positive ELISA and clinical suspicion remains, consider antinuclear antibody (ANA) testing by IFA. Additional information and recommendations for testing may be found at https://arupconsult.com/content/connective-tissue-diseases.

Performing Lab:
ARUP

ARUP Test Code:
2002693

ADMINISTRATIVE

CPT Codes:
86256

Last Reviewed:
12/2/2023

EAR CULTURE (SQ: VCEARC)

VCEAR

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Drainage, aspirate.	• eSwab • Sterile, Leak-proof container • Sterile syringe	

Unacceptable Conditions:

- Non-sterile
- Leaking container
- dry eSwab.

Remarks:

Gram Stain must be ordered separately If required. (Epic: VCGRAM)

Storage/Transport Temperature:

Deliver to laboratory prompty at room temperature.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 hours	48 hours	Not Acceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedures for aerobic bacterial culture and identification.

Notes:

Identification and susceptibility test are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

87070

Last Reviewed:

1/19/24

EGG WHITE, IGE (SQ: EGGWH)

EGGW

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
Immuno CAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

EHRLICHIA AB (SQ:EHRLAB)

EHRLA

TESTING INFORMATION

Ordering Recommendations:
Diagnose infection from Ehrlichia chaffeensis.

Collect:
Serum Separator Tube.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as acute or convalescent.

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Tue, Fri

Reference Interval:

Components	Reference Interval
Ehrlichia chaffeensis Antibody, IgG	Less than 1:64
Ehrlichia chaffeensis Antibody, IgM	Less than 1:16

Reported:
1-5 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Notes:
Human ehrlichiosis is a tick-borne disease caused by rickettsial-like agents. Two forms, human monocytic ehrlichiosis (HME) and human granulocytic ehrlichiosis (HGE), have been described. HME is often referred to as "spotless" or rashless Rocky Mountain spotted fever, and has been reported in various regions of the United States. The causative agent of HME has been identified as Ehrlichia chaffeensis. Infected individuals produce specific antibodies to Ehrlichia chaffeensis which can be detected by an immunofluorescent antibody (IFA) test.

Interpretive Data:

Component	Interpretation
Ehrlichia chaffeensis Antibody, IgG by IFA	< 1:64 Negative-No significant level of Ehrlichia chaffeensis IgG antibody detected. 1:64-1:128 Equivocal-Questionable presence of Ehrlichia chaffeensis IgG antibody detected. Repeat testing in 10-14 days may be helpful. >=1:256 Positive-Presence of IgG antibody to Ehrlichia chaffeensis detected, suggestive of current or past infection.
Ehrlichia chaffeensis Antibody, IgM by IFA	< 1:16 Negative-No significant level of Ehrlichia chaffeensis IgM antibody detected. >= 1:16 Positive-Presence of IgM antibody to Ehrlichia chaffeensis detected, suggestive of current or recent infection.

Performing Lab:
ARUP

ARUP Test Code:
0051002

ADMINISTRATIVE

CPT Codes:
86666 x2

EHRLICHIA/ANAPLASMA PCR, B (SQ:EHRLA)

EHRL

TESTING INFORMATION

Ordering Recommendations:
Preferred panel for diagnosing possible tick-borne disease (ie, Anaplasmosis or Ehrlichiosis) during the acute phase of the disease. If also investigating babesiosis, consider Tick-Borne Disease Panel by PCR, Blood (2008670).

Collect:
Lavender (EDTA) or Pink (K_2EDTA).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.6 mL)

Unacceptable Conditions:
Serum, plasma, and heparinized specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 week

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Notes:
This test detects and speciates Anaplasma phagocytophilum; Ehrlichia chaffeensis; E. ewingii/E. canis; E. muris-like. The nucleic acid detected from E. ewingii and E. canis cannot be differentiated by this test. A result of "Detected" for E. ewingii/canis indicates the presence of either of these two organisms in the specimen.

Interpretive Data:
A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection by this test.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2007862

ADMINISTRATIVE

CPT Codes:
87468; 87484; 87798 x2

Last Reviewed:
12/2/2023

ELECTROLYTE PANEL (SQ: LYTES)

ELECT

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Specimen Preparation:

If transport is delayed, collect gold top tube, centrifuge within two hours of collection to separate serum/plasma, refrigerate and transport at 2-8 degrees C.

Unacceptable Conditions:

Hemolyzed samples, serum/plasma in prolonged contact with cells beyond two hours.

Storage/Transport Temperature:

Deliver promptly at Ambient (room temperature) or 2-8 degrees C. Do not uncap. If transport will be delayed, collect gold top tube, centrifuge to separate serum, refrigerate and transport at 2-8 degrees C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	7 days	6 months

Performed:

Sunday-Saturday

Reference Interval:

See individual components for reference intervals.

Reported:

2- 4 hours (1 hr if STAT)

Performing Lab:

Methodist, Pekin, and Proctor Hospitals

Testing Region:

Carle West region

Components:

Sodium, Potassium, Chloride, CO2, Anion Gap

ADMINISTRATIVE

CPT Codes:

80051

ELM (ULMUS AMERICANA) (SQ: ELM)

ELMA

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

ELUATE (SQ: ELUT)

ELU

TESTING INFORMATION

Collect:

K2 EDTA Pink, two 6.0mL tubes

Unacceptable Conditions:

Incorrect collection or improperly labelled.
Grossly hemolyzed samples.
Frozen specimens

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen	
24 hours		72 hours		Unacceptable	

Performing Lab:

Methodist, Proctor, and Pekin

Testing Region:

Carle West region

ENA PROFILE (SQ: CENAPN)

CENAP

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 ml serum or centrifuged gold, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
DSDNAB
CHRNUA
RIBPA
SSAROA
SSBLA
SMA
SmRNP
RNPPA
CENTA
SCLA
Jo1A

ADMINISTRATIVE

Last Reviewed:
2/1/24

ENA SCREENING (SQ: ENASCN)

ENASC

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Specimens

Storage/Transport Temperature:
Transport 1.0mL serum at refrigerated temperature, 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Not acceptable	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
DSDNAB
SMA
RNPA
SSAROA
SSBLA

ADMINISTRATIVE

CPT Codes:
86225, 86235X4

Last Reviewed:
2/1/24

ENDOMYSIAL ABS, S (SQ:ENDOMA)

EMA

TESTING INFORMATION

Ordering Recommendations:
Not recommended as an initial test to evaluate for suspected celiac disease (CD). May be used to evaluate for suspected CD in individuals with positive results for tissue transglutaminase (tTG) IgA.The preferred test to screen for CD is Celiac Disease Reflexive Cascade, Serum (3016817).

Collect:
Serum separator tube.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Plasma. Severely lipemic, contaminated, or hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:
Less than 1:10

Reported:
1-5 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody

Interpretive Data:
The endomysial antigen has been identified as the protein cross-linking enzyme known as tissue transglutaminase.

Performing Lab:
ARUP

ARUP Test Code:
0050736

ADMINISTRATIVE

CPT Codes:
86231

Last Reviewed:
12/2/2023

ENTEROVIRUS PCR, B (SQ:ENTPCR)

ENTP

TESTING INFORMATION

Ordering Recommendations:
Detect enterovirus in blood, CSF, or nasopharyngeal specimens.

Collect:
Lavender (EDTA), pink (K_2EDTA) or serum separator tube. Also acceptable: CSF or nasopharyngeal swab.

Specimen Preparation:
Separate serum or plasma from cells. Transfer 1 mL serum, plasma or CSF to a sterile container. (Min: 0.5 mL) Swab: Place in viral transport media (ARUP Supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800)522-2787.

Unacceptable Conditions:
Heparinized specimens.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 48 hours; Frozen: 3 months

Performed:
Sun-Sat

Reported:
1-2 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0050249

ADMINISTRATIVE

CPT Codes:
87498

Last Reviewed:
12/1/2023

EPSTEIN BARR HETEROPHILE ANTIGEN IGM (SQ: EBVHM)

EBVHM

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum from cells ASAP.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum (Minimum 0.5mL) or centrifuged gold top, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:

Negative	<= 0.8 AI
Equivocal	0.9-1.0 AI
Positive	>= 1.1 AI

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86308

Last Reviewed:
2/1/24

EPSTEIN BARR VIRUS BY PCR QUAL (SQ: EBVPCR)

EBVPC

TESTING INFORMATION

Ordering Recommendations:
Do not use for diagnosis of Epstein-Barr virus (EBV) infectious mononucleosis. Use to detect EBV in individuals suspected of having EBV-related disease. If submitting plasma, refer to Epstein-Barr Virus by Quantitative NAAT, Plasma (3006079).

Collect:
Bone marrow aspirate in lavender (EDTA) or pink (K2EDTA), CSF, tissue, Bronchoalveolar lavage (BAL), or bronchial wash.

Specimen Preparation:
Transfer 1 mL bone marrow or CSF to a sterile container (Min: 0.5 mL).
Tissue: Transfer to sterile container and freeze immediately.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
CSF: Ambient: 24 hours; Refrigerated: 5 days; Frozen: 1 year
Bone Marrow: Ambient: 1 week; Refrigerated: 1 week; Frozen: 1 week
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 year
BAL: Ambient: 14 days; Refrigerated: 14 days; Frozen: 30 days

Performed:
Sun-Sat

Reported:
1-4 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Performing Lab:
ARUP

ARUP Test Code:
0050246

ADMINISTRATIVE

CPT Codes:
87798

Last Reviewed:
12/2/2023

EPSTEIN BARR VIRUS VCA IGG/IGM (SQ: EBVPAN)

EBVPA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP.

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1 mL serum or centrifuged gold top, refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Variable

Methodology:

Multiplex flow immunoassay

Interpretive Data:

POSSIBLE RESULTS

VCA IgM	VCA IgG	EA IgG	EBNA IgG	Interprettion
-	-	-	-	No previous exposure
+	+	±	-	Acute
±	+	±	±	Recent*
-	+	-	+	Past infection
±	+	+	+	Reactivation

- if only VCA IgG is positive, resultsindicate infection with EBV at sometime;however, the time of the infection cannot be predicted (ie, recentor past) sinceantibodies to EBNA usually develop afterprimary infection (recent) or, alternatively,approximately 5% to 10% of patients with EBV never develop antibodies to EBNA (past).

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

EBVCAG -Viral Capcid Antigen, IgG
EBVNAG -Nuclear Antigen, IgG
EBEAG -Early Antigen, IgG
EBVCAM -Viral Capsid Antigen, IgM

ADMINISTRATIVE

CPT Codes:

86663, 86665 x 2, 86664

Last Reviewed:

12/2/2024

EPSTEIN-BARR VIRUS EARLY ANTIGEN ANTIBODY, IGG (SQ: EBEAG)

EBAAG

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
1 Plain Red Top Tube	6.0 mL	4.0 mL

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum at 2-8°C or frozen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:

EA IgG	Interpretation
-	No previous exposure
±	Acute
±	Recent
-	Past Infection
+	Reactivation

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

EPSTEIN-BARR VIRUS NUCLEAR ANTIGEN ANTIBODY, IGG (SQ: EBVNAG)

EBVNG

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
1 Plain Red Top Tube	6.0 mL	3.0 mL

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:

EBNA IgG	Interpretation
-	No previous exposure
-	Acute
±	Recent
+	Past Infection
+	Reactivation

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

EPSTEIN-BARR VIRUS VCA, IGG (SQ: EBVCAG)

EBVCG

TESTING INFORMATION

Collect:
One 6 ml gold top or plain red. Separate serum from cells ASAP.

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum or plasma from cells ASAP.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum or centrifuged gold top, refrigerated

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Interpretive Data:

POSSIBLE RESULTS

VCA IgM	VCA IgG	EA IgG	EBNA IgG	Interprettion
-	-	-	-	No previous exposure
+	+	±	-	Acute
±	+	±	±	Recent*
-	+	-	+	Past infection
±	+	+	+	Reactivation

- if only VCA IgG is positive, results indicate infection with EBV at some time;

however, the time of the infection cannot be predicted (ie, recent or past) since antibodies to EBNA usually develop after primary infection (recent) or, alternatively, approximately 5% to 10% of patients with EBV never develop antibodies to EBNA (past).

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86665

EPSTEIN-BARR VIRUS VCA, IGM (SQ: EBVCAM)

EBVIM

TESTING INFORMATION

Collect:
One 6 ml gold top or plain red. Separate serum from cells ASAP.

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum or plasma from cells ASAP.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum, or centrifuged gold top refrigerated

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Interpretive Data:

POSSIBLE RESULTS

VCA IgM	VCA IgG	EA IgG	EBNA IgG	Interprettion
-	-	-	-	No previous exposure
+	+	±	-	Acute
±	+	±	±	Recent*
-	+	-	+	Past infection
±	+	+	+	Reactivation

- if only VCA IgG is positive, results indicate infection with EBV at some time;

however, the time of the infection cannot be predicted (ie, recent or past) since antibodies to EBNA usually develop after primary infection (recent) or, alternatively, approximately 5% to 10% of patients with EBV never develop antibodies to EBNA (past).

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86665

ERYTHROPOIETIN (EPO), S (SQ:EPOIA)

EPO

TESTING INFORMATION

Ordering Recommendations:
Initial screening test for evaluation of polycythemia. Determine eligibility for erythropoietin therapy in anemia due to chronic renal failure.

Collect:
Serum separator tube or plasma separator tube.

Specimen Preparation:
Allow serum to clot completely at room temperature. Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Bone marrow aspirate. EDTA plasma. Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 1 week; Frozen: 2 months

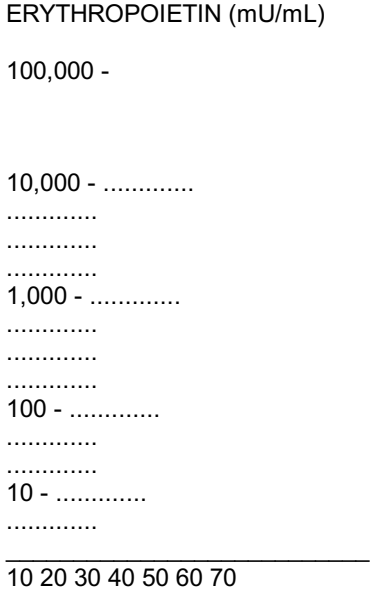
Performed:
Sun-Sat

Reference Interval:
Normal serum concentrations of erythropoietin for 95% of individuals with normal hematocrits range from 4-27 mU/mL.

As the hematocrit is lowered by iron deficiency, aplastic or hemolytic anemia, the concentration of erythropoietin increases as shown in the graph below. In the absence of anemia, elevated concentrations are seen in renal tumors, as a manifestation of renal transplant rejection, and in secondary polycythemia. Low values may be observed in hemochromatosis.

Decreased erythropoietin concentrations with an elevated hematocrit are observed in patients with polycythemia rubra vera, and with a decreased hematocrit in patients with HIV infection who are receiving AZT. Patients on AZT who have anemia and erythropoietin concentrations of less than or equal to 500 mU/mL, may benefit from therapy with recombinant EPO (NEJM 322:1488-1493, 1990).

EXPECTED ERYTHROPOIETIN CONCENTRATIONS IN PATIENTS WITH UNCOMPLICATED ANEMIA



(CONTRIBUTIONS TO NEPHROLOGY 1988:66:54-62)

Reported:
Within 24 hours

Methodology:
Quantitative Chemiluminescent Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0050227

ADMINISTRATIVE

CPT Codes:
82668

Last Reviewed:
12/2/2023

ESR (Erythrocyte Sedimentation Rate) (SQ: ESR)

ESRP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Lavendar (EDTA) Top Tube	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 1.0 mL

Unacceptable Conditions:

- Improper anticoagulant
- Insufficient volume
- Clotted or evidence of fibrin strands
- Hemolyzed
- Contaminated with IV fluid
- Incompletely labeled or mislabeled
- Stability exceeded
- Frozen

Storage/Transport Temperature:

Whole blood K2EDTA at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	24 hours	Unacceptable

Performed:

Daily

Reference Interval:

ESR (mm/hr)

	Females	Males
0-50 years	<20	<15
>50 years	<30	<20

Methodology:

Methodist Hospital: Photometric
Pekin Hospital: Modified Westegren Method

Performing Lab:

Methodist and Pekin Hospitals

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

85651

Last Reviewed:

12/2/2023

ESTRADIOL-2 (SQ: E2)

ESDI2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

Gross hemolysis

Remarks:

There is a chance of interference that Biotin can potentially alter results by 10%. If patients is on Biotin supplementation, be aware of any abnormal results and ahve patient discontinue supplementation prior to drawing laboratory testing.

Storage/Transport Temperature:

Gold top, Red or green top if immediately at Ambient (room temperature); or transport centrifuged gold top or separated plasma or serum refrigerated (Min: 1 mL).

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	2 days	6 months

Reference Interval:

Estradiol (pg/mL)

Menstruating Females: Follicular phase (-14 to -4 days)	21.4-164.8
Menstruating Females: Mid-cycle phase (-3 to +2 days)	49.9-367.2
Menstruating Femalse: Luteal phase (+3 to +14 days)	40.2-259.0
Post-menopausal Females: On Hormone Therapy	<11-462.1
Post menopausal Females: Untreated	<11-58.3
Males	<11-52.5

Note: Menstruating females by day in cycle relative to luteinizing hormone (LH) peak.

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82670

Last Reviewed:

1/24/24

ESTRIOL (SQ:ESTRIA)

ESTRI

TESTING INFORMATION

Ordering Recommendations:
Screening test for fetal aneuploidy in conjunction with other biomarkers and ultrasonography. Indicator of fetal well-being and placental function.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.6 mL)

Unacceptable Conditions:
Plasma.

Remarks:
Patient gestational age required.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Effective February 05, 2024

Based on gestational age:	
25 weeks	2.1 - 7.4 ng/mL
26 weeks	2.2 - 8.0 ng/mL
27 - 29 weeks	2.3 - 10.0 ng/mL
30 - 31 weeks	2.7 - 11.7 ng/mL
32 - 37 weeks	2.9 - 18.4 ng/mL
Male	Less than 0.22 ng/mL
Nonpregnant Female	Less than 0.20 ng/mL

Reported:
1-2 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0070051

ADMINISTRATIVE

CPT Codes:
82677

ESTROGENS, E1+E2, FRACTIONATED, S (SQ:ESTFA)

ESTFR

TESTING INFORMATION

Ordering Recommendations:

Use to evaluate estrogen status in children, cisgender males, and postmenopausal cisgender females. Most useful when low estrogen concentrations are expected, regardless of the patient's sex assigned at birth.To compare this test to other estrogen tests, refer to the ARUP Estrogen Tests Comparison table.

Collect:

Serum separator tube, lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:

Separate serum or plasma from cells within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min 0.3 mL)

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:

Sun-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Estradiol by Mass Spec</td><td>
<table>
<tr><th>Age</th><th>Male (pg/mL)</th><th>Female (pg/mL)</th></tr>
<tr><td>7-9 years</td><td>Less than 7.0</td><td>Less than 36.0</td></tr>
<tr><td>10-12 years</td><td>Less than 11.0</td><td>1.0-87.0</td></tr>
<tr><td>13-15 years</td><td>1.0-36.0</td><td>9.0-249.0</td></tr>
<tr><td>16-17 years</td><td>3.0-34.0</td><td>2.0-266.0</td></tr>
<tr><td>18 years and older</td><td>10.0-42.0</td><td>Premenopausal
Early Follicular: 30.0-100.0
Late Follicular: 100.0-400.0
Luteal: 50.0-150.0

Postmenopausal: 2.0-21.0</td></tr>
<tr><td>Tanner Stage I</td><td>Less than 8.0</td><td>Less than 56.0</td></tr>
<tr><td>Tanner Stage II</td><td>Less than 10.0</td><td>2.0-133.0</td></tr>
<tr><td>Tanner Stage III</td><td>1.0-35.0</td><td>12.0-277.0</td></tr>
<tr><td>Tanner Stage IV-V</td><td>3.0-35.0</td><td>2.0-259.0</td></tr>
</table>
</td></tr>
<tr><td>Estrone by Mass Spec</td><td>
<table>
<tr><th>Age</th><th>Male (pg/mL)</th><th>Female (pg/mL)</th></tr>
<tr><td>7-9 years</td><td>Less than 7.0</td><td>Less than 20.0</td></tr>
<tr><td>10-12 years</td><td>Less than 11.0</td><td>1.0-40.0</td></tr>
<tr><td>13-15 years</td><td>1.0-30.0</td><td>8.0-105.0</td></tr>
<tr><td>16-17 years</td><td>1.0-32.0</td><td>4.0-133.0</td></tr>
<tr><td>18 years and older</td><td>9.0-36.0</td><td>Premenopausal
Early Follicular: Less than 150.0
Late Follicular: 100.0-250.0.
Luteal: Less than 200.0

Postmenopausal: 3.0-32.0</td></tr>
<tr><td>Tanner Stage I</td><td>Less than 7.0</td><td>Less than 27.0</td></tr>
<tr><td>Tanner Stage II</td><td>Less than 11.0</td><td>1.0-39.0</td></tr>
<tr><td>Tanner Stage III</td><td>1.0-31.0</td><td>8.0-117.0</td></tr>
<tr><td>Tanner Stage IV-V</td><td>2.0-30.0</td><td>4.0-109.0</td></tr>
</table>
</td></tr>
<tr><td>Estrogens Total Calculation</td><td>
<table>
<tr><th>Age</th><th>Male (pg/mL)</th><th>Female (pg/mL)</th></tr>
<tr><td>7-9 years</td><td>Less than 10.0</td><td>1.0-48.0</td></tr>
<tr><td>10-12 years</td><td>1.0-19.0</td><td>2.0-116.0</td></tr>
<tr><td>13-15 years</td><td>3.0-62.0</td><td>15.0-333.0</td></tr>
<tr><td>16-17 years</td><td>4.0-64.0</td><td>6.0-354.0</td></tr>
<tr><td>18 years or older</td><td>19.0-69.0</td><td>Premenopausal
Early Follicular: 30.0-250.0
Late Follicular: 200.0-650.0
Luteal: 50.0-350.0

Postmenopausal: 5.0-52.0</td></tr>
<tr><td>Tanner Stage I</td><td>1.0-11.0</td><td>1.0-86.0</td></tr>
<tr><td>Tanner Stage II</td><td>1.0-19.0</td><td>3.0-169.0</td></tr>
<tr><td>Tanner Stage III</td><td>3.0-61.0</td><td>23.0-351.0</td></tr>
<tr><td>Tanner Stage IV-V</td><td>4.0-62.0</td><td>8.0-341.0</td></tr>
</table>
</td></tr>
</table>

Reported:

1-5 days

Methodology:

Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:

For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0093248.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

0093248

ADMINISTRATIVE

CPT Codes:

82671

Last Reviewed:

12/2/2023

ESTRONE, S (SQ:ESTA)

ESTR

TESTING INFORMATION

Ordering Recommendations:
Rarely indicated in clinical practice. The preferred test for the measurement of estrone is Estrogens, Fractionated, by Mass Spectrometry (0093248).

Collect:
Serum separator tube, lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min 0.3 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval		
Estrone by Mass Spec	**Age**	**Male (pg/mL)**	**Female (pg/mL)**
	7-9 years	Less than 7.0	Less than 20.0
	10-12 years	Less than 11.0	1.0-40.0
	13-15 years	1.0-30.0	8.0-105.0
	16-17 years	1.0-32.0	4.0-133.0
	18 years and older	9.0-36.0	Premenopausal Early Follicular: Less than 150.0 Late Follicular: 100.0-250.0. Luteal: Less than 200.0 Postmenopausal: 3.0-32.0
	Tanner Stage I	Less than 7.0	Less than 27.0
	Tanner Stage II	Less than 11.0	1.0-39.0
	Tanner Stage III	1.0-31.0	8.0-117.0
	Tanner Stage IV-V	2.0-30.0	4.0-109.0

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0093249.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0093249

ADMINISTRATIVE

CPT Codes:
82679

Last Reviewed:
12/2/2023

ETHOSUXIMIDE, S (SQ:ETHOSA)

ETX

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain Red. Also acceptable: Lavender (K_2or K_3EDTA) or Pink (K_2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 days; Refrigerated: 1 week; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Ethosuximide	40-100 µg/mL

Reported:
1-5 days

Methodology:
Quantitative Enzyme Immunoassay

Interpretive Data:
The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Toxic concentrations may cause dizziness, drowsiness and anorexia. The incidence of adverse reactions is low; however, life-threatening agranulocytosis and fatal pancytopenia have been reported.

Components	Interpretive Data
Ethosuximide	Toxic: > 150 µg/mL

Performing Lab:
ARUP

ARUP Test Code:
2010358

ADMINISTRATIVE

CPT Codes:
80168

Last Reviewed:
12/2/2023

ETHYL GLUC W/RFLX (SQ:ETGRA)

ETGRA

TESTING INFORMATION

Ordering Recommendations:
Useful for general screening in the assessment of ethanol exposure in the contexts of compliance and/or abuse. A screen with reflex testing is the preferred method for ruling out ethanol exposure. For follow-up testing of a presumptive result, Ethyl Glucuronide and Ethyl Sulfate, Urine, Quantitative (2007909) is preferred. Results do not accurately correlate with amount or frequency of ethanol use.

Collect:
Random urine.

Specimen Preparation:
Transfer 4 mL urine with no additives or preservatives to an ARUP Standard Transport Tube. (Min: 1 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Screen cutoff concentration: 500 ng/mL

Reported:
1-4 days

Methodology:
Qualitative Enzyme Immunoassay/Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
If the specimen screens positive, then Confirmation/Quantitation by LC-MS/MS (ARUP test code 2007909) will be added to confirm result. Additional charges apply.

Interpretive Data:
Ethyl glucuronide is a direct metabolite of ethanol and can be detected up to 80 hours in urine after ethanol ingestion. The cutoff for positive by immunoassay is set at 500 ng/mL. A positive result will be confirmed by liquid chromatography tandem mass spectrometry (LC-MS/MS).

Performing Lab:
ARUP

ARUP Test Code:
2007912

ADMINISTRATIVE

CPT Codes:
80307; if reflexed, add 80321 (Reflexed Alt Code: G0480)

Last Reviewed:
12/2/2023

ETHYL GLUCURONIDE,CORD (SQ: EGCA)

EGCA

TESTING INFORMATION

Ordering Recommendations:
Use to detect and document fetal exposure to ethanol during approximately the last trimester of a full-term pregnancy.

Collect:
Umbilical Cord (At least 8 inches, approximately the width of a sheet of paper.) Caution must be used when collecting specimen, to ensure no ethanol-containing personal care products (i.e., hand sanitizers, wipes, mouthwash) are used directly on the specimen or nearby during collection.

Specimen Preparation:
Drain and discard any blood. Rinse the exterior of the cord segment with normal saline or water. Pat the cord dry and transport at least 8 inches of umbilical cord in a routine urine collection cup or Security Kit for Meconium/Umbilical Drug Detection (ARUP supply #51548) available online through eSupply using ARUP Connect(TM) or by contacting ARUP Client Services at (800) 522-2787. (Min: 6 inches)

Unacceptable Conditions:
Cords soaking in blood or other fluid. Formalin fixed. Tissue that is obviously decomposed.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 3 weeks; Frozen: 1 year

Performed:
Tue, Thu, Sat

Reference Interval:

Drugs/Drug Classes	Cutoff Concentrations (ng/g)
Ethyl Glucuronide	5

Reported:
1-4 days

Methodology:
Qualitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Absolute Minimum: 6 inches. EtG may be formed in vitro in umbilical cord segment exposed to ethanol vapors at room temperature.

Interpretive Data:
Methodology: Qualitative Liquid Chromatography-Tandem Mass Spectrometry

This test is designed to detect and document exposure that occurred during approximately the last trimester of a full term pregnancy, to ethyl glucuronide, a common ethanol (alcohol) metabolite. Alternative testing is available to detect other drug exposures. The pattern and frequency of alcohol used by the mother cannot be determined by this test. A negative result does not exclude the possibility that a mother used alcohol during pregnancy. Detection of alcohol in umbilical cord tissue depends on extent of maternal use, as well as stability, unique characteristics of alcohol deposition in umbilical cord tissue, and the performance of the analytical method. Detection of alcohol in umbilical cord tissue does not insinuate impairment and may not affect outcomes for the infant. Interpretive questions should be directed to the laboratory.

Caution must be used when collecting specimen, to ensure no ethanol-containing personal care products (i.e., hand sanitizers, wipes, mouthwash) are used directly on the specimen or nearby during collection.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
3000443

ADMINISTRATIVE

CPT Codes:
80321 (Alt code: G0480)

Last Reviewed:
12/2/2023

ETHYLENE GLYCOL (SQ:ETHYAA)

ETYAA

TESTING INFORMATION

Ordering Recommendations:
Aid in assessment of the etiology of anion gap acidosis. Determine whether ethylene glycol poisoning exists.

Patient Preparation:
Timing of specimen collection: Dependent on time of exposure - test upon presentation to hospital.

Collect:
Plain red. Also acceptable: Lavender (K_2 or K_3EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL) When drawing a blood specimen for ethylene glycol testing, use a nonalcohol-based cleanser at the venipuncture site.

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Effective February 19, 2013

Therapeutic Range	No therapeutic range - Limit of detection 5 mg/dL
Toxic Level	Greater than 20 mg/dL

Reported:
1-4 days

Methodology:
Quantitative Enzymatic Assay

Interpretive Data:
Toxic concentrations may cause intoxication, CNS depression, metabolic acidosis, renal damage and hypocalcemia. Ethylene glycol is extremely toxic. Ingestion can be fatal if patients do not receive immediate medical treatment.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0090110

ADMINISTRATIVE

CPT Codes:
82693

Last Reviewed:
12/2/2023

EVEROLIMUS, BLOOD (SQ: EVERA)

EVROL

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Predose (trough) levels should be drawn.

Collect:
Lavender (EDTA) or pink (K2EDTA).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.25 mL)

Unacceptable Conditions:
Serum or plasma. Specimens left at room temperature for longer than 24 hours. Clotted specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:
Effective February 18, 2014

	Therapeutic Range:
Kidney transplant (in combination with Cyclosporine):	3-8 ng/mL
Liver transplant (in combination with Tacrolimus):	3-8 ng/mL
Toxic value:	Greater than 15 ng/mL

Reported:
1-2 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Everolimus (Zortress, Certican, Afinitor) whole blood concentrations can be measured by either chromatographic or immunoassay methodologies. These two methodologies are not directly interchangeable, and the measured everolimus whole blood concentration depends on the methodology used, and reference ranges may vary according to specific immunoassay or HPLC/MS/MS test. Generally, immunoassays have been reported to have a positive test bias relative to HPLC-MS/MS assays, due to the detection of antibody cross-reactivity with everolimus metabolites.

Interpretive Data:
Everolimus marketed as Zortress is FDA approved for prophylaxis of organ rejection in adult patients receiving a kidney and liver transplant.

Everolimus marketed as Afinitor is FDA approved for the treatment of renal cell carcinoma and for the treatment of subependymal giant cell astrocytoma (SEGA) associated with tuberous sclerosis (TS) in patients who are not candidates for curative surgical resection. The suggested therapeutic range for treatment of SEGA is 5-15 ng/mL, which is based on a predose (trough) specimen.

The optimal therapeutic range for a given patient may differ from this suggested range based on the indication for therapy, treatment phase (initiation or maintenance), use in combination with other drugs, time of specimen collection relative to prior dose, type of transplanted organ, and/or the therapeutic approach of the transplant center.

Performing Lab:
ARUP

ARUP Test Code:
0092118

ADMINISTRATIVE

CPT Codes:
80169

Last Reviewed:
12/1/2023

EXPANDED ENA SCREENING (SQ: EXENA)

EXENA

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Plasma or other body fluids. Hemolyis, Bacterially contamined or severely lipemic specimens.

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
dsDNA
anti-SM
RNP
SS-A
SS-B
Scleroderma
Jo-1

ADMINISTRATIVE

Last Reviewed:
2/1/24

EXTENDED MYOSITIS PANEL (SQ: MYOEP

FMP3

TESTING INFORMATION

Ordering Recommendations:
May be useful for differential evaluation of polymyositis, dermatomyositis, necrotizing autoimmune myopathy, or overlap syndromes associated with connective tissue disease.

Collect:
Serum separator tube (SST), red top tube

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer three 1 mL serum aliquots to ARUP standard transport tubes. (Min: 0.5 mL/aliquot)

Unacceptable Conditions:
Hemolyzed, hyperlipemic, icteric, heat-treated, or contaminated specimens.

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Zo (phenylalanyl-tRNA synthetase) Ab	Negative
Ks (asparaginyl-tRNA synthetase) Ab	Negative
Ha (tyrosyl-tRNA synthetase) Ab	Negative
TIF-1 gamma (155 kDa) Ab	Negative
NXP2 (Nuclear matrix protein-2) Ab	Negative
MDA5 (CADM-140) Ab	Negative
SAE1 (SUMO activating enzyme) Ab	Negative
Antinuclear Antibody (ANA), HEp-2, IgG	Less than 1:80
Fibrillarin (U3 RNP) Ab, IgG	Negative
SSA-60 (Ro60) (ENA) Antibody, IgG	40 AU/mL or less
OJ (isoleucyl-tRNA synthetase) Antibody	Negative
SRP (Signal Recognition Particle) Ab	Negative
Ku Antibody	Negative
EJ (glycyl-tRNA synthetase) Antibody	Negative
P155/140 Antibody	Negative
PL-12 (alanyl-tRNA synthetase) Antibody	Negative
PL-7 (threonyl-tRNA synthetase) Antibody	Negative
Mi-2 (nuclear helicase protein) Antibody	Negative
PM/Scl 100 Antibody, IgG	Negative
Jo-1 (Histidyl-tRNA Synthetase) Ab, IgG	40 AU/mL or less
SSA-52 (Ro52) (ENA) Antibody, IgG	40 AU/mL or less
Smith/RNP (ENA) Ab, IgG	19 Units or less

Reported:
7-18 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA) / Qualitative Immunoprecipitation / Semi-Quantitative Multiplex Bead Assay / Qualitative Immunoblot / Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Notes:
Antibodies: Mi-2, PL-7, PL12, P155/140, EJ, Ku, OJ, PM/Scl, SRP, Smith/RNP, Ro52, Ro60, Jo-1, U3 Fib, SAE1, NXP2, MDA5, TIF1-gamma, ANA, Ha, Ks, Zo

Interpretive Data:
Refer to report.

Component	Interpretation
SSA-52 (Ro52) (ENA) Antibody, IgG	29 AU/mL or less: Negative 30-40 AU/mL: Equivocal 41 AU/mL or greater: Positive
SSA-60 (Ro60) (ENA) Antibody, IgG	29 AU/mL or less: Negative 30-40 AU/mL: Equivocal 41 AU/mL or greater: Positive
Smith/RNP (ENA) Antibody, IgG	19 Units or less: Negative 20-39 Units: Weak Positive 40-80 Units: Moderate Positive 81 Units or greater: Strong Positive
Jo-1 Antibody, IgG	29 AU/mL or less: Negative 30-40 AU/mL: Equivocal 41 AU/mL or greater: Positive

Performing Lab:
ARUP Laboratories

ARUP Test Code:
3018867

ADMINISTRATIVE

CPT Codes:
83516 x8; 86235 x6; 84182 x7; 86039

EYE CULTURE (SQ: VCEYE)

VCEYE

TESTING INFORMATION

Collect:

Drainage, fluid, scrapings.

Specimen Type	Collection Container	Volume
Drainage, fluid, scrapings.	• eSwab • Sterile, Leak-proof container	

Unacceptable Conditions:

- Non-sterile or leaking container,
- Dry eSwab.

Remarks:

Media is available for direct inoculation, particularly of corneal scrapings. If Gram stain is required, it is best to prepare smears at time of collection. Gram Stain must be ordered separately (Epic: VCGRAM)

Storage/Transport Temperature:

Deliver to laboratory prompty at Ambient (room temperature)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 hours	48 hours	Not acceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedures for aerobic bacterial culture and identification.

Notes:

Identification and susceptibility test are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87070

Last Reviewed:

1/19/24

FACTOR 5 LEIDEN (SQ:FVLMA)

FVLMA

TESTING INFORMATION

Ordering Recommendations:
Order for individuals at risk for Venous thromboembolism (VTE) when results will impact clinical management.

Collect:
Lavender (EDTA), pink (K2EDTA), or yellow (ACD solution A or B).

Specimen Preparation:
Transport 3 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Plasma or serum; collection of specimen in sodium heparin tubes. Frozen specimens in glass collection tubes.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Negative: This sample is negative for factor V Leiden, R506Q mutation.

Reported:
2-5 days

Methodology:
Polymerase Chain Reaction (PCR)
Fluorescence Monitoring

Notes:
This test is not recommended for nonsymptomatic patients under 18 years of age.

Interpretive Data:
Background Information for Factor V Leiden (F5) R506Q Mutation
Characteristics: Venous thromboembolism (VTE) is a multifactorial condition caused by a combination of genetic and environmental factors. The Factor V Leiden (FVL) variant is the most common cause of inherited VTEs, accounting for over 90 percent of activated protein C (APC) resistance. Because the FVL variant eliminates the APC cleavage site, factor V is inactivated slower, thus persisting longer in blood circulation, leading to more thrombin production. Other genetic risk factors for VTE include, male sex and variants in antithrombin, protein C, protein S, or factor XIII. Non-genetic risk factors include, age, smoking, prolonged immobilization, malignant neoplasms, surgery, pregnancy, oral contraceptives, estrogen replacement therapy, tamoxifen and raloxifene therapy.
Incidence of Factor V Leiden Variant: Approximately 5 percent of Caucasians, 2 percent of Hispanics, 1 percent of African Americans and 0.5 percent of Asians are heterozygous; homozygosity occurs in 1 in 1500 Caucasians.
Inheritance: Semidominant; both heterozygotes and homozygotes are at increased risk for VTE.
Penetrance: Lifetime risk of VTE is 10 percent for heterozygotes and 80 percent for homozygotes.
Cause: The pathogenic gain of function in the F5 gene variant c.1601G>A (p.Arg534Gln). Legacy nomenclature: R506Q (1691G>A).
Clinical Sensitivity: 20-50 percent of individuals with an isolated VTE have the FVL variant.
Methodology: Polymerase chain reaction and fluorescence monitoring.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations. F5 gene mutations, other than p.Arg534Gln, will not be detected.

Performing Lab:
ARUP

ARUP Test Code:
0097720

ADMINISTRATIVE

CPT Codes:
81241

Last Reviewed:
12/2/2023

FACTOR IX ACTIVITY (SQ:F9A)

F9A

TESTING INFORMATION

Ordering Recommendations:
Order to diagnose factor IX deficiency (hemophilia B) and monitor factor IX replacement therapy.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Mon-Sat

Reference Interval:

Age	Reference Interval	Age	Reference Interval
1-4 days	15-91%	7-9 years	70-133%
5-29 days	15-91%	10-11 years	72-149%
30-89 days	21-81%	12-13 years	73-152%
90-179 days	21-113%	14-15 years	80-161%
180-364 days	36-136%	16-17 years	86-176%
1-5 years	47-104%	18 years and older	78-184%
6 years	63-89%		

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection

Performing Lab:
ARUP

ARUP Test Code:
0030100

ADMINISTRATIVE

CPT Codes:
85250

Last Reviewed:
12/1/2023

FACTOR V (SQ:F5A)

F5A

TESTING INFORMATION

Ordering Recommendations:
Evaluate for possible factor V deficiency. For factor V Leiden testing, order APC Resistance Profile with Reflex to Factor V Leiden (0030192) or Factor V Leiden (F5) R506Q Mutation (0097720).

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Mon-Sat

Reference Interval:

Age	Reference Interval	Age	Reference Interval
1-4 days	36-108%	7-9 years	69-132%
5-29 days	45-145%	10-11 years	66-136%
30-89 days	62-134%	12-13 years	66-135%
90-179 days	48-132%	14-15 years	61-129%
180-364 days	55-127%	16-17 years	65-131%
1-5 years	79-127%	18 years and older	62-140%
6 years	63-116%		

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection

Notes:
Do not order for factor V Leiden.

Performing Lab:
ARUP

ARUP Test Code:
0030075

ADMINISTRATIVE

CPT Codes:
85220

Last Reviewed:
12/1/2023

FACTOR VII (SQ:FVIIAA)

FC7A

TESTING INFORMATION

Ordering Recommendations:
Evaluate for possible factor VII deficiency.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Mon-Sat

Reference Interval:

Age	Reference Interval	Age	Reference Interval
1-4 days	28-104%	7-9 years	67-145%
5-29 days	35-143%	10-11 years	71-163%
30-89 days	42-138%	12-13 years	78-160%
90-179 days	39-143%	14-15 years	74-180%
180-364 days	47-127%	16-17 years	63-163%
1-5 years	55-116%	18 years and older	80-181%
6 years	52-120%		

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection

Performing Lab:
ARUP

ARUP Test Code:
0030080

ADMINISTRATIVE

CPT Codes:
85230

Last Reviewed:
12/1/2023

FACTOR VIII ACTIVITY (SQ:FVIIIA)

FC8A

TESTING INFORMATION

Ordering Recommendations:
Use to diagnose hemophilia A or acquired factor VIII deficiency, or as part of a diagnostic workup for von Willebrand disease (VWD). May also be used to monitor treatment in individuals with factor VIII deficiency or VWD. Not recommended when screening for thrombophilia.

Collect:
Light blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20° C: 3 months; Frozen at -70° C: 6 months

Performed:
Mon-Sat

Reference Interval:

Age	Reference Interval
0-6 years	56-191%
7-9 years	76-199%
10-11 years	80-209%
12-13 years	72-198%
14-15 years	69-237%
16-17 years	63-221%
18 years and older	56-191%

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection

Performing Lab:
ARUP

ARUP Test Code:
0030095

ADMINISTRATIVE

CPT Codes:
85240

Last Reviewed:
12/1/2023

FACTOR VIII ACTV, W RFLX BETHESDA QN (SQ: BETHA)

BETHA

TESTING INFORMATION

Ordering Recommendations:
Order to diagnose factor VIII deficiency, detect factor VIII inhibitors, and monitor factor VIII replacement therapy.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer two 3 mL aliquots of platelet-poor plasma to ARUP Standard Transport Tubes. (Min: 2 mL/each)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months; Frozen at -70°C: 6 months

Performed:
Mon-Sat

Reference Interval:

Components	Reference Interval
Bethesda Quantitative, F8	0.5 BU or less
Factor VIII, Activity	See nested table

Age	Reference Interval (%)
0-6 years	56-191
7-9 years	76-199
10-11 years	80-209
12-13 years	72-198
14-15 years	69-237
16-17 years	63-221
18 years and older	56-191

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection

Notes:
If Factor VIII activity is 20 percent or less, then Bethesda Quantitative, Factor VIII will be added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
0030026

ADMINISTRATIVE

CPT Codes:
85240; if reflexed, add 85335

Last Reviewed:
12/2/2023

FACTOR XI (SQ:F11A)

F11A

TESTING INFORMATION

Ordering Recommendations:
Order to diagnose factor XI deficiency (hemophilia C).

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Mon-Sat

Reference Interval:

Age	Reference Interval	Age	Reference Interval
1-4 days	10-66%	7-9 years	70-138%
5-29 days	23-87%	10-11 years	66-137%
30-89 days	27-79%	12-13 years	68-138%
90-179 days	41-97%	14-15 years	57-129%
180-364 days	38-134%	16-17 years	65-159%
1-5 years	56-150%	18 years and older	56-153%
6 years	52-120%		

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection

Performing Lab:
ARUP

ARUP Test Code:
0030110

ADMINISTRATIVE

CPT Codes:
85270

Last Reviewed:
12/1/2023

FACTOR XII (SQ:F12A)

F12A

TESTING INFORMATION

Ordering Recommendations:
Evaluate the cause of an isolated prolonged partial thromboplastin time (PTT) in a patient who is not currently bleeding.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Mon-Sat

Reference Interval:
58-166%

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection

Performing Lab:
ARUP

ARUP Test Code:
0030115

ADMINISTRATIVE

CPT Codes:
85280

Last Reviewed:
12/1/2023

FACTOR XIII ACTIVITY (SQ:FAC13A)

FC13A

TESTING INFORMATION

Ordering Recommendations:
Preferred first-line test to diagnose inherited or acquired factor XIII (FXIII) deficiency. Appropriate for evaluation of patients with a bleeding disorder who present with normal prothrombin time (PT), activated partial thromboplastin time (aPTT), and platelet count test results. Monitor FXIII therapy and confirm abnormalities detected on FXIII qualitative assay.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at www.aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: at -20°C or below: 1 month; Frozen at -70°C or below: 3 months

Performed:
Tue

Reference Interval:
Factor XIII Activity 69-143%

Reported:
1-8 days

Methodology:
Chromogenic Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2006182

ADMINISTRATIVE

CPT Codes:
85290

Last Reviewed:
12/2/2023

FACTOR XIII, QUAL RFLX FACTOR XIII 1:1 MIX (SQ:FX13MA)

FX13M

TESTING INFORMATION

Ordering Recommendations:
Most useful if severe FXIII deficiency is suspected (<1% of normal activity). Use to distinguish between FXIII deficiency and a FXIII inhibitor. Abnormal results should be confirmed with quantitative testing; refer to Factor XIII Activity (2006182).

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Factor XIII, Qualitative	No Lysis within 24 hours

Reported:
2-3 days

Methodology:
Qualitative Solubility Assay

Notes:
This is a qualitative screening test; clot lysis only occurs in specimens with severe factor XIII deficiency (less than 1 percent of normal activity). Severe deficiency may be inherited or acquired (typically due to a factor XIII antibody). If clot lysis occurs in the initial testing, then Factor XIII 1:1 Mix will be added where the test is repeated using a 1:1 mix of patient plasma and pooled normal plasma to distinguish between FXIII deficiency and a FXIII inhibitor. Additional charges apply.

False-positive results (lysis) can be caused by heparin (therapy with unfractionated or low molecular weight heparin or contamination from a line), decreased or abnormal fibrinogen, increased fibrinolysis (inherited or acquired fibrinolytic disorders), fibrinolytic drugs, or other factors that affect clot structure or stability.

Performing Lab:
ARUP

ARUP Test Code:
3016927

ADMINISTRATIVE

CPT Codes:
85291; if reflexed, add 85291

FAT, FECAL QUALITATIVE (SQ:FFQLA)

FATR

TESTING INFORMATION

Collect:
Random stool.

Specimen Preparation:
Transfer 5 g stool to an unpreserved stool transport vial (ARUP supply #40910). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 1 g)

Unacceptable Conditions:
Diapers. Specimens in media or preservatives.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 12 hours; Refrigerated: 2 weeks; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:
Normal

Reported:
1-2 days

Methodology:
Qualitative Microscopy/Stain

Interpretive Data:
Neutral fats include the monoglycerides, diglycerides, and triglycerides while split fats are the free fatty acids that are liberated from them. Impaired synthesis or secretion of pancreatic enzymes or bile may cause an increase in neutral fats while an increase in split fats suggests impaired absorption of nutrients.

Performing Lab:
ARUP

ARUP Test Code:
0020385

ADMINISTRATIVE

CPT Codes:
82705

Last Reviewed:
12/2/2023

FAT, FECAL QUANTITATIVE, HOMOGENIZED ALIQUOT (SQ:STFATA)

STFAT

TESTING INFORMATION

Ordering Recommendations:

Measurement of fecal fats can be useful in establishing a diagnosis of pancreatic disease. Testing requires the submission of an aliquot from a 24-, 48-, or 72-hour stool collection.For random stool collections, order Fat, Fecal Qualitative (0020385).For complete 24-hour stool collections, order Fat, Fecal Quantitative, 24-Hour Collection (Includes Homogenization) (2002354).For complete 48-hour stool collections, order Fat, Fecal Quantitative, 48-Hour Collection (Includes Homogenization) (2002355).For complete 72-hour stool collections, order Fat, Fecal Quantitative, 72-Hour Collection (Includes Homogenization) (2002356).

Patient Preparation:

The patient should be on a diet consisting of 50 to 150 g of fat per day for 3 days prior to the study. Nonabsorbable fat substitutes, such as olestra, should be a
voided prior to collection.

Collect:

24-, 48-, or 72-hour stool collection. Refrigerate during collection.

Specimen Preparation:

Weigh entire collection. Homogenize entire collection (using a graduated cylinder, add sufficient water to give "milk shake" consistency) and aliquot 20 mL (20 g) to a clean, unpreserved vial (ARUP supply #40910). (Min: 5 mL) Collection can be obtained using a Timed Stool Collection Kit (ARUP supply #44192). Additional containers may be used as needed (ARUP supply #28077). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. A homogenized aliquot should be made and submitted from these collection containers. Refer to instructions in Stool Collection-Timed Specimens (24, 48, 72 Hours) under Specimen Handling at www.aruplab.com.

Unacceptable Conditions:

Random collections. Specimens containing barium or charcoal. Specimens in media or preservatives. Containers larger than 500 mL (500 g), such as paint cans, will be rejected and discarded. Submissions without collection time and weight information.

Remarks:

Provide weight of entire collection, volume of water added for homogenization (if applicable), and duration of collection. Complete information is required in order to perform accurate calculations. If weight and time are not provided, the specimen is assumed to be a random collection. Alternative testing can be performed. See Fat, Fecal Qualitative (ARUP test code 0020385).

Storage/Transport Temperature:

Frozen.

Stability (from collection to initiation):

Ambient: 12 hours; Refrigerated: 4 days; Frozen: 2 weeks

Performed:

Sun-Sat

Reference Interval:

0-5 years: 0.0-2.0 g/24h
6 years and older: 0.0-6.0 g/24h

Reported:

2-3 days

Methodology:

Nuclear Magnetic Resonance Spectroscopy

Performing Lab:

ARUP

ARUP Test Code:

2002350

ADMINISTRATIVE

CPT Codes:

82710

Last Reviewed:

12/1/2023

FATTY ACIDS FREE (SQ:FRFAA)

FRFAA

TESTING INFORMATION

Patient Preparation:
Overnight fasting specimen is preferred.

Collect:
Serum Separator Tube (SST). Collect on ice.

Specimen Preparation:
Allow serum specimen to clot completely on ice. Serum must be separated from cells and frozen immediately, otherwise lipase continues to break down triglycerides, giving rise to elevated levels of nonesterified (free) fatty acids. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Unacceptable Conditions:
Specimens collected in EDTA, heparin, sodium fluoride/potassium oxalate, sodium citrate, or ammonium oxalate. Non-frozen specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 4 hours; Frozen: 1 month

Performed:
Mon, Wed, Fri

Reference Interval:
Effective November 17, 2014
0-5 months: less than or equal to 0.73 mmol/L
6 months-1 year: less than or equal to 0.99 mmol/L
2-17 years: less than or equal to 1.78 mmol/L
18 years or older: less than or equal to 0.78 mmol/L

Reported:
1-4 days

Methodology:
Quantitative Spectrophotometry

Performing Lab:
ARUP

ARUP Test Code:
0080120

ADMINISTRATIVE

CPT Codes:
82725

FECAL OCCULT BLOOD, DIAGNOSTIC GUAIAC 1-3 SPECIMENS (SQ: SOCBD3)

SOCDB

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
No longer performing - old proctor test.

Patient Preparation:
Avoid Redmeat and Vit C 250 mg for 3 days prior to collection

Performed:
Sunday-Saturday

Methodology:
Oxidation of guaiac

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

FECAL OCCULT BLOOD, DIAGNOSTIC (SQ: IFOBD3)

FOBDX

TESTING INFORMATION

Collect:

	Specimen Type	Collection Container	Volume
Preferred	Stool	OC 80 sample collection testing container (fecal sampling container provided by lab)	
	stool	Sterile container if transport vial not available	

Unacceptable Conditions:

- Patients with bleeding hemorrhoids, menstrual bleeding, constipation bleeding and urinary bleeding should not be tested.
- Stool in preservative

Remarks:

- Patients with hemorrhids, menstrual bleeding, constipation bleeding and urinary bleedingare not considered for testing, however they may be tested after such bleeding ceases.
- No potential interference of dietary substances evident.

Stability (from collection to initiation):

	Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
fresh collection	2 hours	24 hours	
sampling container (transport vial)	15 days	30 days	

Performed:
Sunday-Saturday

Reference Interval:

- Negative
- Positive

Methodology:
This is an optical measurement method, utilizing the OC-Auto Micro 80 analyzer and a latex agglutination reaction.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
82274

Last Reviewed:
5/2/24

FECAL OCCULT BLOOD, SCREENING (SQ: IFOBS3)

FOBSC

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Stool	sterile container	

Unacceptable Conditions:

- Patients with bleeding hemorrhoids, menstrual bleeding, constipation bleeding and urinary bleeding should not be tested.
- Stool in preservative.

Remarks:

- Patients with hemorrhoids, menstrual bleeding, constipation bleeding and urinary bleeding are not considered for testing, however they may be tested after such bleeding ceases. No potential interference of dietary substances evident.
- For 3 days before and during stool collection peirod, avoid red meat (beef, lamb and liver) and avoid vitamin C in excess of 250mg a day from supplements, citrus frutis and juices as thse can all be interfering substances resultign in a potential false positive.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
2 hours if fresh stool in sterile container	24 hours if fresh stool in sterile container	

Performed:
Sunday-Saturday

Reference Interval:

- Positive
- Negative

Methodology:
This card test is based on the oxidation of guaiac by hydrogen peroxide, to a blue colored compound meaning hemoglobin is present.

Performing Lab:
Pekin and Proctor Hospitals

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
82274

Last Reviewed:
5/2/24

FELBAMATE (FELBATOL), S (SQ:FELBTA)

FELB

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (EDTA), pink (K_2EDTA), green (sodium heparin), gray (sodium fluoride/potassium oxalate). Avoid use of separator tubes and gels.

Specimen Preparation:
Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 2 weeks

Performed:
Mon-Fri

Reference Interval:
Effective November 15, 2021

Therapeutic Range	30-60 µg/mL
Toxic Level	Greater than or equal to 100 µg/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Felbamate is indicated for treatment of epilepsy. The therapeutic range is based on serum, predose (trough) draw collection at steady-state concentration. Patient pharmacokinetics may be variable due to age, co-medications, and/or compromised renal function. Adverse effects may include nausea, vomiting, dizziness, blurred vision and ataxia. Felbamate use may increase the incidence of liver failure and aplastic anemia.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0094030

ADMINISTRATIVE

CPT Codes:
80167

FENTANYL , URINE SCREEN WITH REFLEX TO QUANTITATION (SQ:UFENTA)

UFENT

TESTING INFORMATION

Ordering Recommendations:
Useful for general screening in contexts of compliance and/or abuse. A screen with reflex testing is the preferred method for ruling out fentanyl exposure. For follow-up testing of a presumptive result, Fentanyl and Metabolite, Urine Quantitative (0092570) is preferred.

Collect:
Random urine.

Specimen Preparation:
Transfer 4 mL urine with no additives or preservatives in ARUP Standard Transport Tubes. (Min: 1 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles. Samples collected in tubes with additives or preservatives.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Screen cutoff Concentration: 1 ng/mL

Reported:
1-4 days

Methodology:
Qualitative Enzyme Immunoassay/Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
If the specimen screens positive, then Confirmation/Quantitation by LC-MS/MS (ARUP test code 0092570) will be added to confirm result. Additional charges apply.

Interpretive Data:
The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration at which the screening test can detect a drug or metabolite varies. Specimens for which drugs or drug classes are detected by the screen are reflexed to a second, more specific technology (GC/MS and/or LC-MS/MS). The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

For medical purposes only; not valid for forensic use.

Performing Lab:
ARUP

ARUP Test Code:
2012284

ADMINISTRATIVE

CPT Codes:
80307; if reflexed, add 80354 (Reflexed Alt Code: G0480)

FENTANYL METABOLITES (SQ:FENMET)

FENME

TESTING INFORMATION

Ordering Recommendations:
Use to obtain quantitative results or to follow up a presumptive result. For general screening, the preferred test is Fentanyl, Urine Screen with Reflex to Quantitation (2012284).

Collect:
Random urine.

Specimen Preparation:
Transfer 4 mL urine with no additives or preservatives to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 1 month; Refrigerated: 1 month; Frozen: 9 months

Performed:
Sun-Sat

Reference Interval:

Drugs Covered	Cutoff Concentrations
Fentanyl	1.0 ng/mL
Norfentanyl	1.0 ng/mL

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Compare to Fentanyl, Quantitative, with medMATCH, Urine.

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Positive cutoff: 1.0 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
0092570

ADMINISTRATIVE

CPT Codes:
80354 (Alt code: G0480)

Last Reviewed:
12/2/23

FERRITIN (SQ: FERR)

FERRI

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	Gold top, plain Red or Green	6mL	4mL
STAT:	Gold top, plain Red or Green	6mL	4mL

Specimen Preparation:

Separate serum or plasma from cells as soon as possible or within two hours of collection.

Unacceptable Conditions:

Hemolyzed Specimens

Remarks:

There is a chance of interference that Biotin can potentially alter results by 10%. If patients is on Biotin supplementation, be aware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory testing.

Storage/Transport Temperature:

Centrifuged gold (SST) top tube or serum/plasma at 2-8°C. (Min 0.2 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	6 months

Performed:

Sunday-Saturday

Reference Interval:

Ferritin (ng/mL)

Age	Female	Male
0-1 year	5.7-421	5.7-421
1-12 years	12.8-88.7	12.8-88.7
13-18 years	6.8-75.6	10.9-135
>18 years	8-252	26-388

Methodology:

Chemiluminescent Immunoassay/LOCI

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

82728

Last Reviewed:

1/25/24: JLM

FETAL FIBRONECTIN (SQ: FFN)

FFNN

TESTING INFORMATION

Collect:
Contact Laboratory for Hologic Specimen Collection Kit and specific instructions for obtaining optimal specimen.

Unacceptable Conditions:
Specimens NOT obtained using Hologic collection kit. This test should not be used for women with one or more of the following conditions: advanced cervical dilatation, rupture of amniotic membranes, cervical cerclage, moderate or gross vaginal bleeding, multiple gestations, placenta previa (partial or complete), sexual intercourse in preceding 24 hours, or cancers of the reproductive tract.

Storage/Transport Temperature:
0.3 mL serum at 2-8 C: for one allergen;Add 0.1 mL for each additional allergen.

Performed:
Sunday-Saturday

Methodology:
Adeza Rapid Immunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlationof allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Cat Dander, Dust mite (Derm,Farinae), Cockroach, Dog Dander, Mold (Alternia Alternata), Common Ragweed, Elm, Dust mite (Derm. Pteronyssinus), Maple boxelder, Mold (Aspergillus Fumigatus), Oak, Rough Marchelder, Bermuda Grass, Cottonwood, Hickory/Pecan, Maple Leaf Sycamore, Mountain Juniper, Mulberry, Penicillium notatum, Pigweed, Russian Thistle, Timothy Grass, Walnut Tree, White Ash, C. herbarium, Total IgE

FIBRINOGEN (SQ: FIBR)

FIB

COLLECTION DEVICE

Preferred Collection Device:
NaCit Blue Top

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One 3.2% sodium citrate light blue top tube	2.7mLtube or 1.8mL tube	Tube must be filled to the marked volume line

Specimen Preparation:
Freeze plasma separated from the red cells if testing cannot be performed within 4 hours

Unacceptable Conditions:
Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Stability requirements exceeded
Refrigerated

Storage/Transport Temperature:
Transport sodium citrate tube, unspun at ambient temperature 18-25°C (if testing to be completed within four hours of collection) OR

Transport 2mL sodium citrate plasma (minimum 0.5mL) frozen for delayed transport.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Uncentrifuged whole blood: 4 hours	Unacceptable	Centrifuged, separated plasma: only 2 weeks

Performed:
Daily

Reference Interval:
206-496 mg/dL

Methodology:
Electromagnetic mechanical clot detection

Performing Lab:
Methodist Hospital, Pekin

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/5/24:ME

FIBROSPECT II (SQ: FIBRII)

FIBRI

TESTING INFORMATION

Collect:
Specimen Type: Serum
Specimen Collection Tube: Serum Separator Tube or Red-Top Tube (2.0 mL serum)

Pediatric Collection:
Specimen Type: Serum
Specimen Collection Tube: Serum Separator Tube or Red-Top Tube (0.5 mL serum)

Unacceptable Conditions:

- Unlabeled specimens
- Frozen Specimens

Storage/Transport Temperature:
Transportation Kit Requirements: Ambient or cold pack acceptable
Storage Conditions: Room temperature or refrigerated

Stability (from collection to initiation):
room temp; 7 days
Refrigerated: 30 days

Reported:
7 days after received at testing laboratory

Performing Lab:
Prometheus Laboratories

Testing Region:
Carle West Region

FLOW CYTOMETRY (SQ: FLOWCY)

FLWCY

TESTING INFORMATION

Ordering Recommendations:

Must be received in lab prior to 1 pm on Fridays

Collect:

Specimen Type	Collection Device	Requested Volume	Minimum Volume
Whole Blood	Lavendar Top (EDTA) Tube	3.0 mL	3.0 mL
Bone Marrow	Lavendar Top (EDTA) Tube AND Dark Green (SODIUM HEPARIN)	5.0 mL	3.0 mL

If Lab will be sdnding out any required Cytogenetic Testing:

Specimen Type	
Body Fluid	Unpreserved Specimen
Tissue	Specimen placed in RPMI

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Whole Blood - 24 hours Bone Marrow - 24hours	Body Fluid - 48 hours Tissue - 48 hours	not acceptable

Performed:

Monday - Friday

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

88184, 88185

Last Reviewed:

1/19/24

FMH SCREEN (SQ: FS)

FMH

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
This is part of Post Partum Rhogam

Collect:
K2 EDTA Pink Top or Lavender Top Tube

Unacceptable Conditions:
Frozen Specimen

Performed:
Sunday-Saturday

Methodology:
Tube agglutination

Performing Lab:
Methodist Laboratory

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

FOLATE (SQ: FOL)

F

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Lithium Heparin Tube	6.0 mL	3.0 mL

Specimen Preparation:
PROTECT FROM LIGHT
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
hemolyzed specimens.

Storage/Transport Temperature:
1 mL serum or plasma (min 0.5 mL) Refrigerated (2-8° C) Stability:or centrifuged gold top refrigerated

Stability (from collection to initiation):

After Separation from cells:		
Ambient	Refrigerated	Frozen
4 hours	8 hours	1 month

Performed:
Sunday-Saturday

Reference Interval:
3.1-17.5 ng/mL

Methodology:
Chemiluminescent Immunoassay

Interpretive Data:
Methotrexate and Leucovorin (folinic acid) interfere with the measurement of folate. These chemotherapeutic drugs cross-react with folate binding proteins in the folate assay. Therefore, patients receiving these drugs should not be tested for folate by this method.

There is a chance of interferance that Biotin can potentially alter results by 10%. If patient is on Biotin supplementation beware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory testing.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
82746

Last Reviewed:
2/1/24

FOLATE RBC (SQ: RBCFOL)

RBCFL

TESTING INFORMATION

Ordering Recommendations:

Not eligible for ADD-ON testing.
If specimen will not be received at the laboratory within 24 hours at Ambient (room temperature) or refrigerated:

- the hematocrit must be performed, written on the test request form, AND
- the whole blood must be frozen in a suitable transfer tube (glass vacutainers are not suitable for freezing).

Collect:

Specimen Type	Requested Volume	Minimum Volume
Lavender, Protected from Light	4mL	2mL

Specimen Preparation:

Protect from light.

Unacceptable Conditions:

Samples received in lab greater than 24 hours from collection, not frozen, and without hematocrit result recorded.
Samples frozen in glass.
Samples not protected from light.

Storage/Transport Temperature:

Whole blood, lavender (EDTA) at ambient, room temperature or at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	24 hours	2 months

Performed:

Monday - Friday, first shift

Reference Interval:

280-791 ng/mL

Methodology:

Chemiluminescent Immunoassay

Notes:

Not eligible for add-on testing.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

82747

Last Reviewed:

1/25/24:JLM

FOLLICLE STIMULATING HORMONE, SERUM (SQ: FSH)

FSH2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	6.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	6.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	6.0 mL

Storage/Transport Temperature:

Centrifuged gold top, 1 mL serum or plasma (Min: 0.5 mL) at room temperature or refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	7 days	3 months

Performed:

Sunday - Saturday

Reference Interval:

GENDER	COMPONENTS	RANGE
FEMALE	FOLLICULAR PHASE	2.3 - 12.6 mIU/ml
	MIDCYLE PEAK	5.2 - 17.5 mIU/ml
	LUTEAL PHASE	1.7 - 9.5 mIU/ml
POST MENOPAUSAL	ON HORMONE THERAPY	5.9 - 72.8 mIU/ml
	NOT ON HORMONE THERAPY	12.7 - 132.2 mIU/ml
MALE		0.7 - 10.8 mIU/ml

Methodology:

Chemiluminescent Immunoassay

Notes:

Patients taking Biotin supplements or receiving high-dose biotin therapy should be interpreted with caution due to possible interference with this test. May falsely depress results

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83001

Last Reviewed:

12/2/23

FOOD PANEL ALLERGEN (SQ: PFODAL)

PFODA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	3.0 mL -add 0.1 mL for each additional allergen	1.5 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	3.0 mL	1.5 mL
1 Lavendar Top Tube	3.0 mL	1.5 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP.

Unacceptable Conditions:

Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:

3 mL serum at 2-8° C: for one allergen; Add 0.1 mL for each additional allergen.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
2 days	1 week	1 month

Performed:

Monday - Friday

Methodology:

Immuno CAP/Fluorenzmeimmunoassay

Interpretive Data:

Results with allergens scoring in Class 1 should be considered weakly positive or equivocal ;Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen ;The correlation of allergy laboratory results with clinical history is essential. ;

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

Components:

- Milk,
- Wheat,
- Peanut,
- Soybean,
- Fish-Cod,
- Egg White,
- Maize-Corn,
- Clam,
- Scallop,
- Shrimp,
- Walnut,
- Sesame
- Total IgE

ADMINISTRATIVE

CPT Codes:

86003 x 12 - Allergens
82785 - IGE

Last Reviewed:

12/13/24

FRACTIONAL NA EXCRETION (SQ: FENA)

FENA

TESTING INFORMATION

Collect:
One 6 ml gold top or green and random urine. (Min: 3 mL each)

Specimen Preparation:
Collect within 2 hour period.

Unacceptable Conditions:
Blood and urine not collected within 2 hour period.

Storage/Transport Temperature:
Ambient (room temperature) or 2-8^{o}C. Separate serum or plasma from cells ASAP or within 2 hours from collection.

Performed:
Sunday-Saturday

Methodology:
Ion-selective electrode/Spectrophotometric/Calculation

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

FRUCTOSAMINE, S (SQ:FRUCA)

FRUC

TESTING INFORMATION

Ordering Recommendations:
May aid in monitoring glucose control for diabetes in specific disorders. Not recommended as a substitute for hemoglobin A1c except in specific populations.

Collect:
Serum separator tube. Also acceptable: Pink (K_2EDTA), or green (lithium heparin).

Specimen Preparation:
Allow specimen to clot completely at room temperature before centrifuging. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Hemolyzed specimens (may cause falsely elevated results).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
Effective February 22, 2022
Nondiabetic: 205-285 µmol/L

Reported:
Within 24 hours

Methodology:
Quantitative Spectrophotometry

Notes:
High levels of ascorbic acid interfere with the fructosamine assay. Patients should abstain from ascorbic acid supplements for a minimum of 24 hours prior to sample collection.

Interpretive Data:
Variations in levels of serum proteins (albumin and immunoglobulins) may affect fructosamine results.

Performing Lab:
ARUP

ARUP Test Code:
0099012

ADMINISTRATIVE

CPT Codes:
82985

FUNGAL IMMUNODIFFUSION (SQ:FUNIDP)

FUNAI

TESTING INFORMATION

Ordering Recommendations:
Not recommended for the diagnosis of fungal infection. Refer to individual fungus-specific testing according to patient exposure: Coccidioides Antibodies Panel, Serum (0050588); Aspergillus Antibodies by Complement Fixation and Immunodiffusion, Serum (0050101); Histoplasma Antibodies by Complement Fixation and Immunodiffusion, Serum (0050627); or Blastomyces dermatitidis Antibodies by Immunoassay with Reflex to Immunodiffusion, Serum (3000236).

Collect:
Serum separator tube (SST)

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.4 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Aspergillus Antibodies by ID	Not detected
Blastomyces Antibodies by ID	Not detected.
Coccidioides by Immunodiffusion, Serum	Not detected.
Histoplasma Antibodies by ID	Not detected.

Reported:
3-6 days

Methodology:
Immunodiffusion

Notes:
This immunodiffusion test detects antibodies to Aspergillus, Coccidioides, Histoplasma, and Blastomyces.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
0050164

ADMINISTRATIVE

CPT Codes:
86606; 86612; 86635; 86698

Last Reviewed:
12/2/2023

FUNGAL SEROLOGY UOI (SQ:FUNAB)

FUNAB

TESTING INFORMATION

Ordering Recommendations:
Not recommended for the diagnosis of fungal infection. Includes testing by complement fixation for Aspergillus, Coccidioides, and Histoplasma and testing by immunoassay for Blastomyces. Refer to individual fungus-specific testing according to patient exposure: Coccidioides Antibodies Panel, Serum (0050588); Aspergillus Antibodies by Complement Fixation and Immunodiffusion, Serum (0050101); Histoplasma Antibodies by Complement Fixation and Immunodiffusion, Serum (0050627); and Blastomyces dermatitidis Antibodies by Immunoassay with Reflex to Immunodiffusion, Serum (3000236).

Collect:
Serum separator tube.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP standard transport tube. (Min: 1.2 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Aspergillus Antibodies by CF	Less than 1:8
Coccidioides Antibody by CF	Less than 1:2
Histoplasma Mycelia Antibodies by CF	Less than 1:8
Histoplasma Yeast Antibodies by CF	Less than 1:8
Blastomyces Antibodies EIA, SER	0.9 IV or less

Reported:
2-6 days

Methodology:
Semi-Quantitative Complement Fixation/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)/Qualitative Immunodiffusion

Notes:
This test detects antibodies to Aspergillus, Coccidioides, and Histoplasma by complement fixation and Blastomyces by immunoassay.
If Blastomyces antibodies are equivocal or positive by immunoassay, then Blastomyces dermatitidis Antibodies by Immunodiffusion will be added. Additional charges apply.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
3000235

ADMINISTRATIVE

CPT Codes:
86606; 86612; 86635; 86698 x2; if reflexed, add 86612

Last Reviewed:
12/2/2023

FUNGAL STAIN (SQ: VCFGSM)

VFGSM

TESTING INFORMATION

Collect:
any body site or fluid

Unacceptable Conditions:
Non-sterile or leaking container, insufficient volume

Performed:
Sunday-Saturday

Methodology:
Standard Reference procedure for fungal smear

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

FUNGITELL (1,3) BETA-D-GLUCAN, S (SQ:BDGLUA)

SFUNG

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of invasive/disseminated fungal infections (eg, P. jirovecii, Aspergillus, or Candida).

Collect:
Plain Red or Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to a sterile ARUP Standard Transport Tube (ARUP supply # 43115) available online through eSupply using ARUP Connect (TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Specimen types other than those listed. Hemolyzed, icteric, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 2 weeks

Performed:
Mon-Fri

Reference Interval:
Less than 31 pg/mL: Negative
31-59 pg/mL: Negative
60-79 pg/mL: Indeterminate
Greater than or equal to 80 pg/mL: Positive

Reported:
1-3 days

Methodology:
Semi-Quantitative Colorimetry

Notes:
Reference ranges for pediatric patients (less than 18 years old) have not been established. Assay ranges were validated in adult subjects.

Interpretive Data:
The Fungitell test is indicated for presumptive diagnosis of fungal infection and should be used in conjunction with other diagnostic procedures. This test does not detect certain fungal species such as Cryptococcus, which produce very low levels of (1,3)-beta-D-glucan. This test will not detect the zygomycetes, such as Absidia, Mucor, and Rhizopus, which are not known to produce (1,3)-beta-D-glucan. In addition, the yeast phase of Blastomyces dermatitidis produces little (1,3)-beta-D-glucan and may not be detected by the assay.

Performing Lab:
ARUP

ARUP Test Code:
2002434

ADMINISTRATIVE

CPT Codes:
87449

Last Reviewed:
12/1/2023

FUNGUS CULTURE (SQ: VCFUNC)

VCFUN

COLLECTION DEVICE

Preferred Collection Device:
Sterile Container
eSwab

TESTING INFORMATION

Collect:
Any body site or fluid. (Min: 5 mL fluid)

Unacceptable Conditions:
Non-sterile or leaking container, insufficient volume

Remarks:
Indicate suspected organisms(s). If a mucormycete is suspected, please notify microbiology at 672-5535. Additional patient history may be helpful. Include the patient's occcupation, history of travel or residence abroad, and any animal contacts. A single specimen may be cultured for both bacteria and fungi. Vaginal, throat, urine and stool specimens are processed as a fungus culture but are finalized at 1 week since yeast is the most likely etiologic agent. For blood specimens, other sites or fluids, fungus culture are finalized at 4 weeks

Storage/Transport Temperature:
Sterile container or eSwab. Deliver to laboratory promptly at Ambient (room temperature) temperature for CSF, and at 2-8°C for all other specimens.

Performed:
Sunday-Saturday

Methodology:
Standard reference procedures for fungal culture.

Notes:
Fungal stain must be ordered separately if required. (Fungal stain/KOH Prep # VCKOH) Mold identification is billed separately from culture

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

FUNGUS CULTURE, BLOOD (SQ: VCFUNB)

VFUNB

TESTING INFORMATION

Collect:

5 mLs blood in a Myco/F lytic blood culture vial using aseptic techniques, as defined for blood culture collection.

Preferred Specimen Collection:

Priority	Source	Container	Minimum Volume
All	Blood	Myco/Flytic Blood Culture Vial	5 mLs

Specimen Preparation:

Use aseptic techniques, as defined for blood culture collection.

Unacceptable Conditions:

Greater than 3 blood culture sets per 24 hours

Remarks:

Please notify laboratory if unusual organisms or conditions are suspected. Direct fungal smears are not performed on blood specimens.

Storage/Transport Temperature:

Transport immediately to laboratory at Ambient (room temperature) temperature.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	Unacceptable	Unacceptable

Performed:

Sunday-Saturday

Reported:

Positive results reported as detected. Negative cultures will be incuabated for 30 days.

Methodology:

Standard reference procedures for culture and identification of fungi/yeast.

Notes:

Identification and susceptibility tests are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

87103

Last Reviewed:

1/18/24

GABAPENTIN (SQ: GABAPX)

GBAPX

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady state concentration.

Collect:
Plain red. Also acceptable: Dark green (sodium or lithium heparin), lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.2 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 Hours; Refrigerated: 1 week; Frozen: 1 month
3 freeze/thaw cycles

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval	
	Therapeutic Range	**Toxic Range**
Gabapentin, Ser/Pla	2.0-20.0 ug/mL	>=25.0 ug/mL

Reported:
1-2 days

Methodology:
Quantitative Enzyme Immunoassay (EIA)

Interpretive Data:
Pharmacokinetics of gabapentin vary widely among patients, particularly those with compromised renal function. Adverse effects may include somnolence, dizziness, ataxia, and fatigue.

Performing Lab:
ARUP Laboratories

ARUP Test Code:
3017893

ADMINISTRATIVE

CPT Codes:
80171

GABAPENTIN (SQ:GABAPX)

GBAPX

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0090057

ADMINISTRATIVE

Last Reviewed:
12/1/2023

GAD65 AB ASSAY, S (SQ:GADABA)

GAD65

TESTING INFORMATION

Ordering Recommendations:
Most useful to establish autoimmune etiology in previously diagnosed type 1 diabetes mellitus (DM). Do not use to differentiate type 1 DM from type 2 DM, for most cases.If pursuing antibody testing to determine autoimmune DM, perform at least two antibody tests. In most cases, use glutamic acid decarboxylase antibody in combination with another antibody test. Other antibody tests include Islet Antigen-2 (IA-2) Autoantibody (3001499), Insulin Antibody (0099228), Islet Cell Cytoplasmic Antibody, IgG (0050138), and Zinc Transporter 8 Antibody (2006196). For analysis in CSF, refer to Glutamic Acid Decarboxylase Antibody, CSF (3002788).

Collect:
Serum separator tube.

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma. Grossly hemolyzed specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 3 months

Performed:
Sun-Fri

Reference Interval:
0.0-5.0 IU/mL

Reported:
1-3 days

Methodology:
Semi-quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
A value greater than 5.0 IU/mL is considered positive for glutamic acid decarboxylase antibody (GAD Ab).

This assay is intended for the semi-quantitative determination of the GAD Ab in human serum. Results should be interpreted within the context of clinical symptoms.

Performing Lab:
ARUP

ARUP Test Code:
2001771

ADMINISTRATIVE

CPT Codes:
86341

Last Reviewed:
12/2/2023

GANGLIOSIDE AB (SQ:GANABA)

GANAB

TESTING INFORMATION

Ordering Recommendations:

May have diagnostic relevance in multifocal motor neuropathy (MMN), Guillain-Barré syndrome (GBS), and Miller Fisher syndrome (MFS). For a more comprehensive ganglioside antibody panel when evaluating patients with autoimmune neuropathies, refer to Ganglioside (Asialo-GM1, GM1, GM2, GD1a, GD1b, and GQ1b) Antibodies (0051033). Test by itself is not diagnostic and should be used in conjunction with other clinical parameters to confirm disease.

Collect:

Serum separator tube.

Specimen Preparation:

Transfer 0.3 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL)

Unacceptable Conditions:

CSF, plasma, or other body fluids. Room temperature specimens. Contaminated, heat-inactivated, hemolyzed, severely icteric, or lipemic specimens.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year.

Performed:

Thu

Reference Interval:

Components	Reference Interval
GM1 Antibody, IgG	50 IV or less
GM1 Antibody, IgM	50 IV or less
GD1b Antibody, IgG	0-50 IV
GD1b Antibody, IgM	0-50 IV
GQ1b Antibody, IgG	0-50 IV
GQ1b Antibody, IgM	0-50 IV

Reported:

1-8 days

Methodology:

Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
Refer to report.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation	
GM1 Antibody IgG	29 IV or less 30-50 IV 51-100 IV 101 IV or greater	Negative Equivocal Positive Strong positive
GM1 Antibody, IgM	29 IV or less 30-50 IV 51-100 IV 101 IV or greater	Negative Equivocal Positive Strong positive
GD1b Antibody, IgM	29 IV or less 30-50 IV 51-100 IV 101 IV or greater	Negative Equivocal Positive Strong positive
GD1b Antibody, IgG	29 IV or less 30-50 IV 51-100 IV 101 IV or greater	Negative Equivocal Positive Strong positive
GQ1b Antibody, IgG	29 IV or less 30-50 IV 51-100 IV 101 IV or greater	Negative Equivocal Positive Strong positive
GQ1b Antibody, IgM	29 IV or less 30-50 IV 51-100 IV 101 IV or greater	Negative Equivocal Positive Strong positive

Performing Lab:
ARUP

ARUP Test Code:
2004998

ADMINISTRATIVE

CPT Codes:
83516 x6

Last Reviewed:
12/2/2023

GASTRIC OCCULT BLOOD (SQ: OBLGAS)

OCGAS

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Gastric aspirate contents obtained by nasogastric intubation or vomitus	sterile container	

Specimen Preparation:

Test immediate after collection preferred.

Unacceptable Conditions:

- >24 hours room temperature
- > 5 days refrigerated
- sent in preservative

Remarks:

As with any occult blood test, the results of the Gastroccult test cannot be considered conclusive evidence of the presence or absence of upper gastrointestinal bleeding or pathology. Incompletely cooked foods or raw fruits and vegetables which have peroxidase activity may produce a positive Gastroccult test result.

Storage/Transport Temperature:

1 cc

Stability (from collection to initiation):

Slides are best developed no sooner than three minutes aftre sample application.

Slides containing samples may be stored up to 14 days at room temperature.

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
24 hours	5 days	

Performed:

Sunday-Saturday

Methodology:

Gastroccult Slide Peroxide-like Reaction

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82271

Last Reviewed:

2/21/24

GASTRIN, S (SQ:GASTA)

GAST

TESTING INFORMATION

Ordering Recommendations:
Aid in diagnosis of carcinoid and gastrinoma tumors.

Patient Preparation:
Patient fast for 12 hours prior to collection is recommended.

Collect:
Serum separator tube.

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma, Tissue or Urine. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
0-100 pg/mL

Reported:
1-2 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0070075

ADMINISTRATIVE

CPT Codes:
82941

Last Reviewed:
12/2/2023

GASTROINTESTINAL PATHOGENS PANEL (SQ: STLPCR)

GPP

TESTING INFORMATION

Collect:
Stool. Transfer to Cary Blair media within one hour of collection to fill line.

Unacceptable Conditions:
Stool in Cary Blair that is overfilled or underfilled may be rejected.Swab or unpreserved stool. Specimens received within 6 weeks of a Detected result: this assay is not approved as test of cure since nucleic acid may persist after treatment and prompt false detection. Specimens received within 7 days of a Not Detected result;this assay does not require repeat testing if the original sample had no antibody detections. NOTE: Molecular testing is not meant for testing for cure. If testing for cure based on previous Stool Film Array results, please contact Dr. Lori Rasca at 309-671-2181 prior to ordering.

Storage/Transport Temperature:
Transport in Cary Blair at ambient, room temperature as soon as possible.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen	
72 Hours		72 Hours			

Performed:
Sunday-Saturday

Methodology:
Multiplexed nucleic acid

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:

Stool Culture:

- (Salmonella, Shigella & Campylobacter)
- Rotavirus
- Yersinia
- Vibrio
- E Coli0157
- Giardia
- C. Difficile
- Cryptosporidium Pathogens Detected include:
- Campylobacter
- Salmonella
- Enteropathogenic
- E Coli
- Cytosporidium
- C Diff Toxin A/B Vibrio
- Cyclospora Sapovirus
- Yersinia
- Shigella Enterotoxigenic E Coli Entamoeba histolytica
- Plesiomonas Enteraggregative
- E Coli E Coli 0157
- Giardia lamblia
- Rotavirus
- Adenovirus
- Astrovirus
- Norovirus

ADMINISTRATIVE

Last Reviewed:
12/2/2023

GENERAL HEALTH PANEL (SQ: GENHLT)

GNRL2

TESTING INFORMATION

Collect:
one gold , one lavendar

Methodology:
See Individual Test Components

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

GENTAMICIN PEAK (SQ: GENTP)

GENP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	0.5 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	0.5 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	0.5 mL

Specimen Preparation:

- Draw 30 mintues Post completion of IV infustion, or 60 minutes post IM injection
- Separate from Cells within 2 hours of colleciton

Storage/Transport Temperature:

Ambient or Refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	7 days	1 month

Performed:

Sunday - Saturday

Reference Interval:

4.0 - 12.0 ug/mL

Methodology:

Particle enhanced turbidmetric inhibition Immunoassay (Petinia)

Notes:

Specify time, route, and amount of dose.

Performing Lab:

Methodist, Pekin and Proctor Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

80170

Last Reviewed:

1/19/24

GENTAMICIN RANDOM (SQ: GENT)

GENR

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	0.5 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	0.5 mL
1 Green (Lithium Heparin)Top Tube	6.0 mL	0.5 mL

Specimen Preparation:

Seperate serum or plasma from cells within 2 hours of collection

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
4 hours	7 days	1 month

Performed:

Sunday - Saturday

Reference Interval:

4.0 - 8.0 ug/mL

Methodology:

Particle Enhanced Turbidmetric Inhibition Immunoassay (Petinia)

Notes:

- Specify time, route and amount of dose
- If Gold SST Geltube is used for collection, serum must be analyzed within 24 hours or removed from Gel Tube for Storage.

Performing Lab:

Methodist, Pekin and Proctor Hospitals

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

80170

Last Reviewed:

1/19/24

GENTAMICIN TROUGH (SQ: GENTT)

GENT

TESTING INFORMATION

Patient Preparation:

Draw 30 min. prior to next dose.

Collect:

Gold (SST), Plain Red, or Green Vacutainer Tube. Preferred volume: 6mL Minimum required volume: 0.5 mL serum/plasma.

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	0.5 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	0.5 mL
1 Green (Lithium Heparin)Top Tube	6.0 mL	0.5 mL

Specimen Preparation:

Specify time, route, and amount of dose. If Gold SST gel tube is used for collection, serum must be analyzed within 24 hours or removed from gel tube for storage.

Storage/Transport Temperature:

- 1 mL serum or plasma (Min: 0.3 mL) at Ambient (room temperature) or Refrigerated.
- Seperate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
4 hours	7 days	1 month

Performed:

Sunday-Saturday

Reference Interval:

0.5 - 2.0 ug/mL

Performing Lab:

Methodist, Pekin and Proctor Hospitals

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

80170

Last Reviewed:

1/22/24

GESTATIONAL GLUCOSE SCREEN 50G LOAD (SQ: GLU50C)

GLU50

TESTING INFORMATION

Patient Preparation:

None: Fasting not required for this test.

Collect:

1 Timed sample: 60 minutes post 50 gram glucose load.

Methodist: Gray Top (Soidum Fluoride/Potassium Oxalate) or Gold Top Tube

Proctor/Pekin: Lithium Heparin Plasma separator Tube Clearly Labeled with collectio time or SST

Unacceptable Conditions:

- Reason for invalid results include emesis and conditions which delay stomach emptying.
- Unspun gold top tubes.

Storage/Transport Temperature:

Methodist: One Gray top or 0.5 mL plasma (sodiumfluoride/potassium oxalate) per time point at ambient or 2-8oC.Proctor &Pekin: Lithium Heparin or SST

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
24 hours	7 dyas	Indefinitely

Performed:

Monday - Saturday

Reference Interval:

74 - 129 mg/mL

Methodology:

Enzymatic (Hexokinase)

Notes:

This is a screening for gestational diabetes mellitus using a 50 gram glucose challenge and sampling after 1 hour. Patients with values above 135 mg/dL should have the 3 hour 100 gram GGTT performed for diagnosis, as per ACOGGuidelines.

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82950

Last Reviewed:

1/22/24

GESTATIONAL GLUCOSE TOLERANCE, 2 HOUR (SQ: GESGTT)

GESGT

TESTING INFORMATION

Collect:

Three timed samples: fasting;and 60, and 120 minutes post 75 gram glucose load: one gray (sodium fluoride/potassium oxalate) (Preferred min: 3 mL) per time point. Patient should be fasting for at least 8 hours prior to collection of fasting sample. Clearly label each sample with actual collection time.

Remarks:

Oral administration of 75 gram glucose load after fasting specimen is drawn. Arrange in advance with Patient Scheduling.Gestational diabetes mellitus is indicated if one or more of the following glucose levels are met or exceeded: Fasting glucose is 92 mg/dL One hour is 180 mg/dL Two hour is 153 mg/dL

Storage/Transport Temperature:

Whole blood at Ambient (room temperature) temperature.

Performed:

Monday - Saturday

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82951 x 3
82952 if beyond 3 specimens

Last Reviewed:

1/22/24

GGT (SQ: GGT)

GGT

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Storage/Transport Temperature:

Certrifuged gold top, or 1 mL serum/plasma (Min: 0.3 mL) at room temperature.

Seperate serum or plasma from cells ASAP or within 2 hours.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
7 days	7 days	6 months

Performed:

Sunday-Saturday

Methodology:

Bichromatic Rate

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82977

Last Reviewed:

12/2/2023

GIARDIA ANTIGEN, EIA (SQ:GIAAGA)

GRDAQ

TESTING INFORMATION

Ordering Recommendations:
Test for persistent diarrhea (>14 days) or known risk factors if Giardia duodenalis (synonyms Giardia lamblia, Giardia intestinalis) is the suspected infectious agent.

Collect:
Stool.

Specimen Preparation:
Transport 5 g stool in unpreserved stool transport vial (ARUP Supply #40910) available online through eSupply using ARUP Connect or contact ARUP Client Services at (800) 522-2787. (Min: 1 g) Preserving in 10 percent formalin (within 1 hour of collection) is also acceptable.

Storage/Transport Temperature:
Unpreserved: Frozen. Preserved: Room temperature.

Stability (from collection to initiation):
Unpreserved: Ambient: 2 hours; Refrigerated: 24 hours; Frozen: 1 week
Preserved: Ambient: 9 months; Refrigerated: 9 months; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
1-2 days

Methodology:
Qualitative Enzyme Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0060048

ADMINISTRATIVE

CPT Codes:
87329

GLIADIN IGA (SQ: GLIABA)

GIGAP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Contaminated, icteric, lipemic, and hemolyzed or heat inactivated samples may cause erroneous results and should be avoided.

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, transported at refrigerated temperature 2-8°C. Minimum volume 0.5 mL.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 Hours	7 Days	3 Months

Performed:
Variable

Reference Interval:

Anti-tTG IgA and Anti-DGP IgA	
< 15 U/mL	Negative
>= 15 U/mL	Positive

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
83516

Last Reviewed:
2/1/24

GLIADIN IGG (SQ: GLIABG)

GIGGP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection

Unacceptable Conditions:
Contaminated, icteric, lipemic, and hemolyzed or heat inactivated samples may cause erroneous results and should be avoided.

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, transported at refrigerated temperature 2-8°C. Minimum volume 0.5 mL.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 Hours	7 Days	3 Months

Performed:
Variable

Reference Interval:

Anti-DGP IgG	
< 15 U/mL	Negative
>= 15 U/mL	Positive

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

GLOMERULAR BASEMENT MEMBRANE ANTIBODIES (SQ: GBMG)

GBM

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, Refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 Hours	7 Days	1 Month

Performed:
Variable

Reference Interval:
Negative (<1.0 AI)

Methodology:
Multiplex Flow Immunoassay

Notes:
Negative (<1.0 AI)
Positive (>=1.0 AI)

Performing Lab:
CARLE WEST METHODIST HOSPITAL

ADMINISTRATIVE

CPT Codes:
83516

GLUCAGON, P (SQ:GLUCA)

GLP

TESTING INFORMATION

Ordering Recommendations:
Aid in diagnosis and monitoring of glucagonoma.

Patient Preparation:
Fast 12 hours prior to collection.

Collect:
Protease inhibitor tube (PPACK; Phe-Pro-Arg-chloromethylketone) (ARUP supply #49662), available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. A winged collection set must be used.

Specimen Preparation:
Mix well. Separate from cells within 1 hour of collection. Transfer 1 mL plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Grossly hemolyzed specimens.

Storage/Transport Temperature:
Frozen. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: 3 months

Performed:
Tue

Reference Interval:
Effective December 1, 2014
Adult: Less than or equal to 208 ng/L

Reported:
3-11 days

Methodology:
Quantitative Radioimmunoassay

Performing Lab:
ARUP

ARUP Test Code:
0099165

ADMINISTRATIVE

CPT Codes:
82943

GLUCOSE (SQ: GLU)

GLU

TESTING INFORMATION

Collect:

One gray top (sodium fluoride/potassium oxalate) recommended. Gold top or green is also acceptable if delivered promptly, or serum/plasma separated and refrigerated. (Min: 3 mL);for Neonate patients:Use brown microtainer for blood collection.

Remarks:

Sulfasalazine and Sulfapyirdine can interfere with the chemistry analyzers used in Methodist|Proctor Laboratories. Due to the Assay use of NADH/NADPH, when patients are on these medication, the test can have either false elevation or depression of results. Patient\ s labs need to be drawn prior to administration of these medications.

Storage/Transport Temperature:

Gray, centrifuged gold top, or 1 mL serum/plasma (Min: 0.3 mL) at Ambient (room temperature) or 2-8oCSeparate serum or plasma from cells ASAP or within 2 hours of collection.;for Neonate patients:Use brown microtainer for blood collection.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		72 hours		Not Applicable

Performed:

Sunday-Saturday

Methodology:

Enzymatic (Hexokinase)

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

GLUCOSE 2 HR POST PRANDIA (SQ: GLUPP)

GLUPP

TESTING INFORMATION

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

GLUCOSE 6-PHOS DEHYD (SQ:G6PD)

G6PDA

TESTING INFORMATION

Ordering Recommendations:
Preferred initial screening test for G6PD deficiency. For genetic testing in individuals of African descent, refer to Glucose-6-Phosphate Dehydrogenase (G6PD) 2 Mutations (0051684); for genetic testing in individuals with other high-risk ethnic backgrounds, refer to Glucose-6-Phosphate Dehydrogenase Deficiency (G6PD) Sequencing (3004457).

Collect:
Yellow (ACD solution A). Also acceptable: Green (sodium or lithium heparin), lavender (K2EDTA or K3EDTA), or pink (K2EDTA). Enzyme most stable in acid citrate dextrose (ACD).

Specimen Preparation:
Do not freeze. Transport 3 mL whole blood. (Min: 1.5 mL heparin or EDTA collection tube; Min: 0.5 mL pediatric collection tube).

Unacceptable Conditions:
Clotted, frozen, or hemolyzed specimens.

Remarks:
Pediatric minimum 0.5 mL if collected and transported in a pediatric collection K2EDTA tube. ACD collection tubes should be filled to maximum collectible volume and are not recommended for pediatric specimen collection or preservation.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 1 week; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Effective November 17, 2014
9.9-16.6 U/g Hb

Reported:
1-3 days

Methodology:
Quantitative Enzymatic Assay

Notes:
Patients who have recently received transfusions have normal donor cells that may mask G-6-PD deficient erythrocytes.

Performing Lab:
ARUP

ARUP Test Code:
0080135

ADMINISTRATIVE

CPT Codes:
82955

Last Reviewed:
12/2/2023

GLUCOSE BLD GAS (SQ: POCGLU)

BGGLU

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

GLUCOSE TOLERANCE TEST, 3 HOUR (SQ: GTGESC)

GTT3H

TESTING INFORMATION

Patient Preparation:

Patient should be fasting for at least 8 hours prior to start of test. Oral administration of 100 gram glucose load after fasting specimen is drawn. Patient should remain inactive and receive nothing by mouth (including tobacco) during test period. A small sip of water or ice is permissible. Arrange in advance with Patient Scheduling

Collect:

Gray top (sodium fuoride/potassium oxalate) Four timed samples: fasting;60 min, 120 min, 180 min. post 100 gram glucose load: Specimen of choice: gold, red or green (lithium heparin) Clearly label each sample with actual collection time

Unacceptable Conditions:

Reason for invalid results include emesis and conditions which delay stomach emptying. Unspun gold top tubes.

Storage/Transport Temperature:

Serum or plasma (lithium heparin) at 2-8oC If gray top collected: transport unspun ambient or2-8°C.

Performed:

Monday - Saturday

Methodology:

Enzymatic (Hexokinase)

Notes:

This test is a follow up for persons who have a fasting glucose between 100 and 125 ng/dL an elevated gestational screen or have other reasons to suspect diabetes mellitus. Gestational Diabetes Mellitus is indicated if two;or more of the following glucose levels are met or exceeded: Fasting 95 mg/dL One hour 180 mg/dL Two hour 155 mg/dL Three hour 140 mg/dL

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

GLUCOSE TOLERANCE, 2 HOURS (SQ: GTT2H)

GTTH2

TESTING INFORMATION

Unacceptable Conditions:
Gross hemolysis;unspun gold top;tubes greter than 2 hours of collection

Performed:
Daily

Methodology:
Bicromatic endpoint

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82951

GLUCOSE, BODY FLUID (SQ: FGLUC)

GLUBF

TESTING INFORMATION

Collect:
5 mL body fluid in clean container with secure lid. Pleural and Peritoneal Fluids (If collecting with syringe, remove needle and cap syringe tightly before transport).

Remarks:
Specify source of fluid.

Storage/Transport Temperature:
Body fluid promptly at Ambient (room temperature);or centrifuge to remove any cellular debris, refrigerate and transport at 2-8 degrees C. (Min: 1 mL)

Performed:
Sunday-Saturday

Methodology:
Enzymatic (Hexokinase)

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82945

GLUCOSE, CSF (SQ: SFGLU)

CSFGL

TESTING INFORMATION

Collect:
1 mL CSF in clean glass or plastic container with secure lid.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
CSF at ambiance or 2-8 degrees C. (Min: 0.3 mL)

Performed:
Sunday-Saturday

Methodology:
Enzymatic (Hexokinase)

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82945

GLUCOSE, FASTING (SQ: GLUF)

GLFAS

TESTING INFORMATION

Patient Preparation:

Due to the Assay use of NADH, NADPH when patients are on these medications, the test can have either false elevation or depression of results. Patient labs need to be drawn prior to administraiton of these medications.

Collect:

One gray top (sodiumfluoride/potassium oxalate) recommended. Gold top or green is also acceptable if delivered promptly, or serum/plasma separated and refrigerated. (Min: 3 mL)

Remarks:

Sulfasalazine and Sulfapyirdine can interferee with the chemistry analyzers used in the Methodist and Proctor Laboratories.

Performed:

Sunday-Saturday

Methodology:

Enzymatic (Hexokinase)

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

GLUCOSE, POC (SQ: BDGLU)

GLPXP

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

GLYCO HB A1C (SQ: GLYCO)

HBA1C

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Lavendar Top (EDTA)	6.0 mL	3.0 mL
STAT:			

Unacceptable Conditions:

- Plasma separated from cells
- clotted samples

Storage/Transport Temperature:

Whole blood, lavender (EDTA), refrigerated. Do not separate

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
24 hours	7 days	

Performed:

Monday - Friday : Day Shift only

Reference Interval:

Normal: less than 5.7%
Prediabetes 5.7% to 6.4%
Diabetes: 6.5% or higher

Methodology:

Capillary Eletrophoresis

Notes:

When an A1C result shows an unidentified hemoglobin variant, a hemoglobin
 electrophoresis test will automatically be ordered and used to determine if it will impact the results of the A1C assay. If the variant is one that interferes with quantifying Hemoglobin A1C, a fructosamine test will be ordered by the lab and sent on for further testing.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83036

Last Reviewed:

12/2/23

GONOCOCCUS CULTURE (SQ: VCGCC)

VCGCC

COLLECTION DEVICE

Preferred Collection Device:
eSwab

TESTING INFORMATION

Collect:

- Standard white cap eSwab
- Flexible Mini-Tip greencap eSwab (Copan/Remel/BD eSwab brands accepted)
- Any Site

Unacceptable Conditions:
Delayed transport, exceeding stability, non-sterile or leaking container, frozen samples.

Remarks:
Submit slide for gram stain if required. Gram stain must be ordered separately (EPIC: VCGS or SQ:VCGRAM). Do not refrigerate.

Storage/Transport Temperature:
Firmly capped eSwab at ambient temperature or refrigerated at 2-8°C
If sending fluid, DO NOT refrigerate.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
24 hours		24 hours		Unacceptable

Performed:
Daily

Methodology:
Standard reference procedures for N.Gonorrhoeae culture and identification.

Notes:
Gram stain, identification, and susceptibility tests are billed separately from culture.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87081
87205

Last Reviewed:
2/1/24

GRAM STAIN (SQ: VCGRAM)

VCGS

TESTING INFORMATION

Collect:
Any site or fluid. Culture swabs or clinical material gently rolled on microscope slides, air-dried, and submitted in cardboard slide holder.

Remarks:
Client is notified if stain is positive on significant source specimen

Storage/Transport Temperature:
Specimen, labeled slide. Deliver promptly to laboratory

Performed:
Sunday-Saturday

Methodology:
Stain/Microscopic Exam

Notes:

- Gram stains are automatically performed and charged on the following cultures: aerobic and anaerobic culture, aerobic culture, body fluid culture, CSFculture, sputum culture, bronchial cultures, and tissue culture
- Gram stains will be performed on the following cultures when specifically ordered by the physician: Ear culture, Eye culture, Genital cultures.

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

GROUP B STREP BY PCR, PRENATAL (SQ: SPCRGB)

GBSLB

TESTING INFORMATION

Collect:
Using Eswab, collect a vaginal/rectal swab specimen according to CDC recommendations. Transport swab specimen to the laboratory.

Unacceptable Conditions:
Dry swab, charcoal swab.

Remarks:
Screened for the presence or absence of Group B Streptococcus only. If a penicillin allergy is noted a detected Group B Strep result will reflex to a culture with susceptibility.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
24 hours		7 days		Unacceptable

Reference Interval:
GBS target nucleic acid is not detected.

Methodology:
RT-PCR

Notes:
All positive GBS samples will be held for one week following results for susceptibility requests.

Performing Lab:
Methodist Hospital
Pekin and Proctor send to Methodist.

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87653

GROWTH HORMONE, S (SQ:GHA)

GRH

TESTING INFORMATION

Ordering Recommendations:
Aids in diagnosis of growth hormone excess or deficiency disorders.

Patient Preparation:
Patient must be fasting and at complete rest for 30 minutes before blood collection

Collect:
Plasma separator tube or serum separator tube. Also acceptable: Green (sodium or lithium heparin), lavender (EDTA), or pink (K_2EDTA).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.4 mL)

Unacceptable Conditions:
Tissue or urine. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Frozen. Also acceptable: Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
Effective May 20, 2013

Age	Male	Female
0-6 years	0.10-6.20 ng/mL	0.10-6.20 ng/mL
7-17 years	0.05-11.00 ng/mL	0.05-17.30 ng/mL
18 years and older	0.05-3.00 ng/mL	0.05-8.00 ng/mL

Reported:
1-2 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Notes:
This Growth Hormone assay is now standardized to the Recombinant Second International Standard (IS): 98/574. Growth hormone results read approximately 25 percent lower than with the previous standards (FirstIS: 80/505). Reference ranges have also been modified according to the assay manufacturer.

Performing Lab:
ARUP

ARUP Test Code:
0070080

ADMINISTRATIVE

CPT Codes:
83003

Last Reviewed:
12/2/2023

H PYLORI AG (STOOL) (SQ: SHPAG)

HPYST

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Unpreserved, fresh stool specimen	airtight transport container	

Unacceptable Conditions:

- Samples in transport media.
- Swab Samples or samples mixed in preservatives.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
Test as soon as possible	72 hours	14 days

Performed:
Monday, Wednesday and Friday

Methodology:
Immuno Assay

Notes:

- Antimicrobials, proton pump inhibitors and bismuth preparations are know to supress H. Pylori and igestion of these prior to H. pylori testing may give a false negative result
- If a negative result is obtained for a patient igesting these compounds within two weeks prior to performing the Curian HpSA assay, a false-negative result may be obtained. The test should be repeated on a new specimen two weeks after discontinuing treatment
- A positive result for a patient igesting these compounds within two weeks prior to performing the Curian HpSA test, should be considered accurate.

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
87338

Last Reviewed:
12/2/2024

HALOPERIDOL (SQ:HALOA)

HALOA

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (K_2 or K_3EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 4 hours; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Mon, Wed, Fri

Reference Interval:
Effective February 16, 2021

Therapeutic Range:	5.0-20.0 ng/mL
Toxic:	Greater than 50 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Adverse effects may include drowsiness, blurred vision, tardive dyskinesia, tachycardia, hypotension and muscular rigidity.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0099640

ADMINISTRATIVE

CPT Codes:
80173

HAPTOGLOBIN (SQ: HAPT)

HPT

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Specimen Preparation:

Separate and refrigerate serum ASAP.

Unacceptable Conditions:

- Severely lipemic,
- contaminated specimen
- hemolyzed

Storage/Transport Temperature:

- Centrifuged gold top or 0.5 mL serum/plasma at Ambient (room temperature) or refrigerated
- Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	7 days	3 months

Performed:

Sunday-Saturday

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83010

Last Reviewed:

12/2/24

HAZELNUT (SQ: HZLNUT)

HAZE

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
Immuno CAP/Fluoroenzyme immunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

HAZELNUT COMPONENTS IGE (SQ: HAZCOM)

HAZCM

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Cor a 1
Cor a 8
Cor a 9
Cor a 14

ADMINISTRATIVE

Last Reviewed:
2/1/24

HBV DNA DETECT/QNT, PCR, S (SQ: HBVQNT)

HBVDT

TESTING INFORMATION

Ordering Recommendations:
Detect and quantify hepatitis B virus.

Collect:
Lavender (EDTA), pink (K2EDTA), plasma preparation tube (PPT), or serum separator tube (SST).

Specimen Preparation:
Separate from cells within 24 hours. Transfer 2 mL serum or plasma to an ARUP standard transport tube (ARUP supply #15824). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 1.3 mL)

Unacceptable Conditions:
Heparinized specimens.

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
After separation from cells:
Ambient: 24 hours (Critical: ship FROZEN);
Refrigerated: 6 days;
Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
Not detected

Reported:
2-4 days

Methodology:
Quantitative Polymerase Chain Reaction (PCR)

Notes:
The limit of quantification for this DNA assay is 1.00 log IU/mL (10 IU/mL). If the assay DETECTED the presence of the virus but was not able to accurately quantify the viral load, the test result will be reported as "Not Quantified, Detected".

Interpretive Data:
The quantitative range of this test is 1.00-9.00 log IU/mL (10-1,000,000,000 IU/mL).

An interpretation of "Not Detected" does not rule out the presence of inhibitors in the patient specimen or HBV DNA concentration below the level of detection of the test. Care should be taken when interpreting any single viral load determination.

This test is intended for use as an aid in the management of patients with chronic HBV infection undergoing anti-viral therapy. The test can be used to measure HBV DNA levels at baseline and during treatment to aid in assessing response to treatment. Results must be interpreted within the context of all relevant clinical and laboratory findings.

This assay should not be used for blood donor screening, associated reentry protocols, or for screening human cell, tissues and cellular tissue-based products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
3000863

ADMINISTRATIVE

CPT Codes:
87517

Last Reviewed:
12/2/2023

HCG TUMOR MARKER (SQ:HCGTA)

HCGTA

TESTING INFORMATION

Collect:
Serum separator tube. Also acceptable: Lavender (K_2EDTA or K_3EDTA), pink (K_2EDTA), or green (lithium heparin).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.4 mL)

Unacceptable Conditions:
CSF (refer to Beta-hCG, Quantitative (Tumor Marker) CSF, ARUP test code 0020730). Specimens left to clot at 2-8°C or specimens subjected to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:
Male: 0-3 IU/L
Female: 0-5 IU/L

Reported:
Within 24 hours

Methodology:
Quantitative Electrochemiluminescent Immunoassay

Interpretive Data:
Interpretive Data: Human chorionic gonadotropin (hCG) is a valuable aid in the management of patients with trophoblastic tumors, nonseminomatous testicular tumors, and seminomas when used in conjunction with information available from the clinical evaluation and other diagnostic procedures. Increased serum hCG concentrations have also been observed in melanoma, carcinomas of the breast, gastrointestinal tract, lung, and ovaries, and in benign conditions, including cirrhosis, duodenal ulcer, and inflammatory bowel disease. This result cannot be interpreted as absolute evidence of the presence or absence of malignant disease. This result is not interpretable as a tumor marker in pregnant females.

The combination of the specific monoclonal antibodies used in the Roche Beta HCG electrochemiluminescent immunoassay recognize the holo-hormone, "nicked" forms of hCG, the beta-core fragment, and the free beta-subunit. Results obtained with different test methods or kits cannot be used interchangeably. Although this assay is FDA cleared for use in the detection of pregnancy, it is not labeled for use as a tumor marker.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0070029

ADMINISTRATIVE

CPT Codes:
84702

Last Reviewed:
12/2/2023

HCG URINE, POCT (SQ: YPCHCG)

PCHCG

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

HCG, QUALITATIVE, URINE POCT (SQ: UHCGPC)

HCGPC

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

HCT (SQ: HCRT)

HCTCN

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top Tube	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250 uL

Unacceptable Conditions:

Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Stability exceeded
Frozen

Storage/Transport Temperature:

EDTA whole blood, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	48 hours	Unacceptable

Performed:

Daily

Reference Interval:

Hematocrit (%)

Age	Male	Female	Combined
0-14 days	39.8-53.6	39.6-57.2	
15-34 days	30.5-45.0	32.0-44.5	
35-55 days	26.8-37.5	27.7-35.1	
56 days-6 months	28.6-37.2	29.5-37.1	
6 months - 2 years	30.8-37.8	30.9-37.9	
2-3 years	31.0-37.7	31.2-37.8	
3-8 years			34.0-42.0
8-12 years			35.0-43.0
12-16 years	38.0-47.0	35.0-43.0	
16-18 years	40.0-50.0	35.0-43.0	
>=18 years	40.1-49.2	37.1-45.1	

Methodology:

Hydrodynamic Focusing

Performing Lab:

Methodist, Pekin, and Proctor

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/18/24:ME

HCT, FLUID (SQ: FHCTT)

FHCTT

TESTING INFORMATION

Collect:
Body fluid in sterile container or lavender K2EDTA tube.

Pediatric Collection:
Minimum volume: 0.5mL

Specimen Preparation:
Specimens should be tested as soon as possible to avoid cell degradation. Specify source of fluid.

Unacceptable Conditions:
Insufficient volume, frozen, collection container containing additive other than K2EDTA, contaminated samples, incompletely or mislabeled, stability exceeded.

Remarks:
Specify source of fluid

Storage/Transport Temperature:
1 mL body fluid at 2-8 degrees C. Do not freeze.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
4 hours		24 hours		Unacceptable

Performed:
daily

Reference Interval:
The reference interval(s) and other method performance specifications are unavailable for this body fluid. Comparison of the result with concentration in the blood, serum, or plasma is recommended.

Methodology:
Manual Centrifugation

Performing Lab:
Methodist, Proctor and Pekin

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
85014

HCT/HGB (SQ: HGBHT)

H/H

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top Tube	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250uL

Unacceptable Conditions:

Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Stability exceeded
Frozen

Storage/Transport Temperature:

Transport whole blood specimen at 2-8°C, refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	48 hours	Unacceptable

Performed:

Daily

Reference Interval:

Hemoglobin (g/dL)

Age	Male	Female	Combined
0-14 days	13.9-19.1	13.4-20.0	
15-34 days	10.0-15.3	10.8-14.6	
35-55 days	8.9-12.7	9.2-11.4	
56 days-6 months	9.6-12.4	9.9-12.4	
6 months-2 yrs	10.1-12.5	10.2-12.7	
2-3 years			10.2-12.7
3-6 years			11.4-14.3
6-9 years			11.5-14.3
9-11 years			11.8-14.7
11-15 years	12.4-15.7	11.9-14.8	
15-18 years	13.3-16.9	11.9-14.8	
>=18 years	13.4-16.1	12.1-14.8	

Hematocrit (%)

Age	Male	Female	Combined
0-14 days	39.8-53.6	39.6-57.2	
15-34 days	30.5-45.0	32.0-44.5	
35-55 days	26.8-37.5	27.7-35.1	
56 days-6 months	28.6-37.2	29.5-37.1	
6 months-2 years	30.8-37.8	30.9-37.9	
2-3years	31.0-37.7	31.2-37.8	
3-8 years			34.0-42.0
8-12 years			35.0-43.0
12-16 years	38.0-47.0	35.0-43.0	
16-18 years	40.0-50.0	35.0-43.0	
>= 18 years	40.1-49.2	37.1-45.1	

Methodology:

Hydrodynamic focusing and SLS-hemoglobin

Performing Lab:
Methodist, Proctor, and Pekin

Testing Region:
Carle West region

Components:
Hemoglobin
Hematocrit

ADMINISTRATIVE

Last Reviewed:
1/18/24:ME

HDL CHOLESTEROL (SQ: HDL)

HDL3

TESTING INFORMATION

Patient Preparation:

Recommend fast 10-12 hours prior to collection.

According to the American Associate for Clinical Chemistry, caffeine should not be consumed prior to laboratory work, as it may affect results of certain analytes. General requirements for fasting include the following:

1. Blood should be drawn as close as possible to the times of 7 a.m and 9 a.m.
2. Fasting should last 12 hours with water only during this time. Medication as allowed by the physician.
3. Avoid alcohol for 24 hours prior to lab work
4. Patients should avoid nicotine products the morning of fasting blood work.

Collect:

Specimen Type	Requested Vol.	Min Vol.
1 Serum Separator Tube (God Top)	6 mL	0.5 mL
1 Plain Red Top	6 mL	0.5 mL
1 Green Top Tube	6mL	0.5 mL

Specimen Preparation:

Centrifuge specimen at room temperature, If transport will be delayed, separate cells within two hours of collection, and refrigerate 1 mL serum or heparinzied plasma into a tightly capped tube and transport at 2-8 degrees C

Storage/Transport Temperature:

Centrifuged gold or 1 mL of serum (Min: 0.5 mL) at room temperature or refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 Hours	7 Days	1 month

Performed:

Sunday-Saturday

Reference Interval:

ADULT REFERENCE RANGES		
	MALES (mg/dL)	FEMALE (mg/dL)
Favorable	> 55	>65
Moderate Risk	35-55	45-65
Elevated Risk	< 35	< 45
PEDIATRIC REFERENCE RANGES		
AGE	MALE (mg/dL)	FEMALE
0-14 days	15-42	15-42
15 days - 1 year	12-71	12-71
1 -3 years	32-63	32-63
4 - 12 years	36-73	36-73
13-18 years	32-68	32-72

Methodology:

Biochromatic endpoint

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

83718

Last Reviewed:

1/24/24

HEAVY METALS (SQ:HMETA)

HMETA

TESTING INFORMATION

Ordering Recommendations:
Useful in the assessment of recent exposure to arsenic, mercury, and lead. For chronic exposure or the determination of arsenic species, refer to Heavy Metals Panel 4, Urine with Reflex to Arsenic Fractionation (0020572). For occupational exposure, consider Lead, Industrial Exposure Panel, Adults (0025016) and/or Cadmium Exposure Panel - OSHA (0025013).

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48 to 72 hours.

Collect:
Royal blue (K2EDTA) or Royal blue (NaHep).

Specimen Preparation:
Transport 3 or 6 mL whole blood in the original collection tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens collected in tubes other than Royal blue (K2EDTA) or Royal blue (NaHep). Specimens transported in containers other than Royal blue (K2EDTA) or Royal blue (NaHep) or Trace Element-Free Transport Tube. Clotted specimens.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 week; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval	
Lead, Blood (Venous)	**Age**	**Reference Interval (µg/dL)**
	0-5 years	Less than or equal to 3.4
	6 years or above	Less than or equal to 4.9
Arsenic Blood	Less than or equal to 12.0 µg/L	
Mercury Blood	Less than or equal to 10.0 µg/L	

Reported:
1-4 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Notes:
Mercury is volatile; concentration may decrease over time. If the specimen is drawn and stored in the appropriate container, the arsenic and lead values do not change with time.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
0099470

ADMINISTRATIVE

CPT Codes:
82175; 83655; 83825

HEAVY METALS UR 24H W/REFLEX (SQ:UHMETA)

UHMTA

TESTING INFORMATION

Ordering Recommendations:

Useful in the assessment of acute and chronic exposure to arsenic, mercury, and lead. The preferred test for the assessment of lead exposure is Lead, Blood (Venous) (0020098). For occupational exposure, consider Lead, Industrial Exposure Panel, Adults (0025016) and/or Cadmium Exposure Panel - OSHA (0025013).

Patient Preparation:

Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48 to 72 hours. High concentrations of iodine may interfere with elemental testing. Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post- contrast media exposure.

Collect:

24-hour or random urine collection. Specimen must be collected in a plastic container and should be refrigerated during collection. ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimens adequately if tested within 14 days of collection.

Specimen Preparation:

Transfer 8 mL aliquot from a well-mixed collection to ARUP Trace Element-Free Transport Tubes (ARUP supply #43116). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 2 mL)

Unacceptable Conditions:

Urine collected within 72 hours after administration of iodinated or gadolinium-based contrast media. Acid preserved urine. Specimens contaminated with blood or fecal material. Specimens transported in non-trace element-free transport tube (with the exception of the original device).

Remarks:

Record total volume and collection time interval on transport tube and on test request form.

Storage/Transport Temperature:

Refrigerated. Also acceptable: Room temperature or frozen.

Stability (from collection to initiation):

Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 1 year

Performed:

Sun-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
<tr><td>Arsenic Urine - per volume</td><td>0.0-34.9 µg/L</td></tr>
<tr><td>Arsenic Urine - per 24h</td><td>0.0-49.9 µg/d</td></tr>
<tr><td>Mercury, Urine - per 24h</td><td>0.0-20.0 µg/d</td></tr>
<tr><td>Mercury, Urine - per volume</td><td>0.0-5.0 µg/L</td></tr>
<tr><td>Mercury, Urine - ratio to CRT</td><td>0.0-20.0 µg/g CRT</td></tr>
<tr><td>Arsenic, Urine - ratio to CRT</td><td>0.0-29.9 µg/g CRT</td></tr>
<tr><td>Lead, Urine - per 24h</td><td>0.0-8.1 µg/d</td></tr>
<tr><td>Lead, Urine - per volume</td><td>0.0-5.0 µg/L</td></tr>
<tr><td>Lead, Urine - ratio to CRT</td><td>0.0-5.0 µg/g CRT</td></tr>
</table>

Reported:

1-5 days

Methodology:

Quantitative Inductively Coupled Plasma-Mass Spectrometry

Notes:

If total arsenic concentration is found to be elevated based on reference intervals, then Arsenic, Fractionated, will be added to determine the proportion of organic, inorganic, and methylated forms. Additional charges apply.

Interpretive Data:

Quantification of urine excretion rates before or after chelation therapy has been used as an indicator of lead exposure. Urinary excretion of >125 mg of lead per 24 hours is usually associated with related evidence of lead toxicity.

Urinary mercury levels predominantly reflect acute or chronic elemental or inorganic mercury exposure. Urine concentrations in unexposed individuals are typically less than 10 µg/L. 24 hour urine concentrations of 30 to 100 µg/L may be associated with subclinical neuropsychiatric symptoms and tremor while concentrations greater than 100 µg/L can be associated with overt neuropsychiatric disturbances and tremors. Urine mercury levels may be useful in monitoring chelation therapy.

The ACGIH Biological Exposure Index (BEI) for arsenic in urine is 35 µg/L. The ACGIH BEI is based on the sum of inorganic and methylated species. For specimens with elevated total arsenic results, fractionation is automatically performed to determine the proportions of inorganic, methylated and organic species.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

0099475

ADMINISTRATIVE

CPT Codes:

82175; 83655; 83825; if reflexed, add 82175

Last Reviewed:

12/1/2023

HEMATOCRIT, BLOOD GASSES (SQ: POCHCT)

POCHT

TESTING INFORMATION

Collect:
One gray or 0.5 mL plasma (sodium fluoride/potassium oxalate) per time point at Ambient (room temperature)

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

HEMOCHROMATOSIS HFE GENE ANALYSIS, B (SQ: HMDHA)

HFE

TESTING INFORMATION

Ordering Recommendations:
Confirm clinical diagnosis of hereditary hemochromatosis (HH) in an individual with biochemical findings of iron overload. Screen adult family members of individuals with known HH. Test reproductive partner of an individual with HH for carrier status. Not recommended for initial hemochromatosis testing.

Collect:
Lavender (EDTA), pink (K_2EDTA), or yellow (ACD Solution A or B).

Specimen Preparation:
Transport 3 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Frozen specimens in glass collection tubes.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
C282Y Negative: The patient is negative for the HFE C282Y mutation.
H63D Negative: The patient is negative for the HFE H63D mutation.
S65C Negative: The patient is negative for the HFE S65C mutation.

Reported:
2-7 days

Methodology:
Polymerase Chain Reaction (PCR)/Fluorescence Monitoring

Notes:
This test is not recommended for asymptomatic patients under 18 years of age.

Interpretive Data:
Background information for Hemochromatosis (HFE) 3 Mutations:
Characteristics: Disorder of iron metabolism resulting in excessive iron storage leading to increased skin pigmentation, arthritis, hypogonadism, diabetes mellitus, heart arrhythmias/failure, cirrhosis and liver carcinoma.
Incidence: One in 300 individuals of Northern European descent; unknown in other ethnicities.
Inheritance: Autosomal recessive.
Penetrance: 5 percent of C282Y homozygotes, 1 percent of C282Y/H63D compound heterozygotes and rare H63D homozygotes develop clinical symptoms.
Cause: Two pathogenic HFE gene mutations on opposite chromosomes.
Mutations Tested: p.C282Y (c.845G>A), p.H63D (c.187C>G), and p.S65C (c.193A>T).
Clinical Sensitivity: 85 percent of hereditary hemochromatosis in Northern Europeans is caused by C282Y homozygosity and 5 percent by C282Y/H63D compound heterozygosity.
Methodology: PCR and fluorescence monitoring.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: HFE mutations, other than those targeted, will not be detected. Diagnostic errors can occur due to rare sequence variations.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

Performing Lab:
ARUP

ARUP Test Code:
0055656

ADMINISTRATIVE

CPT Codes:
81256

Last Reviewed:
12/2/2023

HEMOGLOBIN ELECTROPHORESIS (SQ: HGBIDA)

HGBEP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Lavendar (EDTA) Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

- Neonate less than 28 days old,
- Known clotted samples

Storage/Transport Temperature:

Whole blood, lavendar (EDTA) , refrigerated at 2-8°C.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
Unacceptable	7 days	3 months

Performed:

Two days per week

Reference Interval:

Adult Ranges	Hgb A	96.7-97.8%
	Hgb F	<= 0.5%
	Hgb A_2	2.2-3.2%

Pediatric Reference Values (obtained from Mayo Laboratories):

Hgb A	1-30 days	5.9-77.2%
	1-2 months	7.9-92.4%
	3-5 months	54.7-97.1%
	6-8 months	80.0-98.0%
	9-12 months	86.2-98.0%
	13-17 months	88.8-98.0 %
	18-23 months	90.4-98.0%
	>=24 months	95.8-98.0%
Hgb A_2	1-30 days	0.0-2.1%
	1-2 months	0.0-2.6%
	3-5 months	1.3-3.1%
	>= 6 months	2.0-3.3%
Hgb F	1-30 days	22.8-92.0%
	1-2 months	7.6-89.8%
	3-5 months	1.6-42.2%
	6-8 months	0.0-16.7%
	9-12 months	0.0-10.5%
	13-17 months	0.0-7.9%
	18-23 months	0.0-6.3%
	>=24 months	0.0-0.9%
Hgb S		< 1%
Hgb C		< 1%
Note: All Hemoglobin S and C variants must be confirmed with the Acid (E) hemoglobin electrophoresis technique.		

Reported:

1-7 days (if in-house)

Methodology:

Capillary Electrophoresis

Notes:
Final identifications for those variants that can not be identified are sent to ARUP. This process can take approximately 30 days.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

Last Reviewed:
1/22/24:BV

HEMOGLOBIN, BLOOD GASSES (SQ: POCHGB)

POCHB

TESTING INFORMATION

Testing Region:

Carle West region

HEMOGLOBIN, FETAL (SQ:FETHGA)

FETHG

TESTING INFORMATION

Ordering Recommendations:
Detect and quantify the extent of fetomaternal hemorrhage in pregnant or postpartum women. Assess the need for Rh immunoglobulin (eg, RhoGAM) for fetomaternal hemorrhage.

Patient Preparation:
Maternal, pregnant or postpartum whole blood.

Collect:
Lavender (EDTA) or pink (K2EDTA).
New York State Clients: Lavender (EDTA). Collect and ship Monday-Thursday only. Ship same day as collection.

Specimen Preparation:
Transport 5 mL whole blood. (Min: 0.5 mL)
New York State Clients: Transport 5 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Clotted or hemolyzed specimens. Refrigerated specimens greater than 120 hours (5 days) old; Ambient specimens greater than 12 hours old. Specimens from males or nonpregnant females.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 12 hours; Refrigerated: 120 (5 days) hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
0.000-0.124%

Reported:
1-2 days

Methodology:
Quantitative Flow Cytometry

Notes:
This test should only be used to detect and quantify the extent of fetomaternal hemorrhage, in pregnant or postpartum women who need to be assessed for Rh immune globulin (e.g. RhoGAM®) or fetal-maternal bleeds.

For routine fetal hemoglobin (Hb F) testing, please order Hemoglobin Evaluation with Reflex to Electrophoresis and/or RBC Solubility (ARUP test code 0050610).

Interpretive Data:

Result	Interpretation
% Fetal RBCs	The fetal RBC percentage is directly measured by flow cytometry and gives the percentage of fetal RBCs in the maternal circulation resulting from recent fetal-maternal hemorrhage. For accurate calculation of RhIG dosage that includes maternal height and weight, please refer to the most recent AABB Technical Manual.

Performing Lab:
ARUP

ARUP Test Code:
2001743

ADMINISTRATIVE

CPT Codes:
86356

Last Reviewed:
12/2/2023

HEMOGLOBIN, PLASMA (SQ:HGBPA)

HGBPA

TESTING INFORMATION

Ordering Recommendations:
• Identify increased concentration, which is indicative of acute intravascular destruction of erythrocytes.• Not of clinical value in the diagnosis of chronic hemolytic disorders.

Collect:
Green (sodium or lithium heparin).

Specimen Preparation:
Separate plasma from cells ASAP or within 2 hours of collection (delayed separation from cells will elevate plasma hemoglobin). Transfer 2 mL plasma to an ARUP Standard Transport Tube. (Min: 0.7 mL)

Unacceptable Conditions:
EDTA or citrated plasma.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: 1 week; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
0.0-9.7 mg/dL

Reported:
1-3 days

Methodology:
Quantitative Spectrophotometry

Performing Lab:
ARUP

ARUP Test Code:
0020058

ADMINISTRATIVE

CPT Codes:
83051

Last Reviewed:
12/2/2023

HEP B SURFACE AG CONFIRMATION (SQ: HBSCON)

HBSCN

TESTING INFORMATION

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

HEPARIN ANTI XA LMWH (SQ:HPAXA)

HPAXA

TESTING INFORMATION

Ordering Recommendations:
Monitor treatment efficacy of low molecular weight heparin.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Centrifuge specimen within one hour of collection. Transport 2 mL platelet-poor plasma. (Min: 1.5 mL)

Unacceptable Conditions:
Serum. EDTA, oxalate, heparin, or plasma separator tubes. Specimens refrigerated more than eight hours. Hemolyzed specimens.

Remarks:
This test cannot be used to quantitate anticoagulants other than low molecular weight heparin. This includes, but is not limited to, direct oral anticoagulants and Fondaparinux (Arixtra).

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month
University of Utah Clients: After separation from cells: Ambient: 4 hours; Refrigerated: 8 hours; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:
0.50-1.10 U/mL

Reported:
1-2 days

Methodology:
Chromogenic Assay

Interpretive Data:
Therapeutic range based on enoxaparin brand low molecular weight heparin.

Performing Lab:
ARUP

ARUP Test Code:
0030144

ADMINISTRATIVE

CPT Codes:
85520

Last Reviewed:
12/2/2023

HEPARIN INDUCED THROMBOCYTOPENIA (SQ: HAA)

HAA

COLLECTION DEVICE

Preferred Collection Device:
RED TOP TUBE

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	7.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Heparinized samples

Stability (from collection to initiation):

After separation from cells:

Ambient	Refrigerated	Frozen
Unacceptable	48 Hours	2-3 Years

Performed:
Monday - Friday.
Note: Testing performed in batches at 7:30 and 1430. Tests Received in lab between 1430 on Friday and 0730 on Sunday, the test will be forwarded to OSF laboratory to be performed. Tests arriving after 0730 on Sunday, the test will be performed on Monday morning. Stat turnaround time is not available.

Methodology:
Enzyme-Linked Immunosorbent Assay

Interpretive Data:
An enzyme-linked immunosorbent assay (ELISA)) method is used for the detection of heparin associated antibodies. Results obtained using this assay should be used in conjunction with clinical findings or other serological tests. Patients receiving heparin treatment for at least a week often develop thrombocytopenia. Two types of heparin-induced thrombocytopenia (HIT), Type I and II, may develop. Type I HIT is generally considered a benign condition and is not antibody-mediated. In Type II HIT, thrombocytopenia is usually more severe and is antibody-mediated. Patients with Type II are at risk to devleop more severe thrombocytopenia as well as arterial or venous thrombosis if heparin therapy is continued. Antibodies associated with HIT bind to complexes of heparin and platele factor 4 (PF4). These immune complexes propagate activation, leading to the release of more PF4 and thrombosis.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86022

Last Reviewed:
1/18/24: JN

HEPATIC FUNCTION PANEL (SQ: PLLIVR)

HFP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Specimen Preparation:

Separate serum/plasma from cells within two hours of collection.
Centrifuged Gold, or 1 mL of serum/ plasma (Min: 0.7 mL), refrigerated.

Unacceptable Conditions:

Gross hemolysis.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	3 days	1 month

Performed:

Sunday - Saturday

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

- Total Protein
- Albumin
- AST (SGOT)
- ALT (SGPT)
- Alkaline Phosphatase
- Total Bilirubin
- Direct Bilirubin

ADMINISTRATIVE

CPT Codes:

80076

Last Reviewed:

1/24/24

HEPATITIS A ANTIBODY, TOTAL (SQ: HAVGM)

HAVGM

TESTING INFORMATION

Ordering Recommendations:
May be helpful when assessing HAV immunity. Not generally recommended to diagnose acute infection. Assay detects both IgG and IgM antibodies but does not differentiate between them.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL) Also acceptable: K_2EDTA plasma.

Unacceptable Conditions:
Specimens collected in citrate-based anticoagulant. Specimens containing particulate material. Heat-inactivated, severely hemolyzed, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Indefinitely (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
Within 24 hours

Methodology:
Qualitative Chemiluminescent Immunoassay

Notes:
This assay tests for IgG and IgM antibodies, but does not differentiate between them.

Performing Lab:
ARUP

ARUP Test Code:
0020591

ADMINISTRATIVE

CPT Codes:
86708

Last Reviewed:
12/2/2023

HEPATITIS A IGM AB, S (SQ: HAVAB)

HAVM3

TESTING INFORMATION

Ordering Recommendations:
Order this assay when acute Hepatitis A infection is suspected.

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	1.0 mL	500 ul serum
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top (Lithium Heparin) Tube	6.0 mL	3.0 mL
1 Lavendar Top Tube	6.0 mL	3.0 mL

Specimen Preparation:
Must be spun down withing 2 hours of collection

Unacceptable Conditions:
contaminated sample

Remarks:
Separate serum from cells if transport will be delayed. Testing not acceptable for Neonatal, infants or children under the age of two The change of interference is remote but can potentially alter results by 10%. If patient is on Biotin supplementation, be aware of any abnormal results and have patient iscontinue supplementation prior to drawing laboratory testing.

Storage/Transport Temperature:
Centrifuged gold, or 1 mL serum or plasma (Min: 0.5 mL) Refrigerated

Stability (from collection to initiation):

After Seperation from Cells

AFTER SEPERATION FROM CELLS		
Ambient	Refrigerated	Frozen
8 hours	2 days	1 MONTH

Performed:
Sunday - Saturday

Reference Interval:
Not detected

Methodology:
Centaur Immunoassay Chemiluminometric technology

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

Components:
included in Hepatitis Profile

ADMINISTRATIVE

CPT Codes:
86709

Last Reviewed:
12/2/2024

HEPATITIS ACUTE PANEL (SQ: HEPP)

HEPA2

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Ordering Recommendations:
Order this panel when the patient has clinical acute hepatitis of less than 6 months duration and the origin is unknown.

Patient Preparation:
The chance of interference is remote but can potentially alter results by 10%. If patient is on Biotin supplementation, be aware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory testing.

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:	1 Green Top Tube	6.0 mL	3.0 mL

Specimen Preparation:
Seperate serum ASAP. Sodium Heparinized plasma may show lower index value in some samples near the assay cutoff for Hep BS Ag.

Unacceptable Conditions:
Contaminated sample

Remarks:
Testing not acceptable for neonatal, infants, or children under the age of two.

Storage/Transport Temperature:
Centrifuged gold top tube or 1mL serum/plasma (Min: 0.5mL) refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	2 days	1 months

Performed:
Sunday-Saturday

Reference Interval:
Not detected

Methodology:
Chemiluminescent Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:

- Hepattitis A Antibody, IgM
- Hepatitis B Surface Antigen
- Hepatitis B Core Antibody, IgM
- Hepatitis C Antibody

ADMINISTRATIVE

CPT Codes:
80074

Last Reviewed:
2/1/24

HEPATITIS B CORE AB (SQ:HBCTOT)

HBTOT

TESTING INFORMATION

Ordering Recommendations:
Determine exposure to HBV infection. May be helpful in determining which patients are at risk for HBV reactivation and would benefit from prophylactic nucleoside analog treatment prior to initiation of immunosuppression therapy.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport tube. (Min: 0.5 mL) Also acceptable: K_2EDTA plasma.

Unacceptable Conditions:
Heparinized plasma. Specimens containing particulate material. Heat-inactivated, severely hemolyzed, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Indefinitely (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Hepatitis B Core Antibodies, Total	Negative

Reported:
Within 24 hours

Methodology:
Qualitative Chemiluminescent Immunoassay (CLIA)

Notes:
This assay tests for IgG and IgM antibodies, but does not differentiate between them.

Interpretive Data:
This assay should not be used for blood donor screening, associated re-entry protocols, or for screening Human Cell, Tissues and Cellular and Tissue-Based Products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
0020091

ADMINISTRATIVE

CPT Codes:
86704

HEPATITIS B CORE IGM AB, S (SQ: HBCIGM)

HBCM3

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Patient Preparation:
The chance of interference is remote but can potentially alter results by 10%. If patient is on Biotin supplementation, be aware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory testing.

Collect:

preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:	1 Green Top Tube	6.0 mL	3.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Contaminated sample

Remarks:
Testing not acceptable for neonatal, infants, or children under the age of two.

Storage/Transport Temperature:
Centrifuged gold top tube or 1mL serum/plasma (Min: 0.5mL) refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	2 days	1 month

Performed:
Sunday-Saturday

Reference Interval:
Not detected

Methodology:
Chemiluminescent immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
PR3GMPOG

ADMINISTRATIVE

Last Reviewed:
2/1/24

HEPATITIS B SURFACE AB (SQ: AHBS)

HBSA2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL
1 Lavendar Top Tube		

Specimen Preparation:

Separate from cells within 24 hours.

Unacceptable Conditions:

contaminated samples

Storage/Transport Temperature:

Centrifuged Gold or 1 mL serum plasma

Stability (from collection to initiation):

AFTER SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen (avoid repeat freeze/thaw cycles)
8 hours	7 days	1 month

Performed:

Monday - Saturday

Reference Interval:

Test Number	Components	Reference Interval	
	Hepatitis B Surface Antibody	Less than 9.99 IU/L	Non-Reactive
		Greater than or equal to 10.00 IU/L	Reactive

Reported:

same day

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

Components:

Included in Hepatitis Panel

ADMINISTRATIVE

CPT Codes:

86706

HEPATITIS B SURFACE AG (SQ: HBSAG)

HBSG4

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	6.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium or Sodium Heparin) Top Tube	3.0 mL	3.0 mL
1 Lavendar (EDTA) Top Tube	3.0 mL	3.0 mL

Specimen Preparation:

Separate serum/plasma from cells if transport will be delayed.

Unacceptable Conditions:

- Heat treated samples
- contaminated

Storage/Transport Temperature:

Centrifuged gold, 1 mL serum or plasma(Min: 0.5 mL) at Room Temperature or Refrigerated

Stability (from collection to initiation):

AFTER SEPERATED FROM CELLS		
Ambient	Refrigerated	**Frozen** <20°C
8 hours	14 days	Indefinitely

Performed:

Sunday - Saturday

Reference Interval:

Not detected

Methodology:

Chemiluminescent Immunoassay

Notes:

All repeatedly reactive results will be confirmed by neutralization.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87340

Last Reviewed:

1/18/24:JN

HEPATITIS B VIRUS PANEL, CHRONIC RFLX TO HBSAG CONFIRM (SQ:HPCBA)

HPCBA

TESTING INFORMATION

Ordering Recommendations:
Indicates stage of infection. Use to monitor patients with chronic hepatitis B infection and known positive Hepatitis B surface antigen.

Patient Preparation:
Refer to individual components.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 3.5 mL serum to an ARUP Standard Transport Tube. (Min: 2.5 mL).

Unacceptable Conditions:
Heparinized plasma, specimens that are heat-inactivated, grossly hemolyzed, grossly icteric, grossly lipemic or specimens containing particulate material.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 7 days; Frozen: 30 days (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Hepatitis B Surface Antigen	Negative
Hepatitis Be Antigen	Negative
Hepatitis Be Antibody	Negative

Reported:
Within 24 hours

Methodology:
Qualitative Chemiluminescent Immunoassay

Notes:
Order this panel when the patient is known to have chronic hepatitis B infection to determine the degree of infection and monitor the development of immunity. If results for HBsAg are repeatedly reactive with an index value between 1.00 and 50.00, then HBsAg Confirmation will be added. Additional charges apply.

Interpretive Data:
This panel of assays should not be used for blood donor screening, associated re-entry protocols, or for screening human cell, tissues and cellular and tissue-based products (HCT/P).

Component	Interpretation
Hepatitis B Surface Antibody	Less than 10.00 IU/L : Negative Greater than or equal to 10.00 IU/L: Positive

Performing Lab:
ARUP

ARUP Test Code:
0020454

ADMINISTRATIVE

CPT Codes:
86706; 86707; 87340; 87350; if reflexed, add 87341

HEPATITIS BE AB, S (SQ:HBEABB)

HEAB

TESTING INFORMATION

Ordering Recommendations:
Monitor HBV therapy; order along with HBV DNA, HBV surface antigen, HBV surface antibody, and HBe antigen.

Collect:
Serum separator tube (SST). Also acceptable: Lavender (EDTA) or green (lithium heparin).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens that are heat-inactivated, grossly hemolyzed, grossly icteric, grossly lipemic specimens, or specimens containing particulate material.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 7 days; Frozen: 30 days (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
Within 24 hours

Methodology:
Qualitative Chemiluminescent Immunoassay (CLIA)

Interpretive Data:
This assay should not be used for blood donor screening, associated reentry protocols, or for screening human cell, tissues, and cellular- and tissue-based products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
0020095

ADMINISTRATIVE

CPT Codes:
86707

HEPATITIS BE AG (SQ:HBEAGB)

HEAG

TESTING INFORMATION

Ordering Recommendations:
Monitor HBV therapy; order along with HBV DNA, HBV surface antigen, HBV surface antibody and HBe antibody.

Collect:
Serum separator tube (SST). Also acceptable: Potassium EDTA plasma, green (lithium heparin), or green (sodium heparin) plasma.

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1.0 mL serum or plasma to an ARUP standard transport tube. (Min: 0.6 mL)

Unacceptable Conditions:
Heat-inactivated, severely hemolyzed, lipemic specimens, or specimens containing particulate material.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 7 days; Frozen: 30 days (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
Within 24 hours

Methodology:
Qualitative Chemiluminescent Immunoassay (CLIA)

Notes:
Order this assay only when a specimen is repeatedly reactive for hepatitis B surface antigen.

Interpretive Data:
This assay should not be used for blood donor screening, associated reentry protocols, or for screening human cell, tissues, and cellular- and tissue-based products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
0020094

ADMINISTRATIVE

CPT Codes:
87350

Last Reviewed:
12/2/2023

HEPATITIS BE AG/AB PANEL (SQ:HEAGA)

HEAGA

TESTING INFORMATION

Ordering Recommendations:
Monitor confirmed chronic hepatitis B infection.

Collect:
Serum separator tube (SST). Also acceptable: Lavender (EDTA) or green (lithium heparin).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum or plasma to an ARUP standard transport tube. (Min: 1.0 mL)

Unacceptable Conditions:
Specimens that are heat-inactivated, grossly hemolyzed, grossly icteric, grossly lipemic, or specimens containing particulate material.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 7 days; Frozen: 30 days (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Hepatitis Be Antigen	Negative
Hepatitis Be Antibody	Negative

Reported:
Within 24 hours

Methodology:
Qualitative Chemiluminescent Immunoassay (CLIA)

Notes:
Order this assay only when a specimen is repeatedly reactive for hepatitis B surface antigen.

Interpretive Data:
This assay should not be used for blood donor screening, associated reentry protocols, or for screening human cell, tissues, and cellular- and tissue-based products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
2012141

ADMINISTRATIVE

CPT Codes:
87350; 86707

Last Reviewed:
12/1/2023

HEPATITIS C GENOTYPE (SQ:HCVGTB)

HCVGB

TESTING INFORMATION

Ordering Recommendations:
Assay does not differentiate between type 1a and 1b, or between rare type 6 and type 1. Do not order prior to molecular confirmation of positive hepatitis C (HCV) screen.

Collect:
Lavender (EDTA), pink (K2EDTA), plasma preparation tube (PPT) or serum separator tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 24 hours of collection. Transfer 2 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Heparinized specimens.

Remarks:
Please submit most recent viral load and test date, if available.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 72 hours; Frozen: 4 months.

Performed:
Sun-Sat

Reference Interval:
By report

Reported:
3-5 days

Methodology:
Polymerase Chain Reaction (PCR)/Sequencing

Notes:
This test may be unsuccessful if the HCV RNA viral load is less than log 3.6 or 4000 IU/mL.

Interpretive Data:
Hepatitis C viral RNA is tested using reverse transcription polymerase chain reaction (RT-PCR) to amplify a specific portion of the 5' untranslated region (5' UTR) of the viral genome. The amplified nucleic acid is sequenced bidirectionally using dye-terminator chemistry (ABI). Sequencing data is compared to a database of characterized sequences.

Isolates of hepatitis C virus are grouped into six major genotypes (1-6). These genotypes are subtyped according to sequence characteristics. Due to high conservation of the 5' untranslated region of the HCV genome, this test has limitations in differentiating subtype 1a from 1b. Therefore, these subtypes will be reported as "1a or 1b." In rare instances, type 6 virus may be misclassified as type 1.

Performing Lab:
ARUP

ARUP Test Code:
0055593

ADMINISTRATIVE

CPT Codes:
87902

Last Reviewed:
12/2/2023

HEPATITIS C RNA QUANTITATIVE (SQ:HCVNAA)

HCVNA

TESTING INFORMATION

Ordering Recommendations:
Preferred single test to confirm hepatitis C virus (HCV) infection following a positive HCV antibody screen. May also be useful to diagnose suspected acute HCV infection or infection in seronegative immunocompromised individuals.

Collect:
Lavender (EDTA), pink (K2EDTA), plasma preparation tube (PPT), or serum separator tube (SST).

Specimen Preparation:
Separate from cells within 24 hours of collection.
Transfer 2 mL serum or plasma to an ARUP standard transport tube (ARUP supply #15824). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.
(Minimum volume: 1.3 mL)

Unacceptable Conditions:
Heparinized specimens

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
After separation from cells:
Room temperature: 24 hours (Critical: ship FROZEN); Refrigerated: 6 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
Not Detected

Reported:
1-3 days

Methodology:
Quantitative Polymerase Chain Reaction (PCR)

Notes:
The limit of quantification for this RNA assay is 15 IU/mL (1.18 log IU/mL). If the assay DETECTED the presence of the virus but was not able to accurately quantify, the test will be reported as "Not Quantified, Detected."

Interpretive Data:
The quantitative range of this test is 15-100,000,000 IU/mL (1.18-8.0 log IU/mL).

A result of "Not Detected" does not rule out the presence of inhibitors in the patient specimen or hepatitis C virus RNA concentrations below the level of detection of the test. Care should be taken when interpreting any single viral load determination.

This test is intended for use as an aid in the diagnosis of HCV infection in the following populations: individuals with antibody evidence of HCV with evidence of liver disease, individuals suspected to be actively infected with HCV antibody evidence, and individuals at risk for HCV infection with antibodies to HCV. Detection of HCV RNA indicates that the virus is replicating and therefore is evidence of active infection.

This test is also intended for use as an aid in the management of patients with an HCV infection undergoing antiviral therapy. The assay can be used to measure HCV RNA levels at baseline, during treatment, at the end of treatment, and at the end of follow-up of treatment to determine sustained or nonsustained viral response. The results must be interpreted within the context of all relevant clinical and laboratory findings.

This test should not be used for blood donor screening, associated reentry protocols, or for screening human cells, tissues and cellular tissue-based products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
3000572

ADMINISTRATIVE

CPT Codes:
87522

Last Reviewed:
12/2/2023

HEPATITIS C VIRUS AB (SQ: HCVAB)

HCV2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	6.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	6.0 mL
1 Green (Lithium or Sodium Heparin) Top Tube	3.0 mL	3.0 mL
1 Lavendar Top Tube	3.0 mL	3.0 mL

Unacceptable Conditions:

- Heat treated samples
- Contaminated Sample

Remarks:

Plasma acceptable. Separate serum from cells ASAP.

Storage/Transport Temperature:

Centrifuged gold, or 1 mL serum or plasma (Min: 0.5 mL) Refrigerated

Stability (from collection to initiation):

AFTER SEPERATION FROM CELLS		
Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Sunday - Saturday

Reference Interval:

Not detected

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

86803

Last Reviewed:

1/18/24:JN

HERPES SIMPLEX VIRUS (HSV) I AND II ANTIBODY (SQ:HSVIGM)

HSVAB

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
test inactivated by ARUP on 8/19 with no recommendations for replacment.

Performing Lab:
ARUP

ARUP Test Code:
0050641

HERPES SIMPLEX VIRUS CULTURE W/ REFLEX TYPING (SQ:HSVCA)

HSVCA

TESTING INFORMATION

Ordering Recommendations:
Use to detect herpes simplex virus (HSV) by viral culture and differentiate types 1 and 2. Molecular testing is generally preferred; refer to Herpes Simplex Virus (HSV-1/HSV-2) Subtype by PCR (2010095). Orthopoxviruses, including monkeypox virus, cannot be identified clinically using this testing method. Refer to https://www.aruplab.com/monkeypox-testing for more information.

Collect:
Buccal mucosa, eye, genital, rectal, throat or vesicle swab, neonatal surface swab, or bronchoalveolar lavage, tissue, or vesicle fluid.

Specimen Preparation:
Fluid: Transfer 3 mL specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787.
Swab or Tissue: Place in 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787.

Unacceptable Conditions:
Blood, CSF, plasma, or serum. Bacterial transport systems; molecular transport systems; calcium alginate, dry, or wood swabs.

Remarks:
Specimen source preferred.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Culture negative for herpes simplex virus.

Reported:
1-5 days

Methodology:
Cell Culture/Microscopy/Immunofluorescent Stain

Notes:
If culture is positive for HSV, then HSV typing test will be added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
0065065

ADMINISTRATIVE

CPT Codes:
87255; if reflexed, add 87140 x2

Last Reviewed:
12/2/2023

HERPES SIMPLEX VIRUS PCR, BLOOD (SQ:HSVSPA)

LHSVB

TESTING INFORMATION

Ordering Recommendations:
Preferred test to detect herpes simplex virus types 1 and 2 (HSV-1/HSV-2).

Collect:
Lavender (EDTA), pink (K_2EDTA), or serum separator tube. OR CSF, bronchoalveolar lavage (BAL), amniotic fluid, vesicle fluid, ocular fluid, tissue. OR endocervical specimen in ThinPrep Pap Test media.

Specimen Preparation:
Separate plasma or serum from cells. Transfer 1 mL plasma, serum, CSF, BAL, amniotic fluid, ocular fluid or ThinPrep specimen to a sterile container. (Min: 0.5 mL)
Tissue: Transfer to a sterile container and freeze immediately.
Vesicle fluid: Transfer to viral transport media (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM)or contact ARUP Client Services at (800) 522-2787.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 months
All others: Ambient: 8 hours; Refrigerated: 72 hours; Frozen: 3 months

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Interpretive Data:
A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection by this test.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2010095

ADMINISTRATIVE

CPT Codes:
87529 x2

Last Reviewed:
12/2/2023

HERPES SIMPLEX VIRUS PCR, BLOOD (SQ:HSVSPA)

HSVSPA

TESTING INFORMATION

Ordering Recommendations:
Preferred test to detect herpes simplex virus types 1 and 2 (HSV-1/HSV-2).

Collect:
Lavender (EDTA), pink (K_2EDTA), or serum separator tube. OR CSF, bronchoalveolar lavage (BAL), amniotic fluid, vesicle fluid, ocular fluid, tissue. OR endocervical specimen in ThinPrep Pap Test media.

Specimen Preparation:
Separate plasma or serum from cells. Transfer 1 mL plasma, serum, CSF, BAL, amniotic fluid, ocular fluid or ThinPrep specimen to a sterile container. (Min: 0.5 mL)
Tissue: Transfer to a sterile container and freeze immediately.
Vesicle fluid: Transfer to viral transport media (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM)or contact ARUP Client Services at (800) 522-2787.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 months
All others: Ambient: 8 hours; Refrigerated: 72 hours; Frozen: 3 months

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Interpretive Data:
A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection by this test.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2010095

ADMINISTRATIVE

CPT Codes:
87529 x2

Last Reviewed:
12/2/2023

HGB (SQ: HGBN)

HGBCN

TESTING INFORMATION

Collect:
One lavender (EDTA). (Min: 0.5 mL drawn in 3 mL lavender)

Unacceptable Conditions:
Frozen samples

Performed:
Daily

Methodology:
Automated Cell Counter

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

HICKORY/PECAN TREE (T22) (SQ: PECNHK)

HPTR

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

HISTAMINE (SQ:HSTMNA)

HSTMN

TESTING INFORMATION

Ordering Recommendations:
Aid in evaluation of patient with allergic signs and symptoms, such as anaphylaxis; may assist in diagnosing and monitoring of mast-cell activation disorders.

Collect:
Lavender (EDTA) or pink (K_2EDTA). Collect in a pre-chilled tube and on ice.

Specimen Preparation:
Centrifuge refrigerated and separate upper two-thirds of plasma within 20 minutes. If EDTA gel collection tube is used, the plasma must be collected immediately after centrifugation and frozen separately. Transfer 1 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 0.5 mL)

Unacceptable Conditions:
Lipemic or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 6 hours; Frozen: 6 months

Performed:
Tue, Sat

Reference Interval:
Effective June 13, 2011

0-8 nmol/L

Reported:
1-6 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0070036

ADMINISTRATIVE

CPT Codes:
83088

HISTONE ANTIBODY IGG (SQ:HISTON)

HISTO

TESTING INFORMATION

Ordering Recommendations:
Evaluate suspected drug-induced lupus. Negative results do not rule out drug-induced lupus.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Plasma or urine. Contaminated specimens. Grossly hemolyzed, icteric, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon, Wed-Sat

Reference Interval:

Components	Reference Interval
Histone Antibody, IgG	0.9 Units or less

Reported:
1-3 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Notes:
Histone antibodies are present in 20-55% of idiopathic systemic lupus erythematosus (SLE) and 80-95% of drug-induced SLE. They occur in less than 20% of other types of connective tissue diseases.

Interpretive Data:

Component	Interpretation
Histone Antibody, IgG	0.9 Units or less Negative 1.0-1.5 Units Weak Positive 1.6-2.5 Units Moderate Positive 2.6 Units or greater Strong Positive

Performing Lab:
ARUP

ARUP Test Code:
0050860

ADMINISTRATIVE

CPT Codes:
83516

Last Reviewed:
12/2/2023

HISTOPLASMA AB SCREEN, S (SQ:HISTO)

FSSH

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of histoplasmosis. Testing in conjunction with Histoplasma Antigen Quantitative by EIA, Serum (0092522) and Histoplasma Galactomannan Antigen Quantitative by EIA, Urine (2009418) is recommended.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP standard transport tube. (Min: 0.8 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Histoplasma Antibodies by ID	Not detected.
Histoplasma Mycelia Antibodies by CF	Less than 1:8
Histoplasma Yeast Antibodies by CF	Less than 1:8

Reported:
3-6 days

Methodology:
Semi-Quantitative Complement Fixation/Qualitative Immunodiffusion

Notes:
The immunodiffusion component of this test detects total antibodies against the H and M antigens of Histoplasma capsulatum. The complement fixation component of this test detects total antibodies to mycelial and yeast antigens of Histoplasma.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
0050627

ADMINISTRATIVE

CPT Codes:
86698 x3

HISTOPLASMA AG, S (SQ:SHISTO)

HPAGS

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of histoplasmosis. Recommend testing in conjunction with Histoplasma Antibodies by Complement Fixation and Immunodiffusion (0050627) and Histoplasma Galactomannan Antigen Quantitative by EIA, Urine (2009418).

Collect:
Plain red or serum separator tube (SST).

Specimen Preparation:
Transfer 2 mL serum to a sterile ARUP Standard Transport Tube (ARUP Supply #43115). (Min: 1 mL)
New York State Clients: 2 mL (Min: 1.2 mL)

Unacceptable Conditions:
Specimen types other than those listed.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles) New York State Clients: Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: Indefinitely

Performed:
Mon, Wed, Fri

Reference Interval:
Not Detected

Reported:
1-4 days

Methodology:
Quantitative Enzyme Immunoassay (EIA)

Notes:
For urine, refer to test Histoplasma Galactomannan Antigen Quantitative by EIA, Urine (ARUP test code 2009418).

Interpretive Data:
The quantitative range of this assay is 0.19-60.0 ng/mL. Antigen concentrations less than 0.19ng/mL ;greater than 60.0 ng/mL fall outside the linear range of the assay and cannot be accurately quantified.

This EIA test should be used in conjunction with other diagnostic procedures, including microbiological culture, histological examination of biopsy samples, serology and/or radiographic evidence, to aid in the diagnosis of histoplasmosis.

Cross-reactivity with Blastomyces dermatiditis, Coccidioides immitis, and possibly Talaromyces marneffei have been observed with this EIA. Other clinically and geographically relevant endemic mycoses should be considered in the case of a positive test result.

Performing Lab:
ARUP

ARUP Test Code:
0092522

ADMINISTRATIVE

CPT Codes:
87385

Last Reviewed:
12/1/2023

HISTOPLASMA AG, U (SQ: HISGAA)

UHIST

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of histoplasmosis. May also detect blastomycosis and coccidioidomycosis. Testing in conjunction with Histoplasma Antibodies by Complement Fixation and Immunodiffusion (0050627) and Histoplasma Antigen Quantitative by EIA, Serum (0092522) is recommended.

Collect:
Random urine.

Specimen Preparation:
Transfer 2 mL urine to an ARUP standard transport tube.

Unacceptable Conditions:
Specimens other than urine. Urine in boric acid. Serum; refer to test Histoplasma Antigen by EIA, Serum (ARUP test code 0092522).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:
Not Detected

Reported:
1-2 days

Methodology:
Quantitative Enzyme Immunoassay

Interpretive Data:
Less than 0.4 ng/ml = Not Detected
0.4-0.7 ng/mL = Detected (below the limit of quantification)
0.8-24.0 ng/mL = Detected
Greater than 24.0 ng/mL = Detected (above the limit of quantification)

The quantitative range of this assay is 0.8-24.0 ng/mL. Antigen concentrations between 0.4-0.7 or >24.0 ng/mL fall outside the linear range of the assay and cannot be accurately quantified.

This EIA test should be used in conjunction with other diagnostic procedures, including microbiological culture, histological examination of biopsy samples, and/or radiographic evidence, to aid in the diagnosis of histoplasmosis.

Performing Lab:
ARUP

ARUP Test Code:
2009418

ADMINISTRATIVE

CPT Codes:
87385

Last Reviewed:
12/2/2023

HISTOPLASMA ANTIBODY BY ID (SQ:HIPAB)

HIPAB

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of histoplasmosis. Not recommended as a standalone test. For more complete serologic testing, refer to Histoplasma Antibodies by Complement Fixation and Immunodiffusion (0050627).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min 0.15 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Not Detected

Reported:
3-6 days

Methodology:
Immunodiffusion

Notes:
This immunodiffusion test detects total antibodies against the H and M antigens of Histoplasma capsulatum.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
0050174

ADMINISTRATIVE

CPT Codes:
86698

Last Reviewed:
12/2/2023

HIV 4TH GEN SCREEN (SQ: HIV4G)

HIVG4

COLLECTION DEVICE

Preferred Collection Device:
Lavender K2EDTA whole blood

TESTING INFORMATION

Ordering Recommendations:
Testing only orderable for Labor/Delivery, Employee Exposure Incident, and SANE patients. If requesting for SANE or Labor/Delivery, notify laboratory.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 K2EDTA Lavender Tube	6.0 mL	4.0 mL

Specimen Preparation:
Send as whole blood.

Unacceptable Conditions:
Centrifuged, inappropriate storage temps, clotted, improperly labeled.

Storage/Transport Temperature:
Send K2EDTA whole blood at refrigerated 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	6 days	Unacceptable

Performed:
Daily

Methodology:
Immunochromatography

Interpretive Data:
Results include antigen and antibody reactions. Reactive results will automatically be sent out for confirmatory testing (HIV Viral Load).

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

HIV-1 & HIV-2 AG & AB EVALUATION (SQ: HIVPAN)

HIVPA

COLLECTION DEVICE

Preferred Collection Device:
K2EDTA Lavendar Top

TESTING INFORMATION

Collect:
Lavendar top (EDTA) is the preferred specimen. If EDTA not collected, patient will be required to be redrawn if confirmation testing is needed.

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Lavendar top (EDTA)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
1 Gold (SST) Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolysis or plasma which has remained on the cells more than 24 hours

Storage/Transport Temperature:
1 mL serum/plasma or centrifuged gold top, refrigerated

Stability (from collection to initiation):

AFTER SEPERATION FROM CELLS		
Ambient	Refrigerated	Frozen
4 days	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immuno Assay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

Components:

- HIV-1 Ab
- HIV-2 Ab
- HIV-1 P24 Ag
- HIV-1 Ag/1 & 2 Ab

ADMINISTRATIVE

CPT Codes:
87389

Last Reviewed:
2/1/24

HIV1 GENOTYPING (SQ:HIVGTA)

HVGT1

TESTING INFORMATION

Ordering Recommendations:
Provides antiretroviral susceptibility information for protease inhibitors (PI), reverse transcriptase inhibitors (NRTI, NNRTI), and integrase inhibitors (INT). Intended for patients with viral load >500 copies/mL.

Collect:
Lavender (EDTA), pink (K2EDTA), or plasma preparation tube.

Specimen Preparation:
Separate plasma from cells within 24 hours. Transfer 3.0 mL plasma to an ARUP standard transport tube. (Min: 2.5 mL)

Unacceptable Conditions:
Serum. Heparinized specimens.

Remarks:
Please submit most recent viral load and test date, if available.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 72 hours; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
By report

Reported:
4-10 days

Methodology:
Massively Parallel Sequencing

Notes:
This test may be unsuccessful if the plasma HIV-1 RNA viral load is less than 500 copies per mL of plasma.

Interpretive Data:
This assay predicts HIV-1 resistance to protease inhibitors, nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors, and integrase inhibitors. The protease gene, integrase gene, and the reverse transcriptase gene of the viral genome are sequenced using next generation sequencing. Drug resistance is assigned using the Stanford hivdb database.

This test should be used in conjunction with clinical presentation and other laboratory markers. A patient's response to therapy depends on multiple factors, including patient adherence, percentage of resistant virus population, dosing, and drug pharmacology issues.

This test detects populations down to 10 percent of the total population which may account for resistance interpretation differences between methods. Some insertions or deletions may be difficult to detect using this software.

Drug Resistance Interpretations are defined as follows:
-Not Determined indicates incomplete sequence coverage across a given gene or genes.
-Susceptible indicates no drug resistance mutations (DRMs) were detected.
-Potential Low-Level Resistance indicates the presence of DRMs that suggest prior antiretroviral (ARV) exposure or are associated with resistance only when they occur alongside other DRMs.
-Low-Level Resistance indicates the presence of DRMs that are associated with reduced in vitro ARV susceptibility or a suboptimal virological response to ARV treatment.
-Intermediate Resistance indicates that while there is a high likelihood of reduced ARV activity due to the virus's DRMs, the ARV is still expected to retain significant antiviral activity.
-High-Level Resistance indicates the presence of DRMs predicted to confer a level of resistance similar to that seen in viruses with the highest levels of reduced in vitro susceptibility or those with little to no virological response to ARV treatment.

Mutations are classified as follows:
-Drug Resistance Mutations reduce susceptibility of specific drug classes whether found in isolation or in combination with other drugs.
-Accessory Mutations reduce susceptibility of specific drug classes only when found in combination with drug resistance mutations.
-Additional mutations have cleared or approved by the US Food and Drug Administration associated with drug resistance.
-Uncalled mutation sites are known locations of drug resistance mutations that have an inadequate number of sequencing reads to accurately determine if mutations are present.

Performing Lab:
ARUP

ARUP Test Code:
3003853

ADMINISTRATIVE

CPT Codes:
87900; 87901; 87906

Last Reviewed:
12/2/2023

HIV-1 RNA, QUANTITATIVE, PCR (SQ: HIV1NT)

HIV1N

TESTING INFORMATION

Ordering Recommendations:
Detect and quantify HIV-1.

Collect:
Lavender (EDTA), pink (K2EDTA), or plasma preparation tube (PPT).

Specimen Preparation:
Separate from cells within 24 hours of collection. Transfer 2 mL plasma to an ARUP standard transport tube (ARUP supply #15824). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Minimum volume: 1.3mL)

Unacceptable Conditions:
Serum. CSF (refer to Human Immunodeficiency Virus 1 (HIV-1) by Quantitative NAAT, CSF, ARUP test code 3000872). Heparinized specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours (Critical: Ship FROZEN); Refrigerated: 6 days; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:
Not detected.

Reported:
1-4 days

Methodology:
Quantitative Polymerase Chain Reaction (PCR)

Notes:
The limit of quantification for this assay is 1.3 log copies/mL (20 copies/mL). If the assay DETECTED the presence of the virus but was not able to accurately quantify, the test will be reported as "Not Quantified, Detected."

Interpretive Data:
The quantitative range of this assay is 1.30-7.00 log copies/mL (20-10,000,000 copies/mL).

A result of "Not Detected" does not rule out the presence of inhibitors or HIV-1 RNA concentration below the level of detection of the test. Care should be taken in the interpretation of any single viral load determination.

This test is intended for use in conjunction with clinical presentation and other laboratory markers for the clinical management of HIV-1 infected patients. The test can be used to assess patient prognosis by measuring the baseline HIV-1 level or to monitor the effects of antiretroviral therapy by measuring changes in HIV-1 RNA levels during the course of antiretroviral treatment.

This assay should not be used for blood donor screening, associated reentry protocols, or for screening human cells, tissues, and cellular- or tissue-based products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
3000867

ADMINISTRATIVE

CPT Codes:
87536

Last Reviewed:
12/2/2023

HLA CLASS 2 PANEL (SQ:HLA2PA)

HLA2P

TESTING INFORMATION

Ordering Recommendations:
Not intended for HLA-related disease screening or diagnosis (eg, celiac disease, narcolepsy, rheumatologic diseases).

Collect:
Lavender (K_2 EDTA). Also acceptable: Yellow (ACD Solution A).

Specimen Preparation:
Transfer 4 mL whole blood to an ARUP Standard Transport Tube. (Min: 1 mL).

Unacceptable Conditions:
Specimens collected in Yellow (ACD Solution B). Clotted, grossly hemolyzed, or heparinized specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 1 week; Frozen: Unacceptable

Performed:
Varies

Reference Interval:
By report

Reported:
8-15 days

Methodology:
Polymerase Chain Reaction/Massively Parallel Sequencing

Interpretive Data:
Purpose: To identify HLA-DRB1, DQA1 and DQB1 allelic polymorphisms on specimens for transplant candidates and their donors.
Methodology: PCR followed by next generation sequencing of HLA-DRB1, DQA1 and DQB1 loci.
Analytical Sensitivity & Specificity: >99 percent.
Limitations: Rare diagnostic errors can occur due to primer site mutations.
Test Results: Results are reported as HLA locus (DRB1, DQA1 or DQB1)* followed by the two-field (four digit) assigned allele.

Disclaimer Information:
HLA typing is performed by one or more of the following methodologies: next generation sequencing (NGS) and/or sequence specific probe hybridization (SSOP). The NMDP code provides possible rare alleles that cannot be ruled out. Additional unknown DNA polymorphisms could exist outside of the regions analyzed, the significance of which is not known.

This test was developed and its performance characteristics determined by the Histocompatibility& Immunogenetics laboratory at the University of Utah Health, and has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary. This test is used for clinical purposes; it should not be regarded as investigational or for research. The University of Utah Histocompatibility& Immunogenetics laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88) as qualified to perform high complexity clinical laboratory testing. Performed at: Histocompatibility& Immunogenetics laboratory, University of Utah Health, 417 Wakara Way, Suite 3220, Salt Lake City, UT 84108.

Performing Lab:
ARUP

ARUP Test Code:
3002308

ADMINISTRATIVE

CPT Codes:
81382 x3

Last Reviewed:
12/2/2023

HLA-B 57:01 GENOTYPE, PHARMACOGENOMICS (SQ:HL5701)

HL57V

TESTING INFORMATION

Ordering Recommendations:
Standard of care prior to abacavir therapy per FDA. Predicts risk of abacavir hypersensitivity syndrome. Relevant to most populations.

Collect:
Lavender (EDTA), pink (K_2EDTA), or yellow (ACD Solution A or B).

Specimen Preparation:
Transport 3 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Plasma or serum. Heparinized specimens. Frozen specimens in glass collection tubes.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month.

Performed:
Varies

Reference Interval:
By report

Reported:
5-10 days

Methodology:
Polymerase Chain Reaction/Fluorescence Monitoring

Interpretive Data:
Refer to Report

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

Performing Lab:
ARUP

ARUP Test Code:
2002429

ADMINISTRATIVE

CPT Codes:
81381

Last Reviewed:
12/2/2023

HLA-B27 (SQ:HB27A)

HB27A

TESTING INFORMATION

Ordering Recommendations:
Not a diagnostic test for ankylosing spondylitis, juvenile rheumatoid arthritis, or Reiter syndrome. May assist in the diagnosis of these conditions only if other clinical signs and symptoms are present.

Collect:
Lavender Hemogard (EDTA), pink Hemogard (K2EDTA), or green Hemogard (sodium or lithium heparin). Hemogard tubes are preferred for laboratory safety.

Specimen Preparation:
Transport 4 mL whole blood. (Min: 0.5 mL)

Unacceptable Conditions:
Frozen or refrigerated specimens. Specimens older than 72 hours. Clotted or hemolyzed specimens.
New York State Clients: Same as the above.

Remarks:
Specimens must be analyzed within 72 hours of collection.
New York State Clients: Same as the above.

Storage/Transport Temperature:
CRITICAL ROOM TEMPERATURE.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: Unacceptable; Frozen: Unacceptable
New York State Clients: Same as the above.

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
1-2 days

Methodology:
Qualitative Flow Cytometry

Notes:
Indeterminate Results: The Anti-HLA-B27 antibody (clone GS145.2) used in the HLA-B27 assay can cross-react with some other HLA-B locus antigens, creating false-positive results for HLA-B27 expression. Therefore, results falling within the established indeterminate zone will include a recommendation of genotype testing to confirm positive HLA-B27 expression. Order Ankylosing Spondylitis HLA-B27 Genotyping (ARUP test code 0050392).

Interpretive Data:
HLA-B27 is a serologically-defined allele of the human HLA-B locus. The presence of the HLA-B27 antigen is strongly associated with ankylosing spondylitis and related disorders.

Performing Lab:
ARUP

ARUP Test Code:
0095840

ADMINISTRATIVE

CPT Codes:
86812

Last Reviewed:
12/2/2023

HOMOCYSTEINE (SQ: HOMOCY)

HOMOC

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type			Requested Volume	Minimum Volume
Routine:	1 Green Top Tube	6.0 mL	3.0 mL		
STAT:					

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Red Top Tube	6.0 mL	3.0 mL
1 Lavendar Top Tube		
1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Specimen Preparation:

- Centrifuge within one hour to separate the serum or plasma from the blood cells.
- If immediate centrifugation is not possible collected blood specimes should be kept on ice and centrifuged within one hour.

Unacceptable Conditions:

- Room temperature sample storage

Remarks:

Specimens from patients who are on drug therapy involving S-adenosylmethionine may show falsely elevated levels of homocysteine.

Storage/Transport Temperature:

1 mL plasma or serum, frozen. (Min: 0.5 mL)

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
	7 days	3 months

Performed:

Sunday-Saturday

Methodology:

Chemiluminescent Immunoassay

Notes:

False elevations of plasma homocysteine may occur if the plasmais not promptly separated from the cells at the time ofcollection.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83090

Last Reviewed:

12/2/2023

HPV DNA (HIGH RISK) (SQ: HPVHRY)

HPVHC

COLLECTION DEVICE

Preferred Collection Device:
Surepath

TESTING INFORMATION

Collect:
Obtain a sample from the cervix according to the standard collection procedure provided by the manufacturer of the sampling device(s)

Unacceptable Conditions:
Specimens containing excess mucous or blood will be rejected.

Storage/Transport Temperature:
Surepath preservative fluid stored at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	28 days	Unacceptable

Performed:
Monday - Friday

Methodology:
RT-PCR

Notes:
Beginning June 15, 2022, Pap Smear and HPV reporting will be on the same combined report out of PowerPath. When any co-testing or reflex HPV is ordered, all results will be held until both reports are finalized. Any HPVthat are added on after the pap smear is finalized will be reported in an HPV Addendum to the cytology report.

Interpretive Data:

- This test detects high risk genotypes 16, 18, as well as other high risk genotypes (31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) associated with cervical cancer.
- Results of this test should only be interpreted in conjunction with information available from clinical evaluation of the patient and patient history. A negative result does not preclude the presence of HPV infection because results depend on adequate specimen collection, absence of inhibitors, and sufficient DNA to be detected.
- Infection with HPV is not an indicator of cytologic HSIL or underlying high-grade CIN, nor does it imply that CIN2-3 cancer will develop.
- HPV testing should not be used for screening or management of atypical squamous cells of undetermined significance (ASCUS) in women under age 21.
- The COBAS HPV test is not recommended for evaluation of suspected sexual abuse cases.
- Performance of this test has not been adequately established for HPV vaccinated individuals.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87624

Last Reviewed:
2/1/24

HS-CRP, NON-ACUTE CARDIAC (SQ: HSCRP)

CRPH2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Pediatric Collection:

Minimum volume: 0.3 mL serum or plasma

Unacceptable Conditions:

Severely lipemic, contaminated, or hemolyzed samples.

Storage/Transport Temperature:

Separate serum/plasma from cells within two hours of collectin. 1 mL serum or plasma at 2-8 degrees C. (Min: 0.3 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	8 months

Performed:

Sunday-Saturday

Reference Interval:

0.00-3.00 mg/L

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86141

Last Reviewed:

1/24/24

HSV 2 ANTIBODY, IGG (SQ: HV2GPA)

HV2GP

TESTING INFORMATION

Ordering Recommendations:
Not a stand-alone test. Order in conjunction with Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by CIA (0050292).

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Contaminated, heat-inactivated, grossly hemolyzed, lipemic, or severely icteric specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Effective February 18, 2020	
0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
0.90-1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2 glycoprotein G. Repeat testing in 10-14 days may be helpful.
1.10 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.

Reported:
1-2 days

Methodology:
Semi-Quantitative Chemiluminescent Immunoassay

Notes:
For CSF specimens refer to Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by ELISA, CSF (ARUP test code 0050359).

Interpretive Data:
Individuals infected with HSV may not exhibit detectable IgG antibody to type-specific HSV antigens 1 and 2 in the early stages of infection. Detection of antibody presence in these cases may only be possible using a non-type specific screening test.

Performing Lab:
ARUP

ARUP Test Code:
0050294

ADMINISTRATIVE

CPT Codes:
86696

Last Reviewed:
12/2/2023

HSV CULTURE W/O TYPING (SQ: HSVA)

HSVA

TESTING INFORMATION

Ordering Recommendations:

Traditional gold-standard test for identifying acute herpes simplex virus (HSV) infection in active lesions (eg, vesicles, ulcers, inflamed mucous membranes). Molecular testing is generally preferred; Herpes Simplex Virus (HSV-1/HSV-2) Subtype by PCR (2010095). Orthopoxviruses, including monkeypox virus, cannot be identified clinically using this testing method. Refer to https://www.aruplab.com/monkeypox-testing for more information.

Collect:

Buccal mucosa, eye, genital, rectal, throat or vesicle swab, neonatal surface swab, bronchoalveolar lavage (BAL), tissue, or vesicle fluid.

Specimen Preparation:

Fluid: Transfer 3 mL specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787.
Swab or Tissue: Place in 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787.
Storage/Transport Temperature: Refrigerated.

Unacceptable Conditions:

Blood, CSF, plasma, or serum. Bacterial transport systems; molecular transport systems; calcium alginate, dry, or wood swabs.

Remarks:

Specimen source preferred.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

Ambient: 2 hours; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:

Sun-Sat

Reference Interval:

Culture negative for herpes simplex virus.

Reported:

1-5 days

Methodology:

Cell Culture/Microscopy

Performing Lab:

ARUP

ARUP Test Code:

0065005

ADMINISTRATIVE

CPT Codes:

87255

Last Reviewed:

12/2/2023

HSV I AND II IGG (SQ: HSV12G)

HS12G

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Ordering Recommendations:
Useful for determining whether a patient has been previously exposed to HSV Types 1 and 2, distinguishing between infection caused by HSV Types 1 and 2, especially in patients with subclinical or unrecognized HSV infection.

This test should not be used to diagnose active or recent infection.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
Transport 1.0 mL (minimum volume: 0.6mL) serum at refrigerated

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:

Reporting Name	Available Separately?	Always Performed?
HSV Type 1 Ab, IgG	No	Yes
HSV Type 2 Ab, IgG	No	Yes

ADMINISTRATIVE

Last Reviewed:
2/1/24

HSV TYPE 1 GLYCOPROTEIN G-SPECIFIC AB, IGG (SQ:HV1GPA)

HV1GP

TESTING INFORMATION

Ordering Recommendations:
Not a stand-alone test. Order in conjunction with Herpes Simplex Virus Type 2 Glycoprotein G-Specific Antibody, IgG by CIA (0050294). Because glycoprotein antibodies may require 3-6 months to form, follow-up testing is recommended to confirm a negative IgG glycoprotein result in the context of positive HSV Types 1 or 2 antibody results.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Contaminated, heat-inactivated, grossly hemolyzed, lipemic, or severely icteric specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Effective February 18, 2020	
0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 1 glycoprotein G.
0.90-1.09 IV	Equivocal - Questionable presence of IgG antibody to HSV type 1 glycoprotein G. Repeat testing in 10-14 days may be helpful.
1.10 IV or greater	Positive - IgG antibody to HSV type 1 glycoprotein G detected, which may indicate a current or past HSV infection.

Reported:
1-2 days

Methodology:
Semi-Quantitative Chemiluminescent Immunoassay

Notes:
For CSF Specimens, refer to Herpes Simplex Virus Type 1 Glycoprotein G-Specific Antibody, IgG by ELISA, CSF (ARUP test code 0050379).

Interpretive Data:
Individuals infected with HSV may not exhibit detectable IgG antibody to type-specific HSV antigens 1 and 2 in the early stages of infection. Detection of antibody presence in these cases may only be possible using a non-type specific screening test.

Performing Lab:
ARUP

ARUP Test Code:
0050292

ADMINISTRATIVE

CPT Codes:
86695

Last Reviewed:
12/2/2023

HSV TYPE 2 GLYCOPROTEIN G AB, IGG BY ELISA, CSF (SQ:HSVCMA)

HSVCM

TESTING INFORMATION

Ordering Recommendations:
Not a standalone test. Molecular testing is preferred; refer to Herpes Simplex Virus (HSV-1/HSV-2) Subtype by PCR (2010095).

Collect:
CSF.

Specimen Preparation:
Transfer 0.5 mL CSF to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Unacceptable Conditions:
Specimen types other than CSF. Contaminated, heat-inactivated, or hemolyzed specimens.

Remarks:
Indicate source on test request form.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Mon, Wed, Fri

Reference Interval:

0.89 IV or less	Negative - No significant level of detectable IgG antibody to HSV type 2 glycoprotein G.
0.90-1.10 IV	Equivocal - Questionable presence of IgG antibody to HSV type 2. Repeat testing in 10-14 days may be helpful.
1.11 IV or greater	Positive - IgG antibody to HSV type 2 glycoprotein G detected, which may indicate a current or past HSV infection.

Reported:
1-5 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
Individuals infected with HSV may not exhibit detectable IgG antibody to type-specific HSV antigens 1 and 2 in the early stages of infection. Detection of antibody presence in these cases may only be possible using a nontype-specific screening test.

The detection of antibodies to herpes simplex virus in CSF may indicate central nervous system infection. However, consideration must be given to possible contamination by blood or transfer of serum antibodies across the blood-brain barrier.

Fourfold or greater rise in CSF antibodies to herpes on specimens tested at least 4 weeks apart are found in 74-94 percent of patients with herpes encephalitis. Specificity of the test based on a single CSF testing is not established. Presently PCR is the primary means of establishing a diagnosis of herpes encephalitis.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0050359

ADMINISTRATIVE

CPT Codes:
86696

Last Reviewed:
12/2/2023

HTLV-I/-II AB SCREEN W/CONF, S (SQ:HTLVA)

HTLVS

TESTING INFORMATION

Collect:
Serum Separator Tube (SST). Also acceptable: Light Blue (Sodium Citrate), Green (Sodium or Lithium Heparin) or Lavender (EDTA).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens containing particulate material.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Indefinitely (avoid repeated freeze/thaw cycles)

Performed:
Sun-Mon, Wed-Sat

Reference Interval:

Components	Reference Interval
HTLV I/II Antibodies by ELISA	Negative

Reported:
1-3 days

Methodology:
Qualitative Enzyme-Linked Immunosorbent Assay/Qualitative Western Blot

Notes:
If HTLV I/II screen is repeatedly reactive, then HTLV I/II Confirmation by Western Blot will be added. Additional charges apply.

*Performed and Reported times indicated are for screening of the anti-HTLV. Refer to Human T-Lymphotropic Virus Types I/II Antibodies, Western Blot (0020642) for additional information regarding Performed and Reported times.

Interpretive Data:
This assay should not be used for blood donor screening, associated re-entry protocols, or for screening Human Cell, Tissues and Cellular and Tissue-Based Products (HCT/P).

Performing Lab:
ARUP

ARUP Test Code:
0051164

ADMINISTRATIVE

CPT Codes:
86790; if reflexed, add 86689

HVA URINE (SQ:UHVAA)

UHVAA

TESTING INFORMATION

Ordering Recommendations:
Initial test for the diagnosis and monitoring of neuroblastoma; order concurrently with Vanillylmandelic Acid (VMA), Urine (0080421).

Patient Preparation:
Abstain from medications for 72 hours prior to collection.

Collect:
24-hour or random urine. Refrigerate 24-hour specimens during collection.

Specimen Preparation:
Transfer 4 mL aliquot from a well-mixed 24-hour or random collection to an ARUP Standard Transport Tube. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Specimen types other than urine.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 weeks

Performed:
Sun, Tue, Wed, Thu, Fri, Sat

Reference Interval:
Effective May 19, 2014

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Homovanillic Acid - per 24h</td><td>18 years and older: 0.0-15.0 mg/d</td></tr>
<tr><td>Homovanillic Acid - ratio to CRT</td><td>
<table>
<tr><th>Age</th><th>mg/g CRT</th></tr>
<tr><td>0-2 years</td><td>0-42</td></tr>
<tr><td>3-5 years</td><td>0-22</td></tr>
<tr><td>6-17 years</td><td>0-15</td></tr>
<tr><td>18 years and older</td><td>0-8</td></tr>
</table>
</td></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
</table>

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Moderately elevated HVA (homovanillic acid) may be caused by a variety of factors such as essential hypertension, intense anxiety, intense physical exercise, and numerous drug interactions (including some over-the-counter medications and herbal products).

Medications that may interfere with catecholamines and their metabolites include amphetamines and amphetamine-like compounds, appetite suppressants, bromocriptine, buspirone, caffeine, chlorpromazine, clonidine, disulfiram, diuretics (in doses sufficient to deplete sodium), epinephrine, glucagon, guanethidine, histamine, hydrazine derivatives, imipramine, levodopa (L-dopa, Sinemet®), lithium, MAO inhibitors, melatonin, methyldopa (Aldomet®), morphine, nitroglycerin, nose drops, propafenone (Rythmol), radiographic agents, rauwolfia alkaloids (Reserpine), and vasodilators. The effects of some drugs on catecholamine metabolite results may not be predictable.

Interpretive Data:

Homovanillic acid (HVA) results are expressed as a ratio to creatinine excretion (mg/g CRT). No reference interval is available for results reported in units of mg/L. Slight or moderate increases in catecholamine metabolites may be due to extreme anxiety, essential hypertension, intense physical exercise, or drug interactions. Significant increase of one or more catecholamine metabolites (several times the upper reference limit) is associated with an increased probability of a secreting neuroendocrine tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

0080422

ADMINISTRATIVE

CPT Codes:

83150

Last Reviewed:

12/1/2023

HYPERSENSITIVITY PNEUMONITIS EXTENDED PANEL (SQ: FARMA)

FARMA

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate patients suspected of having hypersensitivity pneumonitis induced by exposure to Aspergillus flavus, Aspergillus fumigatus, Aurebasidium pullulans, Micropolyspora faeni, Saccharomonospora viridis, Thermoactinomyces candidus, or pigeon serum.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer two 2.5 mL aliquots of serum to individual ARUP standard transport tubes. (Min: 1.6 mL total, 0.8 mL in two aliquots)

Unacceptable Conditions:
Plasma. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reported:
3-7 days

Methodology:
Qualitative Immunodiffusion/Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay

Notes:
Testing includes antibodies directed at Aspergillus fumigatus #1, A. fumigatus #2, A. fumigatus #3, A. fumigatus #6, A. flavus, Aureobasidium pullulans, Micropolyspora faeni, T. candidus, Saccharomonospora viridis and pigeon serum. Testing also includes the following allergens: feather mix, beef, pork, and Phoma betae.

Interpretive Data:
Allergen results of 0.10-0.34 kU/L are intended for specialist use as the clinical relevance is undetermined. Even though increasing ranges are reflective of increasing concentrations of allergen-specific IgE, these concentrations may not correlate with the degree of clinical response or skin testing results when challenged with a specific allergen. The correlation of allergy laboratory results with clinical history and in vivo reactivity to specific allergens is essential. A negative test may not rule out clinical allergy or even anaphylaxis.

Performing Lab:
ARUP

ARUP Test Code:
3001561

ADMINISTRATIVE

CPT Codes:
86003 x3; 86005; 86331 x5; 86606 x5

Last Reviewed:
12/2/2023

IBD SGI DIAGNOSTICS (SQ: IBSPRO)

SGI

TESTING INFORMATION

Collect:

Specimen Type: Serum and Whole Blood

Collection Tube: Serum Separator Tube or Red Top Tube (2.0 mL) AND EDTA/Lavender-Top Tube (2.0 mL) Whole Blood

Storage/Transport Temperature:

Ambient or cold pack acceptable
Room temperature or refrigerated - DO NOT Freeze

Stability (from collection to initiation):

Room Temp: 7 days
Refrigerated: 21 days

Reported:

4 days once received at laboratory

Performing Lab:

Prometheus Laboratories

Testing Region:

Peoria West

IGA IMMUNOGLOBULIN (SQ: IGA)

IGA

TESTING INFORMATION

Collect:

referred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top (Lithium Heparin) Tube	6.0 mL	3.0 mL

Specimen Preparation:

Separate from cells within 2 hours of collection

Unacceptable Conditions:

- Gross hemolysis or lipemic,
- Samples at room temperature more than 8 hours.

Storage/Transport Temperature:

1 mL aliquot from a well mixed sample, serum or plasma refrigerated or frozen

Stability (from collection to initiation):

ONCE SEPARATED FROM CELLS		
Ambient	Refrigerated	Frozen
8 hours	7 days	1 months

Performed:

Sunday-Saturday

Reference Interval:

Age	Female (mg/dL)	Male (mg/dL)
0-1 year	0-30	0-30
1-3 years	17-94	17-96
4-6 years	33-185	36-198
7-9 years	44-244	48-266
10-13 years	52-290	57-318
14-17 years	62-343	64-352
18 years	69-380	68-379
>18 years	70-400	70-400

Methodology:

Nephelometry

Performing Lab:

Csrle West Methodist

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82784

Last Reviewed:

10/7/24:AG

IGFBP-3, S (SQ:IGFBPA)

IGFB3

TESTING INFORMATION

Ordering Recommendations:
Not a first-line test in the evaluation of growth disorders. Aids in workup of suspected anterior hypopituitarism.

Collect:
Serum separator tube. Also acceptable: Green (sodium heparin).

Specimen Preparation:
Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Tissue or urine. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval

IGF Binding Protein 3

Age	Male (ng/mL)	Female (ng/mL)
0-12 months	1039-3169	1039-3169
1-3 years	972-4123	1590-4225
4-5 years	1843-4968	2169-4790
6-7 years	1838-4968	2188-4996
8-9 years	1932-5858	2072-5504
10-11 years	1828-6592	2456-6992
12-13 years	2134-6598	2838-6846
14-15 years	2330-6550	2654-6680
16-17 years	2380-6400	2756-6908
18-19 years	2340-6632	2700-6492
20-24 years	2404-5948	3032-5992
25-29 years	2614-5792	2926-5858
30-34 years	2500-5806	2878-6650
35-39 years	2474-5208	2786-6084
40-44 years	2360-5560	2514-6014
45-49 years	2314-5700	2838-4954
50-54 years	2528-5050	2562-5596
55-59 years	2482-5460	2574-5914
60-64 years	2592-4770	2684-5130
65 years and older	2698-5680	2462-5274
Tanner Stage I	1878-6190	2314-6086
Tanner Stage II	2112-6208	2732-6738
Tanner Stage III	2372-6602	2870-7068
Tanner Stage IV & V	2336-6414	2756-7232

Reported:
1-2 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0070060

ADMINISTRATIVE

CPT Codes:
82397

IGG IMMUNOGLOBULIN (SQ: IGG)

IGG1

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top (Lithium Heparin) Tube	6.0 mL	3.0 mL

Specimen Preparation:

Separate from cells within 2 hours of collection

Unacceptable Conditions:

- Gross hemolysis or lipemic,
- samples at room temperature more than 8 hours.

Storage/Transport Temperature:

1 mL aliquot from a well mixed sample, serum or plasma refrigerated or frozen

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
8 hours	7 days	1 months

Performed:

Sunday-Saturday

Reference Interval:

Expected Values mg/dL Male and Female	
0-15 days	320 - 1370
15 days - 1 year	120 - 690
1 - 4 years	320 - 1120
4 - 10 years	540 - 1330
10 - 19 years	650 - 1500
> 19 years	700 - 1600

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

82784

Last Reviewed:

2/3/24

IGG SUBCLASSES, S (SQ:IGGSA)

IGGS

TESTING INFORMATION

Ordering Recommendations:

Aid as second order test for evaluation of patients suspected of humoral immunodeficiency or combined immunodeficiency (humoral or cellular).

Collect:

Serum separator tube.

Specimen Preparation:

Separate serum from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:

Grossly hemolyzed or lipemic specimens

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: Unacceptable; Refrigerated: 14 days; Frozen: 6 months

Performed:

Sun-Sat

Reference Interval:

Components	Reference Interval
Immunoglobulin G Subclass 1	**Age** / **Reference Interval (mg/dL)** 0-2 years: 167-900 3-4 years: 313-941 5-9 years: 363-1276 10-14 years: 316-1076 15-18 years: 325-894 19 years and older: 240-1118
Immunoglobulin G Subclass 2	**Age** / **Reference Interval (mg/dL)** 0-2 years: 55-359 3-4 years: 72-287 5-9 years: 27-398 10-14 years: 86-509 15-18 years: 156-625 19 years and older: 124-549
Immunoglobulin G Subclass 3	**Age** / **Reference Interval (mg/dL)** 0-2 years: 34-85 3-4 years: 25-117 5-9 years: 17-169 10-14 years: 14-201 15-18 years: 34-246 19 years and older: 21-134
Immunoglobulin G Subclass 4	**Age** / **Reference Interval (mg/dL)** 0-2 years: 1-34 3-4 years: 1-65 5-9 years: 0-168 10-14 years: 1-103 15-18 years: 2-170 19 years and older: 1-123

Reported:
1-3 days

Methodology:
Quantitative Immunoturbidimetry

Interpretive Data:
The total IgG (mg/dL) can be derived from the sum of the subclass IgG1, IgG2, IgG3, and IgG4 values. However, a confirmatory and more precise total IgG is available by the immunoturbidimetric method of quantitation for total IgG. Refer to test Immunoglobulin G, Serum (0050350).

Performing Lab:
ARUP

ARUP Test Code:
0050577

ADMINISTRATIVE

CPT Codes:
82787 x4

IGHV MUTATION ANALYSIS (SQ:IGHVA)

IGHVA

TESTING INFORMATION

Ordering Recommendations:
Determine risk group in newly diagnosed CLL.

Collect:
Lavender (EDTA) or bone marrow (EDTA).

Specimen Preparation:
Whole Blood: Transport 5 mL whole blood. (Min: 1 mL)
Bone Marrow: Transport 3 mL bone marrow. (Min: 1 mL)
Specimens must be received within 48 hours of collection due to lability of RNA.

Unacceptable Conditions:
Serum, plasma, CSF, bone core, or FFPE tissue. Specimens collected in anticoagulants other than EDTA. Severely hemolyzed or clotted specimens.

Storage/Transport Temperature:
Whole Blood or Bone Marrow: CRITICAL REFRIGERATED. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 1 hour; Refrigerated: 48 hours; Frozen: Unacceptable

Performed:
Varies

Reported:
8-12 days

Methodology:
Sequencing

Notes:
This assay is designed for individuals with a confirmed diagnosis of CLL, and for these individuals testing will include sequencing. All other diagnoses will terminate after amplification and will not have the sequencing component.

Interpretive Data:
Refer to report.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0040227

ADMINISTRATIVE

CPT Codes:
81263

Last Reviewed:
12/2/2023

IMIPR/DESIP (SQ:IMDESA)

IMDES

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady-state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Fri

Reference Interval:
Effective February 19, 2013

Therapeutic Range	Total (imipramine and desipramine): 150-300 ng/mL
Toxic Level	Greater than 500 ng/mL

Reported:
2-8 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Report includes individual values for imipramine, desipramine, and total.

Interpretive Data:
Toxic concentrations may cause anticholinergic effects, drowsiness, and cardiac abnormalities.

Performing Lab:
ARUP

ARUP Test Code:
0090157

ADMINISTRATIVE

CPT Codes:
80335 (Alt code: G0480)

Last Reviewed:
12/2/2023

IMMATURE PLT FRACTION (SQ: IPFL)

IPFL

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
This test is not orderable and not reportable

Storage/Transport Temperature:
Transport to lab at Ambient (room temperature) temperature.

Testing Region:
Carle West region

IMMUNOFIXATION ELECTROPHORESIS (SQ: IFE)

IFERX

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Ordering Recommendations:
Lab orderable only. Cannot be ordered outside of lab. IFE will be performed in instances where pathologist requests test for confirmation of SPE results, in instances where IT does not provide that confirmation.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Plasma samples, improper storage, stability exceeded.

Storage/Transport Temperature:
Transport 1.0 mL serum, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	Unacceptable

Performed:
Two days per week

Reference Interval:
No paraprotein detected by Immunofixation.

Reported:
1-4 days

Methodology:
Electrophoresis

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
1/22/24: BV

IMMUNOFIXATION ELECTROPHORESIS,IGD AND IGE,SERUM (SQ: IGDEA)

IGDEA

TESTING INFORMATION

Ordering Recommendations:
Use in the initial evaluation of individuals with serum monoclonal protein present and negative IgG, IgA, and IgM immunofixation studies.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Negative for monoclonal IgD and IgE.

Reported:
1-5 days

Methodology:
Qualitative Immunofixation Electrophoresis

Notes:
Assay is designed for qualitative assessment of monoclonal IgD and IgE protein.

Performing Lab:
ARUP

ARUP Test Code:
0050049

ADMINISTRATIVE

CPT Codes:
86334

Last Reviewed:
12/2/2023

IMMUNOGLOBULIN D (SQ:IGDA)

IGDA

TESTING INFORMATION

Ordering Recommendations:
Aids in diagnosis or monitoring of IgD monoclonal gammopathies and IgD-related immune deficiencies.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 14 days; Frozen: 6 months

Performed:
Mon, Wed, Fri

Reference Interval:
Less than or equal to 15.3 mg/dL

Reported:
1-4 days

Methodology:
Quantitative Immunoturbidimetry

Interpretive Data:
IgD is one of the five classes of immunoglobulin. IgD is mainly found on the surface of B-cells and may help regulate B-cell function. IgD likely serves as an early B-cell antigen receptor, however, the function of the circulating IgD is largely unknown.

Performing Lab:
ARUP

ARUP Test Code:
3003486

ADMINISTRATIVE

CPT Codes:
82784

IMMUNOGLOBULIN E (IGE), S (SQ: TIGE)

IGEP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:

- Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	1 week	Freeze for long term

Performed:
Variable

Reference Interval:

Age	Total IgE (IU/mL)
0-1 year	0-7
1-3 years	0-11
3-4 years	0-22
4-6 years	0-45
6-7 years	0-63
7-15 years	0-108
>15 years	0-162

Methodology:
Fluoroenzymeimmunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
81461

Last Reviewed:
2/1/24

Immunoglobulin M (SQ: IGM)

IGM

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top (Lithium Heparin) Tube	6.0 mL	3.0 mL

Specimen Preparation:

Seperate serum from cells ASAP.

Unacceptable Conditions:

- Severely lipemic
- Contaminated specimens
- Hemolyzed samples
- Samples at room temperature more than 8 hours

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum/plasma (Min: 0.3 mL) at room temperature or refrigerated.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	7 days	3 monthss

Performed:

Sunday - Saturday

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

82784

Last Reviewed:

5/14/24

IMMUNOTYPING, SERUM (SQ: IMTYP)

IMTYP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

- Hemolysis
- Improperly stored samples or plasma sample

Storage/Transport Temperature:

Centrifuged gold, or 1 mL of serum at 2-8° C

Seperate serum from cells ASAP.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	10 days	2 months

Performed:

Two days per week

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

86334

INFLAMMATORY BOWEL DISEASE DIFFERENTIATION PANEL (SQ:IBDPAN)

INBD

TESTING INFORMATION

Ordering Recommendations:
Recommended panel for the evaluation of patients at risk for inflammatory bowel disease. May also be useful in differentiating patients with ulcerative colitis (UC) from those with Crohn disease (CD).

Patient Preparation:
N/A

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to an ARUP standard transport tube. (Min: 0.6 mL)

Unacceptable Conditions:
Contaminated, heat-inactivated, hemolyzed, or severely lipemic specimens.

Remarks:
N/A

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 30 days (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval	
S. cerevisiae Antibody, IgG	20.0 Units or less	Negative
	20.1-24.9 Units	Equivocal
	25.0 Units or greater	Positive
S. cerevisiae Antibody, IgA	20.0 Units or less	Negative
	20.1-24.9 Units	Equivocal
	25.0 Units or greater	Positive
ANCA IFA Titer	Less than 1:20	
ANCA IFA Pattern	None Detected	

Reported:
1-4 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Semi-Quantitative Enzyme Immunoassay (EIA)

Notes:
This test may be a useful tool for distinguishing ulcerative colitis (UC) from Crohn disease (CD) in patients with suspected inflammatory bowel disease. ANCA IFA is simultaneously tested on ethanol- and formalin-fixed slides to allow differentiation of C- and P-ANCA patterns.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
3003748

ADMINISTRATIVE

CPT Codes:
86036; 86671 x2

Last Reviewed:
12/2/2023

INFLUENZA A/B & RSV (SQ: RSVFLU)

FLRSV

TESTING INFORMATION

Ordering Recommendations:

This test is only for nasopharyngeal and nasal swab specimens.

Collect:

Specimen Type	Collection Container	Volume
	Transport Media (UTM, VTM, M4, M4RT, M5 or M6)	

Unacceptable Conditions:

- Eswabs
- DO NOT USE cotton or alginate swabs or swabs with wooden shafts

Remarks:

This test is only for nasopharyngeal and nasal swab specimens.

Storage/Transport Temperature:

Specimens collected in a transport media may be stored up to 4 hours at room temperature or up to 72 hours at 2-8 C if immediate testing is not possible.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
4 hours from collection	72 hours posted collection, if unable to be tested within 4 ours of collection	

Performed:

Daily

Reference Interval:

Positive	Detected
Negative	Not Detected
	Invalid

Reported:

Daily

Methodology:

Cobas Liat Influenza A/B & RSV is an automated in vitro diagnostic test for the qualitative detection of Influenza A, Influenza B and TSV RNA in nasopharyngeal (NP) swab specimens

Performing Lab:

Methodist Hospital (Liat/6800)
Pekin Hospital (Liat)
Proctor Hospital (Liat)

ADMINISTRATIVE

CPT Codes:

87636

Last Reviewed:

3/22/24

INHIBIN A, TUMOR MARKER, S (SQ: INHBA)

INHA

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis and monitoring of various hormonal reproductive disorders.

Patient Preparation:
Fasting specimens are recommended, but not required.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma. Hemolyzed or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Effective November 18, 2013

Age/ Phase	Inhibin A (Dimer) pg/mL
Normal Cycling Females: Early Follicular Phase (-14 to -10) Mid Follicular Phase (-9 to -4) Late Follicular Phase (-3 to -1) Mid Cycle (Day 0) Early Luteal (1 to 3) Mid Luteal (4 to 11) Late Luteal (12 to 14)	Normal Cycling Females: 1.8-17.3 pg/mL 3.5-31.7 pg/mL 9.8-90.3 pg/mL 16.9-91.8 pg/mL 16.1-97.5 pg/mL 3.9-87.7 pg/mL 2.7-47.1 pg/mL
IVF-Peak Levels PCOS-Ovulatory Postmenopausal	354.2-1690.0 pg/mL 5.7-16.0 pg/mL less than 6.9 pg/mL
Normal males	less than 2.1 pg/mL

Reported:
1-2 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Interpretive Data:
This assay is performed using the Beckman Coulter Unicel Dxl assay. Values may be elevated during normal pregnancy. Preeclampsia, Down Syndrome, and some cancers may increase Inhibin-A values.

Performing Lab:
ARUP

ARUP Test Code:
0070137

ADMINISTRATIVE

CPT Codes:
86336

Last Reviewed:
12/2/2023

INHIBIN B, S (SQ:INBA)

INHBS

TESTING INFORMATION

Ordering Recommendations:
Use to differentiate ovarian tumor with normal CA 125 as stromal or mucinous epithelial tumor. May be used for monitoring recurrence of stromal ovarian tumors.

Patient Preparation:
For premenopausal females, collection is preferred during the follicular phase of the menstrual cycle.

Collect:
Serum separator tube or plain red.

Specimen Preparation:
Transport 0.5 mL serum. (Min: 0.2 mL)

Unacceptable Conditions:
Room temperature specimens. Grossly hemolyzed specimens. Plasma

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 72 hours; Frozen: 1 month

Performed:
Wed, Fri

Reference Interval:

Male	Female
<15 days: 68-373 pg/mL 15 days-6 months: 42-516 pg/mL 7 months-7 years: 24-300 pg/mL 8-30 years: 47-383 pg/mL 31-72 years: 10-357 pg/mL	1 day-12 years: <=182 pg/mL 13-41 years (regular cycle, follicular phase): 8-223 pg/mL 42-51 years (regular cycle, follicular phase): <=107 pg/mL 51-76 years (postmenopausal): <=11 pg/mL

Reported:
1-8 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)

Interpretive Data:
This test is performed using the ANSH ultra-sensitive Inhibin B ELISA kit. Values obtained with different methodologies or kits cannot be used interchangeably.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0070413

ADMINISTRATIVE

CPT Codes:
83520

Last Reviewed:
12/1/23

INR/PROTIME, POCT (SQ: PTIPOC)

ACTLR

TESTING INFORMATION

Collect:
Whole blood in a syringe Anticoagulant

Unacceptable Conditions:
Do not draw from an arm with a heparin lock or heparinized catheter.

Methodology:
Photo-optical Measurement

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

INR/PROTIME, POCT (SQ: PTIPOC)

PTIPC

TESTING INFORMATION

Methodology:
Chemiluminescence

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

INSULIN (SQ: INSR)

INSL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

- Plasma samples.
- Samples at room temperature more than 8 hours.

Storage/Transport Temperature:

1 ml serum, or centrifuged gold top refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Reference Interval:

Fasting: 2.6-37.6 uIU/mL
Non-Fasting: No reference range established.

Methodology:

Chemiluminescent Immunoassay

Notes:

Heterophile antibodies or insulin auto-antibodies may interfere and cause discordant results.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/24/24

INSULIN ABS, S (SQ:INSUAB)

INAB

TESTING INFORMATION

Ordering Recommendations:
Determine presence of antibodies to endogenous or exogenous insulin analogues. Testing not recommended for patients receiving insulin >2 weeks, as insulin antibody formation may occur.If pursuing antibody testing to determine autoimmune diabetes mellitus (DM), perform at least two antibody tests. In most cases, use glutamic acid decarboxylase antibody in combination with another antibody test. Other antibody tests include Islet Antigen-2 (IA-2) Autoantibody (3001499), Glutamic Acid Decarboxylase Antibody (2001771), Islet Cell Cytoplasmic Antibody, IgG (0050138), and Zinc Transporter 8 Antibody (2006196). Do not use to differentiate type 1 DM from type 2 DM, for most cases.

Collect:
Serum separator tube or plain red.

Specimen Preparation:
Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL)

Unacceptable Conditions:
Plasma. Hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 2 months

Performed:
Tue, Wed, Fri

Reference Interval:
Effective May 21, 2012

0.0-0.4 Kronus Units/mL

Reported:
2-5 days

Methodology:
Semi-Quantitative Radioimmunoassay

Interpretive Data:
A value greater than 0.4 Kronus Units/mL is considered positive for Insulin Antibody. Kronus units are arbitrary. Kronus Units = U/mL.

This assay is intended for the semi-quantitative determination of antibodies to endogenous insulin or antibodies to exogenous insulin in human serum. Antibodies to exogenous insulin therapies may be detected using this method. The magnitude of the measured result is not related to disease progression. Results should be interpreted within the context of clinical symptoms.

Performing Lab:
ARUP

ARUP Test Code:
0099228

ADMINISTRATIVE

CPT Codes:
86337

Last Reviewed:
12/2/2023

INSULIN, FASTING (SQ: INSUM)

INSFA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:

Separate serum from cells within two hours of collection.

Unacceptable Conditions:

Plasma samples.
Samples at room temperature more than 8 hours.

Storage/Transport Temperature:

Send 1mL serum or centrifuged gold top, refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Reference Interval:

Fasting Insulin: 2.6-37.6 uIU/mL

Methodology:

Chemiluminescent Immunoassay

Notes:

Heterophile antibodies or Insulin auto-antibodies may interfere and cause discordant results.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/24/24

INSULIN,FREE AND TOTAL (SQ:INSFTA)

INSFT

TESTING INFORMATION

Ordering Recommendations:
Not recommended to diagnose diabetes mellitus.

Collect:
Serum separator tube.

Specimen Preparation:
Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 1.1 mL)

Unacceptable Conditions:
Heparinized specimens. Sodium fluoride/potassium oxalate plasma. Hemolyzed specimens.

Storage/Transport Temperature:
Frozen. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Mon, Wed-Sat

Reference Interval:
Effective August 16, 2021

Components	Reference Interval
Insulin Free	3-25 µIU/mL
Total Insulin	3-25 µIU/mL

Reported:
2-3 days

Methodology:
Quantitative Ultrafiltration/Quantitative Chemiluminescent Immunoassay

Interpretive Data:
This test reacts on a nearly equimolar basis with the analogs insulin aspart, insulin glargine, and insulin lispro. Insulin detemir exhibits approximately 50 percent cross-reactivity. Test reactivity with insulin glulisine is negligible (< 3 percent). To convert to pmol/L, multiply µIU/mL by 6.0.

Reference intervals established for fasting specimens.

Performing Lab:
ARUP

ARUP Test Code:
0070155

ADMINISTRATIVE

CPT Codes:
83525; 83527

Last Reviewed:
12/2/2023

INSULIN-LIKE GROWTH FACTOR 1, S (SQ:IGFZSC)

IGFMS

TESTING INFORMATION

Ordering Recommendations:
Aids in diagnosis of growth hormone excess or deficiency disorders.

Collect:
Serum Separator Tube (SST)

Specimen Preparation:
Transport 1mL, serum in an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma, tissue, or urine. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

AGE	Male	Female	AGE	Male	Female
0 year	11-100 ng/mL	8-131 ng/mL	35 years	83-241 ng/mL	81-278 ng/mL
1 year	12-120 ng/mL	9-146 ng/mL	36 years	83-240 ng/mL	80-277 ng/mL
2 years	13-143 ng/mL	11-165 ng/mL	37 years	83-239 ng/mL	80-277 ng/mL
3 years	14-169 ng/mL	13-187 ng/mL	38 years	83-238 ng/mL	79-276 ng/mL
4 years	15-200 ng/mL	15-216 ng/mL	39 years	83-238 ng/mL	78-274 ng/mL
5 years	16-233 ng/mL	19-251 ng/mL	40 years	82-237 ng/mL	76-271 ng/mL
6 years	17-269 ng/mL	24-293 ng/mL	41 years	81-236 ng/mL	75-267 ng/mL
7 years	18-307 ng/mL	30-342 ng/mL	42 years	80-235 ng/mL	73-263 ng/mL
8 years	20-347 ng/mL	39-396 ng/mL	43 years	78-233 ng/mL	71-258 ng/mL
9 years	23-386 ng/mL	49-451 ng/mL	44 years	76-230 ng/mL	69-253 ng/mL
10 years	29-424 ng/mL	62-504 ng/mL	45 years	74-227 ng/mL	66-249 ng/mL
11 years	37-459 ng/mL	76-549 ng/mL	46 years	72-225 ng/mL	64-246 ng/mL
12 years	49-487 ng/mL	90-581 ng/mL	47 years	71-224 ng/mL	62-243 ng/mL
13 years	64-508 ng/mL	104-596 ng/mL	48 years	69-224 ng/mL	60-240 ng/mL
14 years	83-519 ng/mL	115-591 ng/mL	49 years	68-225 ng/mL	59-238 ng/mL
15 years	102-520 ng/mL	121-564 ng/mL	50 years	67-225 ng/mL	57-236 ng/mL
16 years	119-511 ng/mL	122-524 ng/mL	51 years	66-225 ng/mL	55-235 ng/mL
17 years	131-490 ng/mL	120-479 ng/mL	52 years	65-222 ng/mL	53-234 ng/mL
18 years	137-461 ng/mL	117-436 ng/mL	53 years	64-218 ng/mL	52-233 ng/mL
19 years	137-428 ng/mL	113-399 ng/mL	54 years	62-214 ng/mL	51-233 ng/mL
20 years	133-395 ng/mL	109-372 ng/mL	55 years	61-210 ng/mL	49-234 ng/mL
21 years	127-364 ng/mL	107-351 ng/mL	56 years	59-206 ng/mL	48-235 ng/mL
22 years	120-338 ng/mL	105-337 ng/mL	57 years	58-204 ng/mL	47-236 ng/mL
23 years	112-316 ng/mL	103-326 ng/mL	58 years	56-203 ng/mL	46-238 ng/mL
24 years	105-298 ng/mL	102-317 ng/mL	59 years	55-203 ng/mL	44-240 ng/mL
25 years	99-283 ng/mL	100-311 ng/mL	60 years	53-206 ng/mL	43-241 ng/mL
26 years	94-271 ng/mL	98-305 ng/mL	61 years	51-209 ng/mL	41-243 ng/mL
27 years	90-262 ng/mL	96-301 ng/mL	62 years	49-214 ng/mL	40-244 ng/mL
28 years	87-255 ng/mL	93-297 ng/mL	63 years	46-219 ng/mL	38-244 ng/mL
29 years	84-250 ng/mL	91-293 ng/mL	64 years	43-225 ng/mL	36-244 ng/mL
30 years	83-246 ng/mL	89-290 ng/mL	65 years	40-231 ng/mL	34-241 ng/mL
31 years	82-244 ng/mL	87-286 ng/mL	66 years	37-236 ng/mL	32-238 ng/mL
32 years	82-243 ng/mL	85-283 ng/mL	67 years	34-240 ng/mL	30-235 ng/mL
33 years	82-242 ng/mL	82-280 ng/mL	68 years	31-243 ng/mL	28-231 ng/mL
34 years	82-242 ng/mL	82-279 ng/mL	69 years	29-245 ng/mL	27-228 ng/mL

AGE	Male	Female	AGE	Male	Female
70 years	27-246 ng/mL	26-226 ng/mL	78 years	20-196 ng/mL	19-210 ng/mL
71 years	26-245 ng/mL	24-224 ng/mL	79 years	19-189 ng/mL	18-206 ng/mL
72 years	25-242 ng/mL	24-222 ng/mL	80 years	18-184 ng/mL	18-200 ng/mL
73 years	24-236 ng/mL	23-221 ng/mL	81 years	17-180 ng/mL	18-193 ng/mL
74 years	23-229 ng/mL	22-220 ng/mL	82 years	16-177 ng/mL	17-186 ng/mL
75 years	22-221 ng/mL	21-218 ng/mL	83 years	16-176 ng/mL	17-179 ng/mL
76 years	22-212 ng/mL	20-216 ng/mL	84 years	16-176 ng/mL	17-173 ng/mL
77 years	21-204 ng/mL	20-214 ng/mL	85 years	15-177 ng/mL	17-167 ng/mL

Reported:
1-2 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Notes:

Both patient age and sex are required for Z-score calculation. Reference intervals have not been established in individuals older than 85 years.

Interpretive Data:

A Z score is the number of standard deviations a given result is above (positive score) or below (negative score) the age- and sex-adjusted population mean. Results that are within the IGF-1 reference interval will have a Z score between -2.0 and +2.0.

Performing Lab:

ARUP

ARUP Test Code:

2007698

ADMINISTRATIVE

CPT Codes:

84305

Last Reviewed:

12/2/2023

INTERLEUKIN 6, B (SQ:IL6AA)

IL6

TESTING INFORMATION

Ordering Recommendations:
Primarily used for research and to support attempts to understand the pathogenesis of immune, infectious, allergic, or inflammatory disorders.

Collect:
Serum separator tube, or plain red.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.4 mL)

Unacceptable Conditions:
Refrigerated specimens. Contaminated or heat-inactivated specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered. Ship in an ARUP Standard Transport Tube.

Stability (from collection to initiation):
After separation from cells: Ambient: 30 minutes; Refrigerated: Unacceptable; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:
Effective May 18, 2020
2.0 pg/mL or less

Reported:
1-4 days

Methodology:
Quantitative Multiplex Bead Assay

Notes:
Cytokine levels may demonstrate diurnal variation. For longitudinal comparison, it is recommended that cytokine levels be determined at the same time of day.

Interpretive Data:
Results are used to understand the pathophysiology of immune, infectious, or inflammatory disorders, or may be used for research purposes.

Performing Lab:
ARUP

ARUP Test Code:
0051537

ADMINISTRATIVE

CPT Codes:
83529

Last Reviewed:
12/1/2023

INTRINSIC FACTOR BLOCKING AB, S (SQ:INTRAA)

IFBA

TESTING INFORMATION

Collect:
Serum separator tube or plain red.

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Grossly hemolyzed or severely lipemic specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 48 hours; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
1-3 days

Methodology:
Qualitative Enzyme-Linked Immunosorbent Assay

Performing Lab:
ARUP

ARUP Test Code:
0070210

ADMINISTRATIVE

CPT Codes:
86340

Last Reviewed:
12/2/2023

IRON (SQ: FE)

IRON2

TESTING INFORMATION

Collect:
One 6 ml Gold top, plain Red, or Green (Lithium Heparin)top.

Unacceptable Conditions:
Gross hemolysis

Performed:
Sunday-Saturday

Methodology:
Biochromatic endpoint

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

IRON AND TIBC (SQ: FETIBC)

FEBC2

TESTING INFORMATION

Collect:
Serum or Plasma collected in Gold (SST), Plain Red or GreenVacutainer. Preferred Volume: 6.0 mL. Minimum Volume Required 2.0mL

Pediatric Collection:
0.5 mL serum

Unacceptable Conditions:
Gross hemolysis

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
Not Applicable		7 days		6 months

Performed:
Sunday-Saturday

Methodology:
Biochromatic endpoint Spectrophotometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ITRACONAZOLE, B (SQ:ITRACA)

ITCON

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain Red, Lavender (EDTA), or Green (Sodium or Lithium Heparin).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.6 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, Light Blue (citrate), or Yellow (SPS or ACD solution).

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 48 hours; Frozen: 6 months

Performed:
Tue, Thu, Sat

Reference Interval:
Effective August 15, 2011

Therapeutic Ranges	
Itraconazole (trough) - Localized Infection	Greater than 0.5 µg/mL
Itraconazole (trough) - Systemic Infection	Greater than 1.0 µg/mL
Hydroxyitraconazole	No therapeutic range established

Reported:
1-6 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Itraconazole is an azole antifungal drug indicated to treat fungal infections. The therapeutic range is based on serum, predose (trough) draw collection at steady-state concentration. The pharmacokinetics of itraconazole are influenced by drug-drug interactions when coadministered with drugs metabolized by cytochrome P450 3A4 enzyme. Itraconazole and hydroxyitraconazole concentrations combined should not exceed 10 µg/mL. Adverse effects may include nausea, abdominal pain, and congestive heart failure.

Performing Lab:
ARUP

ARUP Test Code:
0098519

ADMINISTRATIVE

CPT Codes:
80189

Last Reviewed:
12/2/2023

IV CATHETER CULTURE (SQ: VCTIP)

VCTIP

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
section of vascular catheter tip (indicate type)	sterile container	

Unacceptable Conditions:
Non-sterile container, catheter tip submitted in fluid (water, saline). Foley catheter tips are not acceptable for culture.

Storage/Transport Temperature:
Sterile Container. Deliver to laboratory promptly.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 hours	24 hours	unacceptable

Performed:
Sunday-Saturday

Reference Interval:
Culture is considered positive if greater than 15 colonies are isolated.

Methodology:
Standard reference procedure for aerobic bacterial culture and identification

Notes:
Identification tests and susceptibilities are billed separately from culture.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87070

Last Reviewed:
1/19/24

JAK 2 GENE,V617F MUTATION,QUAL (SQ: JAK2MA)

JK2MA

TESTING INFORMATION

Ordering Recommendations:
Aids in the workup of suspected myeloproliferative neoplasms. Use to detect the JAK2 V617F mutation in peripheral blood or bone marrow.

Collect:
Whole blood or bone marrow in lavender (EDTA). Also acceptable: Whole blood in green (sodium heparin).

Specimen Preparation:
Whole Blood: Do not freeze. Transport 5 mL whole blood. (Min: 1 mL)
Bone Marrow: Do not freeze. Transport 3 mL bone marrow. (Min: 1 mL)

Unacceptable Conditions:
Plasma, serum, FFPE tissue blocks/slides, or fresh or frozen tissue. Specimens collected in anticoagulants other than EDTA. Clotted or grossly hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Refrigerated: 7 days; Frozen: Unacceptable

Performed:
Varies

Reported:
2-9 days

Methodology:
Droplet Digital PCR (ddPCR)

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
3004046

ADMINISTRATIVE

CPT Codes:
81270

JC VIRUS PCR (SQ:JCVPCR)

JCVPC

TESTING INFORMATION

Ordering Recommendations:
Detect JC virus in CSF, serum, or urine specimens.

Collect:
Lavender (EDTA), pink (K_2EDTA) or serum separator tube. OR CSF or urine.

Specimen Preparation:
Separate serum or plasma from cells. Transfer 1 mL serum, plasma, CSF or urine to a sterile container. (Min: 0.5 mL)

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 5 days; Frozen: 30 days

Performed:
Mon, Wed, Fri

Reported:
1-4 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0099169

ADMINISTRATIVE

CPT Codes:
87798

JO ANTIBODY (SQ: JO1A)

JOP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

KAPPA / LAMBDA LIGHT CHAINS, URINE, 24 HOUR (SQ: UFLC24)

UFL24

COLLECTION DEVICE

Preferred Collection Device:
24-Hr Urine

TESTING INFORMATION

Collect:
24-hour urine. Specimen must be refrigerated at 2-8°C during collection.

Unacceptable Conditions:
Random urine collections

Remarks:
Specify total volume and hours of collection.

Storage/Transport Temperature:
Urine at refrigerated, 2-8°C

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
Unacceptable		7 days		1 month

Performed:
Two days per week

Reference Interval:
Qualitative: No urine light chains detected.
Quantitative: < 0 mg/dL

Reported:
1-4 days

Methodology:
Electrophoresis/ Spectrophotometry

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
1/22/24:BV

KAPPA/LAMBDA FREE LIGHT CHAINS, SERUM (SQ: FLCS)

KLFLC

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	1.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	1.0 mL

Specimen Preparation:

Separate serum from Cells ASAP or within 2 hours of collection

Unacceptable Conditions:

- Lipemic specimens
- Hemolyzed specimens

Storage/Transport Temperature:

1 mL serum refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
	21 days	

Performed:

Two days per week.

Reference Interval:

Components	Reference Interval
Lambda Free Light Chains	0.57 - 2.63 mg/dL
Kappa Free Light Chains	0.33 - 1.94 mg/dL
Kappa/Lambda FLC ratio	0.26 - 1.65 mg/dL

Reported:

1 - 4 days

Methodology:

Turbidimetric

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

Components:

- Lambda Free Light Chains
- Kappa Free Light Chains
- Kappa/Lambda FLC ratio

ADMINISTRATIVE

CPT Codes:

83521 x 2

Last Reviewed:

8/21/24

KETONES, URINE (SQ: UKET)

OUKET

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

KIDNEY STONE ANALYSIS (SQ: STONEA)

KDST & SUR

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
Both KDST and SUR must be ordered for resuts to cross back to Epic.

Ordering Recommendations:
Determine composition of calculi.

Collect:
Calculus specimen.

Specimen Preparation:
Air dry calculi and transfer to an ARUP standard transport tube. Larger calculi specimens may be transferred to a clean, empty urine cup (150 mL) or similar container.

Unacceptable Conditions:
Any collection or shipping container with a needle attached.

Remarks:
Calculi specimens transported in liquid, received in gel, or contaminated with blood require special handling which will delay analysis. Specimens that are wrapped in tape or embedded in wax will delay or prevent analysis and should not be submitted.

Storage/Transport Temperature:
Room temperature. Also acceptable: Frozen or refrigerated.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefitnitely; Frozen: Indefinitely

Performed:
Sun-Sat

Reference Interval:
By report

Reported:
1-4 days

Methodology:
Quantitative Reflectance Fourier Transform Infrared Spectroscopy/Quantitative Polarizing Microscopy

Notes:
Calculi samples that are transported in liquid or gel and received wet or bloody will be dried for 48-72 hours prior to analysis.

Interpretive Data:
Calculi are the products of physiological processes that yield crystalline compounds in a matrix of biological compounds and blood. Matrix components are not reported. The clinically significant crystalline components identified in calculi specimens are reported. Gross description may not be consistent with the composition determined by FTIR analysis.

Performing Lab:
ARUP

ARUP Test Code:
0099460

ADMINISTRATIVE

CPT Codes:
82365

Last Reviewed:
12/2/2023

KOH PREP (SQ: VCKOHP)

VCKOH

TESTING INFORMATION

Collect:
Skin scrapings, hair, nail clippings.

Unacceptable Conditions:
Unsterile container, swab

Storage/Transport Temperature:
Sterile container. Do not put nail clippings or hair in a moist environment. Send immediately at ambient, room temperature. If scabies is suspected, indicate on requisition or note in computer.

Performed:
Daily

Methodology:
KOH Prep, microscopic examination

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

LACOSAMIDE, S (SQ:LACOSA)

LACOS

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
2003182

ADMINISTRATIVE

Last Reviewed:
12/1/2023

LACOSAMIDE, SERUM (SQ:LACOSA)

LACOS

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady-state concentration.

Collect:
Plain red.

Specimen Preparation:
Separate serum from cells within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated: Also acceptable: Room temperature or frozen.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month
3 freeze/thaw cycles

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval	
	Therapeutic Range	**Toxic Range**
Lacosamide, Serum	1.0-10.0 ug/mL	>=20.0 ug/mL

Reported:
1-2 days

Methodology:
Quantitative Enzyme Immunoassay (EIA)

Interpretive Data:
Lacosamide is an anticonvulsant drug indicated for adjunctive therapy for partial-onset seizures. The therapeutic range is based on serum, predose (trough) draw collection at steady-state concentration. Adverse effects may include dizziness, fatigue, nausea, vomiting, blurred vision, and tremor.

Performing Lab:
ARUP Laboratories

ARUP Test Code:
3017887

ADMINISTRATIVE

CPT Codes:
80235

LACTATE DEHYDROGENASE, SERUM (SQ: LDH)

LD

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:	1 Lithium Tube (Green)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

- Refrigerated, frozen or hemolyzed specimens or
- those using EDTA,potassium oxalate or sodium fluoride as anticoagulants.

Storage/Transport Temperature:

- Centrifuged serum or plasma (Min 0.3 mL) at room temperature
- Do Not Freeze.
- Seperate serum or plasma from cells within 2 hours of collection

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
3 days	Unacceptable	Unacceptable

Performed:
Sunday - Saturday

Methodology:
Enzymatic

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
83615

Last Reviewed:
7/3/24

LACTIC ACID (LACTATE), POCT (SQ: POCLAC)

PCLAC

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

LACTIC ACID (SQ: LA)

LAWB

TESTING INFORMATION

Ordering Recommendations:

Observe stability requirements - 20 minutes ambient and 45 minutes on ice. - Patient may need to be sent to OP lab at main campuses for this test.

Collect:

Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Green (Lithium Heparin) no gel , Top Tube DO NOT CENTRIFUGE	5.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
Pekin and Proctor Only:		
1 Green (Lithium Heparin) Seperator Tube, unspun	5.0 mL	3.0 mL

Specimen Preparation:

Do Not centrifuge, no gel.
Pekin and Proctor will accept lithium heparin gel separator tube, unspun.

Unacceptable Conditions:

- Sodium fluoride/potassium oxalate,
- Sodium Heparin,
- EDTA,
- Citrate or Iodoacetate as anticoagulants.
- Hemolyzed samples

Remarks:

- Patient should be at rest.
- Minimize tournique use,
- Collect blood without stasis in gel-free ;Lithium Heparin Green top tube.
- Specimen must be received in laboratory within 20 minutes at Room Temperature.
- DO NOT CENTRIFUGE

Storage/Transport Temperature:

If specimen cannot be received into the laboratory within 20 minutes, place the sample on ice and transport whole blood.

Stability (from collection to initiation):

Ambient	On Ice	Refrigerated	Frozen
20 min	45 minutes	Not acceptable	Not acceptable

Performed:

Sunday-Saturday

Reference Interval:

Lactic Acid (mmol/L)

Age	Range
0-2 days	1.4-2.9
3-4 days	1.0-2.5
5 days	0.9-2.5
6 days-1year	1.1-2.3
1-7 years	0.8-1.5
7-17 years	0.6-0.9
18 years and greater	0.5-1.9

Methodology:

Amperometry

Notes:

For lactic acid is 2 or greater. Lactic Acid level is abnormal according to the Sepsis Protocol. Lactic Acid should be ordered in 6 hours of the original order.

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
83605

Last Reviewed:
12/2/2023

Lacto Type (SQ: MISCLB)

TESTING INFORMATION

Collect:
Specimen Type: Whole Blood
Specimen Collection Type: EDTA/Lavendar Top Tube (2.0 mL whole blood)

Unacceptable Conditions:

- Unlabeled samples
- Frozen samples

Storage/Transport Temperature:
Transport Kit Requirements: Ambient or cold pack acceptable
Storage Conditions: Room temperature or refrigerated

Stability (from collection to initiation):
Room Temperature: 10 days
Refrigerated: 30 days

Reported:
7 days after receipt at testing laboratory

Performing Lab:
Prometheus Laboratory

Testing Region:
Carle West Region

LACTOFERRIN-STOOL LEUKOCYTES (SQ: FECLAC)

LFRAG

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Fresh random stool	clean airtight container with no preservatives	

Unacceptable Conditions:

- Urine contamination,
- preserved specimen.
- Stool from breast fed infants is considered an unacceptable specimen.

Remarks:

Detection of increased level of Lactoferrin. WBCs do not have to be intact.

Storage/Transport Temperature:

sterile container. Deliver to laboratory promptly at Ambient (room temperature) temperature.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
2 weeks	2 weeks	unacceptable

Performed:

Sunday-Saturday 1st and 2nd shift

Methodology:

Immunochromatographic Membrane Assay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83630

Last Reviewed:

2/21/24

LACTOSE TOLERANCE (SQ: LACTOV)

LACTV

TESTING INFORMATION

Collect:

Draw gray top tube for baseline (fasting). Patient drinks lactose, then draw gray top tubes at 30 min, 60 min, 120 min and 180 min after lactose load. (Min: 3 mL for each sample). Clearly Label each sample with actual time of collection.

Remarks:

Sulfasalazine and Sulfapyirdine can interfere with the chemistry analyzers used in the Methodist and Proctor Laboratories. Due to the Assay use of NADH/NADPH, when patients are on these medication, the test can have either false elevation or depression of results. Patient's labs need to be drawn prior to administration of these medications

Storage/Transport Temperature:

Gray Ambient (room temperature) or 2-8°C. Centrifuged gold top or green top, or 1 mL serum/plasma (Min: 0.3 mL) at or 2-8°C.seperate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Gray Top Only: 8 hours	3 days	Unacceptable

Performed:

Sunday-Saturday

Reference Interval:

Fasting Glucose Baseline: 74-99 mg/dL
Normal Lactose Tolerance: Greater than 25 mg/dL elevation in glucose over the fasting level after the 50g lactose load.

Methodology:

Enzymatic

Notes:

if severe lactose deficiency is suspected, the dose should be lowered.

Interpretive Data:

A <26 mg/dL increase in glucose over the fasting level, with gastrointestinal symptoms after a lactose load is considered abnormal and consistent with lactase deficiency.

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

LAMOTRIGINE, S (SQ:LAMOTA)

LAMO

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Serum or plasma separator tubes. Grossly hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 7 days; Refrigerated: 1 week; Frozen: 4 weeks

Performed:
Sun-Sat

Reference Interval:
Effective February 22, 2022

Therapeutic Range: 3-15.0 µg/mL
Toxic: Greater than or equal to 20 µg/mL

Reported:
Within 24 hours

Methodology:
Quantitative Enzyme Immunoassay

Interpretive Data:
Pharmacokinetics varies widely, particularly with co-medications and/or compromised renal function. Adverse effects may include dizziness, somnolence, nausea and vomiting.

Performing Lab:
ARUP

ARUP Test Code:
0090177

ADMINISTRATIVE

CPT Codes:
80175

Last Reviewed:
12/1/2023

LATEX, IGE (SQ: LATX)

LATX

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective of increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

LD (LDH), BODY FLUID (SQ: FLD)

LDBF

TESTING INFORMATION

Collect:
Body fluid (pleural, peritoneal, JP Drain) in a clean glass or plastic container with secure lid.

Unacceptable Conditions:
Frozen or hemolyzed specimens or those collected in EDTA, potassium oxalate or sodium fluoride.

Remarks:
Specify source of fluid.

Storage/Transport Temperature:
1 mL body fluid at Ambient (room temperature) temperature. (Min: 0.5 mL) Do not freeze.

Performed:
Daily

Reference Interval:
A reference range has not been established for LDH on this specimen type.

Methodology:
Enzymatic

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
83615

LDH ISOENZYMES (SQ:LDHISA)

LDHIS

TESTING INFORMATION

Ordering Recommendations:
Do not use to detect myocardial injury. In rare cases, this test may be used to evaluate elevated lactate dehydrogenase associated with noncardiac muscle injury. Troponin testing is recommended for diagnosis and management of acute coronary syndrome; refer to Troponin T (cTnT) 5th Generation (3001831).

Collect:
Serum separator tube (SST) or plain red.

Specimen Preparation:
Do not refrigerate or freeze. Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.6 mL)

Unacceptable Conditions:
Hemolyzed specimens.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
After separation of cells: Ambient: 1 week; Refrigerated: Unacceptable; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
LD-1: 14-27%
LD-2: 29-42%
LD-3: 18-30%
LD-4: 8-15%
LD-5: 6-23%

Lactate Dehydrogenase, Total:
0-1 month: 200-465 U/L
2-17 months: 200-450 U/L
18 months-10 years: 165-430 U/L
11-16 years: 127-287 U/L
17 years and older: 105-230 U/L

Reported:
1-3 days

Methodology:
Quantitative Enzymatic Assay/Electrophoresis

Notes:
LD-1 and LD-2 are elevated in hemolyzed specimens and serum which has not been separated from cells. LD-3, LD-4, and LD-5 are labile at low temperatures, and are erroneously low in specimens that have been refrigerated or frozen.

Performing Lab:
ARUP

ARUP Test Code:
0020413

ADMINISTRATIVE

CPT Codes:
83625; 83615

Last Reviewed:
12/2/2023

LDL, DIRECT (SQ: LDLD)

LDDI2

TESTING INFORMATION

Patient Preparation:

Recommend 12-hour fast prior to collection.

Collect:

Specimen Type	Requested Vol.	Min Vol.
1 Serum Separator Tube (Gold Top)	6 mL	0.3 mL
Other Acceptable Specimens:		
1 Plain Red Top	6 mL	0.3 mL
1 Green LithiumTop	6 mL	0.3 mL

Storage/Transport Temperature:

Centrifuged gold top, or 1 mL serum/plasma at 2-8 degrees C. Seperate serum of plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

After Seperation from Cells:		
Ambient	**Refrigerated**	**Frozen**
24 Hours	72 Hours	1 Month

Performed:

Sunday-Saturday

Reference Interval:

LDL, Direct (mg/dL)	
Optimal	<100
Near Optimal	100-129
Borderline High	160-189
High	160-189
Very High	>189

Methodology:

Enzymatic, Bichromatic Endpoint

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

83721

LEAD WITH DEMOGRAPHICS, CAPILLARY (SQ: LEADCA)

PBCAP

TESTING INFORMATION

Ordering Recommendations:

Recommended routine screening for lead exposure in pediatric populations. Confirm elevated results with Lead, Blood (Venous) (0020098).

Patient Preparation:

Clean puncture site well with soap and water before collection procedure begins.

Collect:

Lavender microtainer (K_2EDTA)

Specimen Preparation:

Invert specimen 10 times to prevent clot formation. Transport 0.5 mL whole blood in the original collection tube. (Min: 0.3 mL)

Unacceptable Conditions:

Specimens collected in tubes other than lavender microtainer (K_2EDTA). Specimens transported in tubes other than trace element-free transport tubes or lavender microtainer (K_2EDTA) tubes. Heparin anticoagulant. Clotted specimens. Venous whole blood, refer to Lead, Blood (Venous) (ARUP test code 0020098).

Storage/Transport Temperature:

Room temperature. Also acceptable: Refrigerated.

Stability (from collection to initiation):

Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable

Performed:

Sun-Sat

Reference Interval:

Effective December 6, 2021

0-5 years	Less than or equal to 3.4 µg/dL
6 years or above	Less than or equal to 4.9 µg/dL

Reported:

1-3 days

Methodology:

Quantitative Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Interpretive Data:

Analysis performed by inductively coupled plasma-mass spectrometry (ICP-MS).

Elevated results may be due to skin or collection-related contamination, including the use of a noncertified lead-free collection/transport tube. If contamination concerns exist due to elevated levels of blood lead, confirmation with a venous specimen collected in a certified lead-free tube is recommended.

Repeat testing is recommended prior to initiating chelation therapy or conducting environmental investigations of potential lead sources. Repeat testing collections should be performed using a venous specimen collected in a certified lead-free collection tube.

Information sources for blood lead reference intervals and interpretive comments include the CDC's "Childhood Lead Poisoning Prevention: Recommended Actions Based on Blood Lead Level" and the "Adult Blood Lead Epidemiology and Surveillance: Reference Blood Lead Levels (BLLs) for Adults in the U.S." Thresholds and time intervals for retesting, medical evaluation, and response vary by state and regulatory body. Contact your State Department of Health and/or applicable regulatory agency for specific guidance on medical management recommendations.

Children	
Concentration	**Comment**
3.5-19.9 µg/dL	Children under the age of 6 years are the most vulnerable to the harmful effects of lead exposure. Environmental investigation and exposure history to identify potential sources of lead. Biological and nutritional monitoring are recommended. Follow-up blood lead monitoring is recommended.
20-44.9 µg/dL	Lead hazard reduction and prompt medical evaluation are recommended. Contact a Pediatric Environmental Health Specialty Unit or poison control center for guidance.
Greater than 44.9 µg/dL	Critical. Immediate medical evaluation, including detailed neurological exam is recommended. Consider chelation therapy when symptoms of lead toxicity are present. Contact a Pediatric Environmental Health Specialty Unit or poison control center for assistance.

Adults	
Concentration	**Comment**
5-19.9 µg/dL	Medical removal is recommended for pregnant women or those who are trying or may become pregnant. Adverse health effects are possible. Reduced lead exposure and increased blood lead monitoring are recommended.
20-69.9 µg/dL	Adverse health effects are indicated. Medical removal from lead exposure is required by OSHA if blood lead level exceeds 50 µg/dL. Prompt medical evaluation is recommended.
Greater than 69.9 µg/dL	Critical. Immediate medical evaluation is recommended. Consider chelation therapy when symptoms of lead toxicity are present.

Performing Lab:

ARUP

ARUP Test Code:

0020745

ADMINISTRATIVE

CPT Codes:

83655

Last Reviewed:

12/2/2023

LEAD WITH DEMOGRAPHICS, VENOUS (SQ: LEADB)

PBBD

TESTING INFORMATION

Ordering Recommendations:

Recommended for routine testing for lead exposure. For occupational exposure, consider Lead, Industrial Exposure Panel, Adults (0025016).

Collect:

Royal blue (K2EDTA), Royal blue (NaHep), or tan (K2EDTA).

Specimen Preparation:

Transport 3 or 6 mL whole blood in the original collection tube (royal blue). (Min: 0.5 mL) OR Transport 3 mL whole blood in the original collection tube (tan). (Min: 0.5 mL)

Unacceptable Conditions:

Serum. Specimens collected in tubes other than Royal blue(K2EDTA), Royal blue (NaHep), or tan (K2EDTA). Clotted specimens. Capillary pediatric EDTA collection tubes, refer to Lead, Blood (Capillary) 0020745.

Storage/Transport Temperature:

Room temperature. Also acceptable: Refrigerated.

Stability (from collection to initiation):

Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Unacceptable

Performed:

Sun-Sat

Reference Interval:

Effective December 6, 2021

Age	Reference Internal
0-5 years	Less than or equal to 3.4 µg/dL
6 year or above	Less than or equal to 4.9 µg/dL

Reported:

1-3 days

Methodology:

Quantitative Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Interpretive Data:

Analysis performed by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS).

Elevated results may be due to skin or collection-related contamination, including the use of a noncertified lead-free tube. If contamination concerns exist due to elevated levels of blood lead, confirmation with a second specimen collected in a certified lead-free tube is recommended.

Information sources for blood lead reference intervals and interpretive comments include the CDC's "Childhood Lead Poisoning Prevention: Recommended Actions Based on Blood Lead Level" and the "Adult Blood Lead Epidemiology and Surveillance: Reference Blood Lead Levels (BLLs) for Adults in the U.S." Thresholds and time intervals for retesting, medical evaluation, and response vary by state and regulatory body. Contact your State Department of Health and/or applicable regulatory agency for specific guidance on medical management recommendations.

Children	
Concentration	**Comment**
3.5-19.9 µg/dL	Children under the age of 6 years are the most vulnerable to the harmful effects of lead exposure. Environmental investigation and exposure history to identify potential sources of lead. Biological and nutritional monitoring are recommended. Follow-up blood lead monitoring is recommended.
20-44.9 µg/dL	Lead hazard reduction and prompt medical evaluation are recommended. Contact a Pediatric Environmental Health Specialty Unit or poison control center for guidance.
Greater than 44.9 µg/dL	Critical. Immediate medical evaluation, including detailed neurological exam is recommended. Consider chelation therapy when symptoms of lead toxicity are present. Contact a Pediatric Environmental Health Specialty Unit or poison control center for assistance.

Adults	
Concentration	**Comment**
5-19.9 µg/dL	Medical removal is recommended for pregnant women or those who are trying or may become pregnant. Adverse health effects are possible. Reduced lead exposure and increased blood lead monitoring are recommended.
20-69.9 µg/dL	Adverse health effects are indicated. Medical removal from lead exposure is required by OSHA if blood lead level exceeds 50 µg/dL. Prompt medical evaluation is recommended.
Greater than 69.9 µg/dL	Critical. Immediate medical evaluation is recommended. Consider chelation therapy when symptoms of lead toxicity are present.

Performing Lab:

ARUP

ARUP Test Code:

0020098

ADMINISTRATIVE

CPT Codes:

83655

Last Reviewed:

12/2/2023

LEGIONELLA ANTIBODY (SQ:LEAB)

LEABA

TESTING INFORMATION

Ordering Recommendations:
May aid in the diagnosis of legionellosis caused by infection with L. pneumophila.

Collect:
Serum separator tube (SST) or plain red.

Specimen Preparation:
Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.3 mL)

Unacceptable Conditions:
Contaminated, heat-inactivated, hemolyzed, icteric, or lipemic specimens.

Storage/Transport Temperature:
Preferred transport temp: Refrigerated. Also acceptable: Frozen

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Performed:
Mon, Fri

Reference Interval:

Components	Reference Interval
L. pneumophila (Types 1-6), Antibodies	0.90 IV or less

Reported:
1-6 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)

Interpretive Data:

Component	Interpretation
L. pneumophila (Types 1-6), Antibodies	<=0.90 IV Negative: No significant amount of IgG/IgM/IgA antibodies to L. pneumophila detected. 0.91 to 1.09 IV Equivocal: Recommend repeat testing in 1-3 weeks with fresh sample. >=1.10 IV Positive: IgG/IgM/IgA antibodies specific to L. pneumophila suggesting current or prior infection. A positive result cannot distinguish between previous or active infection, therefore this result alone cannot be used to establish a diagnosis.

Performing Lab:
ARUP

ARUP Test Code:
3005200

ADMINISTRATIVE

CPT Codes:
86713

Last Reviewed:
12/1/2023

LEGIONELLA CULTURE (SQ: LEGCA)

LEGI

TESTING INFORMATION

Ordering Recommendations:
Gold standard test; detects L. pneumophila and other Legionella species in clinical specimens.

Collect:
Respiratory specimens: Abscess material, aspirates, BAL, fluids, secretions, sputum, or tissue; OR pericardial fluid or blood in SPS Vacutainer tube for microbiology (ARUP supply #24964). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.

Specimen Preparation:
Fluid: Transfer to a sterile container. Place each specimen in an individually sealed bag. (Min. 0.5 mL) Tissue: Place on gauze moistened with sterile nonbacteriostatic saline to prevent drying and transport in sterile container.
Blood: Transport blood in SPS tube.

Unacceptable Conditions:
Stool, urine, wounds, or other nonrespiratory sites. Dry specimens. Specimens in preservatives or viral transport medium (M4, UTM).

Remarks:
Specimen source preferred.

Storage/Transport Temperature:
Refrigerated. If delay in transport (greater than 48 hours), freeze at -60C or lower and transport on dry ice.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: 48 hours; Frozen: 1 week
Whole Blood: Ambient: 2 hours; Refrigerated: 48 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Culture negative for Legionella species.

Reported:
1-8 days

Methodology:
Qualitative Culture

Notes:
Amplified DNA testing (PCR) is also available for respiratory specimens. Refer to Legionella Species by Qualitative PCR (ARUP test code 2010125). Legionella pneumophila DFA (ARUP test code 2004598) is also available.

Performing Lab:
ARUP

ARUP Test Code:
0060113

ADMINISTRATIVE

CPT Codes:
87081; Identification CPT codes may vary based on method

Last Reviewed:
12/2/2023

LEGIONELLA PCR (SQ:LEGPCR)

LGPCR

TESTING INFORMATION

Ordering Recommendations:
Detect Legionella species.

Collect:
Respiratory specimen: Bronchoalveolar lavage (BAL), bronchial brushings, nasopharyngeal swab, sputum, tracheal aspirates or pleural fluid.

Specimen Preparation:
Fluid: Transfer 2 mL respiratory specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to viral transport media (ARUP supply #12884).
Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787.
Swabs: Place in viral transport media.

Unacceptable Conditions:
Tissues in optimal cutting temperature compound.

Remarks:
Specimen source required, tissues in optimal cutting temperature compound.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 5 days; Frozen: 6 months

Performed:
Sun-Sat

Reported:
1-2 days

Methodology:
Qualitative Polymerase Chain Reaction

Notes:
This test detects and speciates L. pneumophila. The nucleic acid from other Legionella species will be detected by this test but cannot be differentiated

Interpretive Data:
A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection by this test.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2010125

ADMINISTRATIVE

CPT Codes:
87541; 87798

Last Reviewed:
12/1/2023

LEGIONELLA UR AG - RAPID (SQ: ULEGAG)

LEGUG

TESTING INFORMATION

Collect:

Random urine in sterile container. Boric Acid preservative tube also acceptable.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
24 Hours		14 days		14 days

Performed:

Sunday-Saturday

Reference Interval:

Negative

Methodology:

Immunochromatographic membrane assay

Interpretive Data:

This assay detects legionella urinary antigen. A negative test does not exclude infection with legionella, therefore results of this test as well as culture results, serology, or other antigen detection methods should be used in conjunction with clinical findings to make an accurate diagnosis.

Performing Lab:

Methodist, Pekin, Proctor

Testing Region:

Carle West region

LEPTIN (SQ:LEPTA)

LEPTA

TESTING INFORMATION

Patient Preparation:
Patient should fast overnight prior to collection.

Collect:
Plain red or serum separator tube.

Specimen Preparation:
Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Unacceptable Conditions:
Non-fasting specimens. Icteric or severely hemolyzed specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 48 hours; Frozen: 2 months

Performed:
Mon, Thu

Reference Interval:

Age	Reference Interval
0-17 years	Not Established
Adult Male	0.5-12.5 ng/mL
Adult Female	0.5-15.2 ng/mL

Reported:
1-5 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0070263

ADMINISTRATIVE

CPT Codes:
83520

Last Reviewed:
12/1/2023

LEUCINE-RICH, GLIOMA-INACTIVE PRO1, IGG CBA-IFA RFLX TITER, CSF (SQ:LG1CSA)

LGCS1

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of leucine-rich glioma inactivated 1 protein (LGI1) antibody disorders associated with limbic encephalitis, hyponatremia, and myoclonic movements. Disorders are rarely associated with tumors. Use to manage antibody-positive (LGI1) individuals following immunotherapy and/or plasmapheresis. Serum is the preferred specimen type; see Leucine-Rich, Glioma-Inactivated Protein 1 Antibody, IgG CBA-IFA with Reflex to Titer, Serum (2009456).

Collect:
CSF.

Specimen Preparation:
Transfer 0.5 mL CSF to an ARUP standard transport tube. (Min: 0.15 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month

Performed:
Wed

Reference Interval:
Less than 1:1

Reported:
1-8 days

Methodology:
Semi-Quantitative Cell-Based Indirect Fluorescent Antibody

Notes:
If LGI1 antibody IgG is positive, then LGI1 antibody IgG titer will be added. Additional charges apply.

Interpretive Data:
Leucine-rich, glioma-inactivated 1 protein (LGI1) IgG antibody may occur as part of the voltage-gated potassium channel (VGKC) complex antibodies.

The presence of LGI1 IgG antibody is mainly associated with limbic encephalitis, hyponatremia, and myoclonic movements. LGI1 IgG antibody is rarely associated with tumors but may occur infrequently in Morvan syndrome, neuromyotonia, and idiopathic epilepsy. The full spectrum of clinical disorders associated with the LGI1 IgG antibody continues to be defined. Results should be interpreted in correlation with the patient's clinical history and other laboratory findings.

This indirect fluorescent antibody assay utilizes LGI1 transfected cell lines for the detection and semiquantification of the LGI1 IgG antibody.

Performing Lab:
ARUP

ARUP Test Code:
3001992

ADMINISTRATIVE

CPT Codes:
86255; if reflexed, add 86256

LEUK/LYMPH PANEL-OTHER (BY FLOW CYTOMETRY) (SQ: FLOWCY)

FLOW

TESTING INFORMATION

Collect:

Whole Blood: EDTA Lavendar Top tube;;Min Volume: 3 mL Bone Marrow: EDTA LAvendar top tube;Min Volume: 3 mL;;AND Sodium Heparin Dark Green top tube.;;Min Volume: 3 mL * If UPH Methodist Lab will be sending out any required cytogenetics;;; Body Fluid:;;;Unpreserved Specimen ;Tissue:;;;;;;Specimen placed in RPMI

Remarks:

Must be received before 1:00 p.m. on Friday

Related Information:

- Specific for Leukemia/Lymphoma Immunophenotyping

Performed:

Monday - Friday

Methodology:

Flow Cytometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

LEUKOCYTE ALKALINE PHOPHATASE STAIN (SQ:LAPHOA)

LAPHO

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0049000

ADMINISTRATIVE

Last Reviewed:
12/2/2023

LEVETIRACETAM, S (SQ:LEVAA)

LEVE

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Serum or plasma separator tubes. Grossly hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 7 days; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Effective February 22, 2022

Therapeutic range: : 10-40 µg/mL
Toxic: Not well established

Reported:
Within 24 hours

Methodology:
Quantitative Enzyme Immunoassay

Interpretive Data:
Pharmacokinetics of levetiracetam are affected by renal function. Adverse effects may include somnolence, weakness, headache and vomiting.

This levetiracetam (Keppra) immunoassay uses the ARK Diagnostics reagents, which has known cross-reactivity with the drug brivaracetam (Briviact) and may report inaccurate results. Patients transitioning from levetiracetam to brivaracetam or those who are using both medications should not monitor drug concentrations with the ARK Diagnostics assay. These patients should be monitored using a validated chromatographic methodology that distinguishes between drugs to determine drug concentrations.

Performing Lab:
ARUP

ARUP Test Code:
0098627

ADMINISTRATIVE

CPT Codes:
80177

Last Reviewed:
12/1/2023

LH-2 (LUTEINIZING HORM) (SQ: LH)

LH2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Specimen Preparation:

Separate and refrigerate serum/plasma from cells as soon as possible or within two hours of collection.

Unacceptable Conditions:

Gross hemolysis

Storage/Transport Temperature:

Separate and transport minimum of 1.0 mL serum/plasma at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	7 days	1 month

Performed:

Sunday-Saturday

Reference Interval:

LH (mIU/mL)	
Female Follicular phase	1.9-12.8
Female Midcycle	22.8-76.1
Female Luteal Phase	0.6-13.5
Female Postmenopausal: On Hormone Therapy	1.1-52.4
Female Postmenopausal: Not On Hormone Therapy	8.6-61.8
All Males	1.0-10.6

Reported:

Daily

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

LIDOCAINE (SQ: LIDO)

LIDOC

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

Gross hemolysis

Storage/Transport Temperature:

1 mL serum or plasma. Separate serum or plasma from cells or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	1 week	1 month

Performed:

Daily

Reference Interval:

Therapeutic Range: 1.5-5.0 ug/mL
Toxic range: > 8.0 ug/mL

Methodology:

Turbidimetric Rate, (PETINIA)

Performing Lab:

Carle Health Methodist

Testing Region:

Carle West region

LIGHT CHAINS, PROTEIN, QUALITATIVE, URINE (SQ: LTCHUR)

LTCHR

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Vol.	Min.Vol.
All	Random Urine	Entire collection	10 mL

Other Acceptable Specimen(s):

Priority	Specimen Type	Requested Vol.	Min.Vol.
All	Timed Urine Sample without preservatives	Entire collection	10 mL well mixed

Specimen Preparation:

If collecting a timed specimen, be sure to refrigerate during collection period.

Storage/Transport Temperature:

Refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
12 hours	7 days	1 month

Performed:

Two days per week

Reference Interval:

by report

Reported:

1 - 3 days

Methodology:

Electrophoresis/Spectrophotometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

84166
84156

Last Reviewed:

1/19/24

LIPASE (SQ: LIPAS)

LIPAS

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

EDTA, oxalate/fluoride or citrate specimens, or samples in collection tubes with glycerol lubricated stoppers. Hemolyzed samples.

Storage/Transport Temperature:

Separate serum/plasma from cells within two hours of collection and send refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	12 months

Performed:

Sunday-Saturday

Reference Interval:

13-75 U/L

Methodology:

Colorimetric

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

LIPASE, BODY FLUID (SQ: FLIPA)

LIPBF

TESTING INFORMATION

Collect:
3 mL pleural, peritoneal, or JP drain fluid in clean container with secure lid (Min: 1 mL)

Unacceptable Conditions:
Frozen specimens.

Remarks:
Specify body fluid source

Storage/Transport Temperature:
Transport specimen at ambient (room temperature) or 2-8°C . Do not freeze.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
24 hours		7 days		Unacceptable

Performed:
Sunday-Saturday

Reference Interval:
No reference range established.

Methodology:
Enzymatic

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
83690

LIPASE, FLUID (SQ: LIPFLU)

LPFLU

TESTING INFORMATION

Ordering Recommendations:
Refer to aruplab.com/bodyfluids for clinical indications and interpretive information.

Collect:
Biliary/Hepatic, Drain, Pancreatic, Pericardial, Peritoneal/Ascites, Pleural or Synovial fluid.

Specimen Preparation:
Centrifuge to remove cellular material. Transfer 1 mL body fluid to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimen types other than those listed. Specimens too viscous to be aspirated by instrument.

Remarks:
Specimen source must be provided.

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 week; Frozen: 2 months

Performed:
Sun-Sat

Reported:
Within 24 hours

Methodology:
Quantitative Enzymatic Assay

Interpretive Data:
For information on body fluid reference ranges and/or interpretive guidance visit http://aruplab.com/bodyfluids/

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0020715

ADMINISTRATIVE

CPT Codes:
83690

Last Reviewed:
12/2/2023

LIPID PANEL (SQ: LIPIDP)

LIPD3

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Pediatric Collection:

Minimum volume: 0.5 mL serum or plasma

Unacceptable Conditions:

Gross hemolysis

Storage/Transport Temperature:

Separate serum/plasma from cells within two hours of collection. Transport 1mL serum or plasma.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Daily

Reference Interval:

CHOLESTEROL (mg/dL)	
<200	Desirable
200-240	Borderline
>240	High Risk

HDL (mg/dL)		
Male	Female	
>55	>65	Favorable
35-55	45-65	Moderate Risk
<35	<45	Elevated Risk

TRIGLYCERIDE (mg/dL)	
20-150	Normal
150-199	Borderline High
200-499	High
>499	Very High

VLDL (mg/dL) Calculated	
5-30	Desirable
30-40	Borderline
40-100	Elevated
>100	Very Elevated

LDL (mg/dL) Calculated	
<100	Optimal
100-129	Near Optimal
130-159	Borderline High
160-189	High
>189	Very High

Methodology:
See individual testing components for methodology.

Performing Lab:
Methodist, Proctor and Pekin.

Testing Region:
Carle West region

Components:
Cholesterol, Total
HDL
VLDL
LDL
Triglycerides

LIPOFIT BY NMR (SQ:LIPNMR)

LIPNM

TESTING INFORMATION

Ordering Recommendations:
Use in appropriate high-risk patients (eg, type 2 diabetes mellitus) in whom LDL particle number is being used to guide therapy. Not recommended for cardiovascular disease risk assessment in most individuals; preferred test is Lipid Panel (0020421).

Patient Preparation:
Fast 12 hours prior to collection.

Collect:
Greiner Bio-One Clot Activator Tube (ARUP supply #54325) available online through eSupply using ARUP Connect (TM) or by contacting ARUP Client Services at (800) 522-2787. Also acceptable: Plain Red.

Specimen Preparation:
Gently invert tube to mix contents; allow to clot at room temperature. Separate from cells within 8 hours. Transfer 4 mL serum to an ARUP Standard Transport Tube with "ARUP NMR Serum" label (ARUP supply #55652). Labels are available online through eSupply using ARUP Connect (TM) or by contacting ARUP Client Services at (800) 522-2787. (Min: 2 mL)

Unacceptable Conditions:
Plasma. Serum separator tubes other than Greiner Bio-One. Non-fasting or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
By report

Reported:
3-6 days

Methodology:
Quantitative Nuclear Magnetic Resonance Spectroscopy/ Quantitative Enzymatic Assay/Detergent Solubilization

Notes:
Refer to the Test Mix Addendum for interface build information.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2013716

ADMINISTRATIVE

CPT Codes:
83704; 80061

LIPOPROTEIN (A), S (SQ:LIPOAA)

LIPA

TESTING INFORMATION

Ordering Recommendations:
Not recommended for cardiovascular risk assessment in asymptomatic adults. May aid in CVD risk stratification in specific populations.

Collect:
Serum Separator Tube (SST) or Plasma Separator Tube (PST). Also acceptable: Green (Lithium Heparin), Lavender (EDTA), or Pink (K_2EDTA).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Body Fluids.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 8 hours; Refrigerated: 14 days; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
< 30 mg/dL

Reported:
Within 24 hours

Methodology:
Quantitative Immunoturbidimetry

Performing Lab:
ARUP

ARUP Test Code:
0099174

ADMINISTRATIVE

CPT Codes:
83695

Last Reviewed:
12/2/2023

LITHIUM (SQ: LI)

LITH

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	2.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	2.0 mL
1 Green Top Tube	6.0 mL	2.0 mL

Unacceptable Conditions:

Grossly hemolyzed samples. Lithium heparin, or sodium fluoride/potassium oxalate samples.

Storage/Transport Temperature:

Separate serum/plasma from cells within two hours of collection. Transport minimum of 1.0mL serum/plasma at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	7 days	1 month

Performed:

Sunday-Saturday

Reference Interval:

Therapeutic Range: 0.6-1.2 mmol/L
Critical Value: >=2.0mmol/L

Methodology:

Biochromatic endpoint

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

LIVER FIBOROSIS, NON-ALCOHOLIC (SQ:NAFL)

NAFL

TESTING INFORMATION

Ordering Recommendations:
Only intended for use in patients with non-alcoholic liver disease (NAFLD); results may be inaccurate in patients with other etiologies of liver disease.

Patient Preparation:
Overnight fasting specimen is required.

Collect:
Lavender (EDTA) or Pink (K_2EDTA) for platelet count AND Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 1.2 mL)

Unacceptable Conditions:
Hemolyzed specimens. All required specimens not received. No platelet count received. No weight received.

Remarks:
This test requires an automated platelet count performed on the EDTA whole blood sample at the client site. Include the platelet count with the patient test submission information. This test requires the patient's weight (in pounds). Include the patient's weight with the sample submission.

Storage/Transport Temperature:
Serum: Frozen. Do not send the EDTA whole blood to ARUP.

Stability (from collection to initiation):
Serum: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 2 weeks

Performed:
Tue, Thu

Reference Interval:
By report

Reported:
1-5 days

Methodology:
Quantitative Enzymatic Assay/Quantitative Spectrophotometry/Quantitative Automated Cell Count/Quantitative Chemiluminescent Immunoassay (CLIA)

Notes:
This test requires an automated platelet count performed on the EDTA whole blood sample at the client site. Include the platelet count with the patient test submission information. This test requires the patient's weight (in pounds). Include the patient's weight with the sample submission.

Compare to FibroSure.

Interpretive Data:
Refer to report.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2012521

ADMINISTRATIVE

CPT Codes:
84450; 84460; 82728; 82947 (Alt code: 81599)

Last Reviewed:
12/2/2023

LIVER FIBROSIS, CHRONIC VIRAL HEPATITIS (SQ: FIBMET)

LIVFS

TESTING INFORMATION

Ordering Recommendations:
Noninvasive serum test to assess for surrogate markers of liver fibrosis in individuals with chronic viral hepatitis.Anticoagulant therapy with warfarin or other anticoagulants that prolong the prothrombin time may affect test results.

Patient Preparation:
Include an automated platelet count. Platelet count should be performed on the EDTA whole blood sample at the client site within 3 days of submission for testing.

Collect:
Lavender (EDTA) or pink (K_2EDTA) AND serum separator tube (SST) AND light blue (sodium citrate)

Specimen Preparation:
Separate serum and citrated plasma from cells ASAP or within 2 hours of collection. Do not send the EDTA whole blood to ARUP.
Transfer 3 mL serum to an ARUP standard transport tube. (Min: 1.2 mL)
Transfer 1 mL platelet-poor citrated plasma to an ARUP standard transport tube (Min: 0.5 mL)

Unacceptable Conditions:
Hemolyzed specimens. All required specimens not received. No platelet count received.

Storage/Transport Temperature:
Serum: Frozen.
Plasma (Citrated): CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Serum: Ambient: 8 hours; Refrigerated: 1 week; Frozen: 2 weeks
Plasma: Ambient: 24 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Tue, Thu

Reference Interval:
By report

Reported:
1-5 days

Methodology:
Quantitative Nephelometry/Quantitative Enzymatic Assay/Quantitative Spectrophotometry/Quantitative Electromagnetic Mechanical Clot Detection/Quantitative Automated Cell Count

Notes:
Compare to FibroSure.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
2005661

ADMINISTRATIVE

CPT Codes:
83883; 84450; 84460; 84520; 82977 (Alt code: 81599)

Last Reviewed:
12/2/2023

LIVER/KIDNEY MICROSOME T1 AB (SQ:LKMGA)

LKMGA

TESTING INFORMATION

Ordering Recommendations:
Differential evaluation of autoimmune liver disease of unknown etiology, especially autoimmune hepatitis (AIH) of childhood onset. Use in combination with Liver Cytosolic Antigen Type 1 (LC-1) Antibody, IgG (2010711) when evaluating for AIH-2.

Collect:
Serum separator tube.

Specimen Preparation:
Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Severely hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month.

Performed:
Mon-Sat

Reference Interval:
Less than 1:20 Normal

Reported:
1-3 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody

Interpretive Data:
Liver-Kidney Microsome IgG antibody (anti-LKM), as detected by indirect immunofluorescent antibody (IFA) techniques, may be observed in patients with autoimmune hepatitis type 2 (AIH-2), AIH-2 associated with autoimmune polyendocrinopathy-candidiasis-ectodermal dystrophy (APECED), viral hepatitis C or D, and some forms of drug-induced hepatitis. This IFA does not differentiate among the four types of LKM antibodies (LKM-1, LKM-2, LKM-3, and a fourth type that recognizes CYP1A2 and CYP2A6 antigens). Of these, anti-LKM-1 (cytochrome P450IID6) IgG antibodies are considered specific for AIH-2.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0099270

ADMINISTRATIVE

CPT Codes:
86376

Last Reviewed:
12/1/2023

LUPUS ANTICOAG PANEL 1 ARUP (SQ: LUPNL1)

LPNLM

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
Draw 2 blue top tops

Ordering Recommendations:
Use as an aid in the evaluation of unexplained prolonged partial thromboplastin time (PTT) or for patients with a significant probability of having antiphospholipid syndrome (APS). For APS, order with Cardiolipin Antibodies, IgG and IgM (0099344) and Beta-2 Glycoprotein 1 Antibodies, IgG and IgM (anti-beta2GP1) (0050321). For a list of components and reflex information, refer to the Additional Technical Information document.

Collect:
Light blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 3 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 2 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20 C or below: 3 months

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Prothrombin Time (PT)	12.0-15.5 seconds
PTT-LA Ratio	<=1.20
dRVVT Screen Ratio	<=1.20
Anti-Xa Qualitative Interpretation	Not Present
Thrombin Time (TT)	<=19.5 seconds
Anticoagulant Medication Neutralization	Not Performed
Neutralized PTT-LA Ratio	<=1.20
Neutralized dRVVT Screen Ratio	<=1.20
dRVVT 1:1 Mix Ratio	<=1.20
dRVVT Confirmation Ratio	<=1.20
Hexagonal Phospholipid Confirmation	<=7.9

Reported:
1-3 days

Methodology:
Electromagnetic Mechanical Clot Detection/Chromogenic Assay

Notes:
If PTT-LA Ratio and dRVVT Screen Ratio are normal, then no further testing is performed. If either the PTT-LA Ratio or dRVVT Screen Ratio are elevated, then Anti-Xa Qualitative Interpretation is added. If PTT-LA Ratio is elevated, then Thrombin Time is also added. If Anti-Xa Qualitative Interpretation is Present and Thrombin Time is greater than 30 seconds, then Hepzyme treatment is added. If PTT-LA Ratio is Normal and Anti-Xa Qualitative Interpretation is Present, or Thrombin Time is greater than 30 seconds, and Anti-Xa Qualitative Interpretation is Not Present, or Thrombin Time is less than 30 seconds, and Anti-Xa Qualitative Interpretation is Present, then DOAC-Stop treatment is added. If either Hepzyme or DOAC-Stop treatment is added, then Neutralized PTT-LA Ratio and/or Neutralized dRVVT Screen Ratio are added. If dRVVT Screen Ratio is elevated in the absence of Hepzyme or DOAC-Stop, or if Neutralized dRVVT Screen Ratio is elevated, then dRVVT 1:1 Mix Ratio and dRVVT Confirmation Ratio are added. If PTT-LA Ratio is elevated in the absence of Hepzyme or DOAC-Stop treatment, or if Neutralized PTT-LA Ratio is elevated, then Hexagonal Phospholipid Confirmation is added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
3017009

ADMINISTRATIVE

CPT Codes:

85610; 85613; 85730; if reflexed, additional CPT codes may apply: 85520; 85525; 85598; 85613; 85670; 85730.

LUTEINIZING HORMONE (LH), PEDIATRIC (SQ:LHPEDA)

LHPED

TESTING INFORMATION

Ordering Recommendations:
Test is intended for patients 2 weeks-6 years of age. For patients 7 years and older, order Luteinizing Hormone, Serum (0070093).

Collect:
Serum separator tube (SST) or plain red. Also acceptable: Lavender (EDTA).

Specimen Preparation:
Separate from cells within 45 minutes. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL) Test is not performed at ARUP; separate specimens must be submitted when multiple tests are ordered.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 48 hours; Frozen: 6 months

Performed:
Varies

Reference Interval:
By report

Reported:
8-13 days

Methodology:
Quantitative Electrochemiluminescent Immunoassay (ECLIA)

Performing Lab:
ARUP

ARUP Test Code:
2007567

ADMINISTRATIVE

CPT Codes:
83002

LYME AB IGG WB (SQ:LYMWBG)

LMWBG

TESTING INFORMATION

Ordering Recommendations:
Do not order in the absence of a positive or equivocal first-tier screening test for Lyme disease. Second-tier testing for use >4 weeks after symptom onset.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL)

Unacceptable Conditions:
CSF or plasma. Contaminated, heat-inactivated, severely hemolyzed, severely lipemic, and severely icteric specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
B. burgdorferi IgG Immunoblot	Negative

Reported:
1-4 days

Methodology:
Qualitative Immunoblot

Notes:
This test should be used for confirmation of an equivocal or positive B. burgdorferi Total Antibodies, IgG and/or IgM test performed on patients greater than 4 weeks after disease onset. A negative result indicates that the immunoblot evaluation for the Lyme antibody demonstrates no antibodies unique to B. burgdorferi and is, therefore, not supportive of Lyme disease.

A positive result indicates that the immunoblot evaluation for B. burgdorferi antibody is consistent with the presence of antibody produced by patients in response to infection by B. burgdorferi and suggests the presence of Lyme disease. Although the test has been shown to have a high degree of reliability for diagnostic purposes, laboratory data should always be correlated with clinical findings.

Current CDC recommendations for the serological diagnosis of Lyme disease are to screen with a polyvalent ELISA test and confirm equivocals and positives with immunoblot. Both IgM and IgG immunoblots should be performed on samples obtained less than 4 weeks after appearance of erythema migrans. Only IgG immunoblot is to be performed on samples greater than 4 weeks after disease onset. IgM immunoblot in the chronic stage is not recommended and does not aid in the diagnosis of neuroborreliosis or chronic Lyme disease.

Interpretive Data:
For this assay, a positive result is reported when any 5 or more of the following 10 bands are present: 18, 23, 28, 30, 39, 41, 45, 58, 66, or 93 kDa. All other banding patterns are reported as negative.

Performing Lab:
ARUP

ARUP Test Code:
0050255

ADMINISTRATIVE

CPT Codes:
86617

Last Reviewed:
12/2/2023

LYME AB IGM WB (SQ:LYMWBM)

LMWBM

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0050253

ADMINISTRATIVE

Last Reviewed:
12/2/2023

LYME AB,CSF (SQ:LYMCSA)

LYMCA

TESTING INFORMATION

Ordering Recommendations:
Preferred CSF reflex panel for the workup of suspected neuroborreliosis.

Collect:
CSF.
New York State Clients: CSF and serum separator tube (SST) or plain red. Serum specimen should be drawn within 24 hours of CSF collection.

Specimen Preparation:
Transfer 6 mL CSF to an ARUP standard transport tube. (Min: 2.5 mL)
New York State Clients: Transfer 2 mL CSF (Min: 1 mL) to an ARUP standard transport tube AND transfer 2 mL serum to an ARUP standard transport tube.

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, or xanthochromic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
B. burgdorferi VlsE1/pepC10 Abs, CSF	0.90 IV or less

Reported:
1-4 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)/Qualitative Immunoblot

Notes:
If VlsE1/pepC10 antibodies by ELISA is 0.91 IV or greater, then B. burgdorferi IgG antibody by immunoblot and IgM antibody by immunoblot will be added. Additional charges apply.

Interpretive Data:
The detection of antibodies to Borrelia burgdorferi in cerebrospinal fluid may indicate central nervous system infection. However, consideration must be given to possible contamination by blood or transfer of serum antibodies across the blood-brain barrier. Lyme disease diagnosis in serum is recommended prior to any CSF studies.

Component	Interpretation
B. burgdorferi VlsE1/pepC10 Abs, ELISA	0.90 IV or less: Negative; VlsE1 and pepC10 antibodies to B. burgdorferi not detected. 0.91-1.09 IV: Equivocal; repeat testing in 10-14 days may be helpful. 1.10 IV or greater: Positive; VlsE1 and pepC10 antibodies to B. burgdorferi detected.

Performing Lab:
ARUP

ARUP Test Code:
3016760

ADMINISTRATIVE

CPT Codes:
86618; if reflexed, add 86617 x2

Last Reviewed:
12/2/2023

LYME DISEASE PCR, BLOOD (SQ:LYMPCR)

LYMPC

TESTING INFORMATION

Ordering Recommendations:
Not a first-line test for Lyme disease. May be useful if strong suspicion of Lyme disease persists in spite of persistent negative serologic testing. Blood and CSF specimens have poor clinical sensitivity for detection of Borrelia burgdorferi by PCR.

Collect:
Lavender (EDTA), pink (K_2EDTA) or serum separator tube. OR CSF, synovial fluid or tissue.

Specimen Preparation:
Separate serum or plasma from cells. Transfer 1 mL serum, plasma, CSF or synovial fluid to a sterile container. (Min: 0.5 mL). Tissue: Transfer to a sterile container and freeze immediately.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 year
All Others: Ambient: 8 hours; Refrigerated: 72 hours; Frozen: 1 year

Performed:
Mon, Wed, Fri

Reported:
1-4 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0055570

ADMINISTRATIVE

CPT Codes:
87476

Last Reviewed:
12/2/2023

LYME IGG AND IGM (SQ: LYMSER)

LYMSR

TESTING INFORMATION

Collect:
2 mL serum from a gold top tube

Unacceptable Conditions:
Hemolyzed, lipemic and icteric specimens should be recollected,if possible.

Storage/Transport Temperature:
Refrigerated, 6 days;Frozen 6 months

Performed:
Tuesdays, Fridays

Reference Interval:
Negative

Interpretive Data:
Lyme IgM <0.12 (NEG) Translation: Absence of detectable Borrelia IgM antibodies. A negative result does not exclude the possibility of Borrelia infection. If early Lyme Disease is suspected, a second sample should be collected and tested four weeks later. Lyme IgM >0.11 and <0.32 (EQV) Translation: Current testing gudelines recommend that all equivocal samples be tested further. Specimen has been sent for western blot testing. Lyme IgM >0.31 (POS) Translation: Indicates exposure to B. burgdorferi. Specimen has been sent for Lyme Western Blot testing. Lyme IgG <0.20 (NEG) Translation: Absence of detectable Borrelia IgG antibodies. A negative result does not exclude the possiblity of Borrelia infection. If early Lyme Disease is suspected, a second sample should be collected and tested four weeks later. Lyme IgG >0.19 (POS) Translation: Indicates exposure to B. burgdorferi. Specimen has been sent for Lyme Westrn Blot testing. ; Reflex Testing: Borrelia burgdorferi Antibody, IgM by Immunoblot Borrelia burgdorferi Antibody, IgG by Immunoblot;

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

LYMPHOCYTE SUBSET PANEL 4 - CD4/CD8 - BRONCH LAVAGE/WASH (SQ:LSP4)

LYMB

TESTING INFORMATION

Ordering Recommendations:
Use to support a diagnosis of sarcoidosis.

Collect:
Bronchoalveolar lavage (Bronch Wash or BAL).

Specimen Preparation:
Transfer 4 mL bronchoalveolar lavage to a sterile container. (Min: 3 mL)

Unacceptable Conditions:
Whole blood (refer to ARUP test code 0095950). Excess mucus, excess peripheral blood, or too few lymphocytes. Frozen or room temperature specimens. Specimens older than 48 hours. Contaminated specimens.

Remarks:
Specimens must be analyzed within 48 hours of collection.

Separate orders must be submitted for multiple samples from different source sites. The collection time may need to vary in submitting samples with the same collection date. An except will be created if multiple samples are submitted under one order only.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
By report

Reported:
1-3 days

Methodology:
Flow Cytometry

Notes:
This test is designed for enumerating the percent of T-cell lymphocyte subsets in BAL. Cells from the BAL are added to fluorochrome-labeled antibodies that bind specifically to cell surface antigens on lymphocytes. The CD4/CD8 ratio is calculated by dividing the CD4 percent by the CD8 percent.

Interpretive Data:
A CD4/CD8 ratio greater than 3.5 is suggestive of sarcoidosis; If the CD4/CD8 ratio is greater than 5.0 and clinical and radiographic findings are compatible with sarcoidosis, some institutions accept a diagnosis of sarcoidosis even with a negative biopsy; In extrinsic allergic alveolitis (EAA), the CD4/CD8 ratio is decreased due to a relative increase in the CD8-positive T cells.

Performing Lab:
ARUP

ARUP Test Code:
0093420

ADMINISTRATIVE

CPT Codes:
86356 x3

Last Reviewed:
12/2/2023

LYMPHOCYTES SUBSETS T,B, AND NK CELLS (SQ: TBFLOW)

TBFLW

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 EDTA Tube (Lavendar)	4 mL	3 mL
STAT:			

Storage/Transport Temperature:

Store specimens at Room Temperature

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
30 hours	Not Acceptable	Not Acceptable

Performed:

Monday - Friday

Reference Interval:

by report

Methodology:

Flow Cytometry

Notes:

Specimens received in lab after 1 pm on Fridays will not be tested until Monday.

Performing Lab:

Methodist Hospital

ADMINISTRATIVE

CPT Codes:

86355
86357
86359
86360

Last Reviewed:

1/19/24

LYSOZYME (MURAMIDASE) (SQ:LYSOA)

MUR

TESTING INFORMATION

Ordering Recommendations:
Aids in diagnosis of acute myelocytic leukemia or other leukemias, sarcoidosis, and infections such as tuberculosis.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.4 mL)

Unacceptable Conditions:
Hemolyzed, lipemic, icteric, or contaminated specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 5 days; Frozen: 1 month.

Performed:
Sun, Tue, Thu

Reference Interval:

Components	Reference Interval
Lysozyme, Serum	Less than or equal to 4.50 ug/mL

Reported:
1-5 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)

Notes:
Serum lysozyme levels may be elevated in acute myelomonocytic leukemia (FAB-M4), chronic myelomonocytic leukemia (CMML), and chronic myelocytic leukemia (CML). Increased serum lysozyme activity is present in tuberculosis, sarcoidosis, megaloblastic anemias, acute bacterial infections, ulcerative colitis, regional enteritis, and Crohn disease. Elevated serum lysozyme occurs during severe renal insufficiency, renal transplant rejection, urinary tract infections, pyelonephritis, glomerulonephritis, and nephrosis.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
Lysozyme, Serum	2.75 ug/mL or less ..... Negative 2.76 - 4.50 ug/mL ..... Equivocal 4.51 ug/mL or greater ..... Positive

Performing Lab:
ARUP

ARUP Test Code:
2012039

ADMINISTRATIVE

CPT Codes:
85549

M PNEUMONIAE IGM (SQ:MYCPNA)

MYCPN

TESTING INFORMATION

Ordering Recommendations:
Mycoplasma pneumoniae Antibodies, IgG & IgM (0050399) is preferred.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
0.76 U/L or less: Negative - No clinically significant amount of M. pneumoniae IgM antibody detected.
0.77-0.95 U/L: Low Positive - M. pneumoniae-specific IgM presumptively detected. Collection of a follow-up sample in one to two weeks is recommended to assure reactivity.
0.96 U/L or greater: Positive - Highly significant amount of M. pneumoniae-specific IgM antibody detected. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.

Reported:
1-3 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Performing Lab:
ARUP

ARUP Test Code:
0050398

ADMINISTRATIVE

CPT Codes:
86738

Last Reviewed:
12/2/2023

MAGNESIUM (SQ: MG)

MG

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Vol.	Min Vol.
Routine:	1 Serum Separator Tube (God Top)	6 mL	6 mL
STAT:	1 Lithium Heparin Tube (Green Top)	6 ml	6 mL
Other Acceptable Speimens:			
1 Plain Red Top		6 mL	0.3 mL
1 Lithium Heparin Plasma Separator Tube (Mint Top)		6 mL	0.3 mL

Pediatric Collection:

Specimen Type	Requested Vol.	Min Vol.
1 Microtainer - Serum or Plasma	0.2 mL	0.2 mL

Unacceptable Conditions:

Hemolyzed, EDTA, oxalate/fluoride or citrate specimens. Samples not separated from cells within 2 hours.

Storage/Transport Temperature:

Centrifuged gold, or 1 ml serum or plasma (Min: 0.3 ml) separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

After Seperation from Cells:		
Ambient	**Refrigerated**	**Frozen**
7 Days	7 Days	12 Months

Performed:

Sunday-Saturday

Reference Interval:

Methodist Reference Ranges mg/dL	
AGE	RANGE
0-2 years	1.6 - 2.7
3 - 5 years	1.6 - 2.6
6 - 8 years	1.6 - 2.5
9 - 11 years	1.6 - 2.4
12 years	1.6 - 2.3
>12 years	1.6 - 2.6
CRITICAL	</= 0.5 or >/=5.0

Pekin and Proctor Reference Ranges	
AGE	RANGE
0 - 2 years	1.6 - 2.7
3 - 5 years	1.6 - 2.6
6 - 8 years	1.6 - 2.5
9 -11 years	1.6 - 2.4
12 - 17 years	1.6 - 2.3
18 - 19 years	1.7 - 2.3
> 20 years	1.8 - 2.4

Methodology:

Biochromatic endpoint

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:
83735

Last Reviewed:
1/22/24

MAGNESIUM OB (SQ: MGOB)

MGOB

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

hemolyzed sample

Stability (from collection to initiation):

SEPERATE FROM CELLS WITHIN 2 HOURS		
Ambient	Refrigerated	Frozen
7 days	7 days	1 year

Performed:

Sunday-Saturday

Reference Interval:

./= 8.0 mg/dL
Critical: >/= 8.0 mg/dL

Methodology:

Biochromatic endpoint

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83735

Last Reviewed:

1/22/24

MAGNESIUM, RBC (SQ:MAGRBC)

MAGRB

TESTING INFORMATION

Ordering Recommendations:
May be useful in the assessment of tissue stores. For routine assessment of magnesium deficiency, Magnesium, Plasma or Serum (0020039) is preferred.

Collect:
Royal blue (K2EDTA) or Royal blue (NaHep).

Specimen Preparation:
Centrifuge whole blood and separate RBCs from plasma within 2 hours of collection. Submit packed RBCs in original tube OR transfer 2 mL RBCs to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.6 mL)

Unacceptable Conditions:
Specimens collected in tubes other than royal blue (K2EDTA) or royal blue (NaHep). Specimens transported in containers other than royal blue (K2EDTA) or royal blue (NaHep) tube or trace element-free transport tube. Clotted or grossly hemolyzed specimens.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated.

Stability (from collection to initiation):
After separation from plasma: Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
3.6-7.5 mg/dL

Reported:
1-4 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
RBC magnesium results reflect the intracellular stores and general homeostasis of magnesium. Results may be falsely low if RBCs in the submitted specimen are lysed or not promptly separated from plasma.

RBC magnesium concentration is reported as milligrams per deciliter (mg/dL). To convert concentration to millimoles per liter (mmol/L), divide the result by 2.43.

Performing Lab:
ARUP

ARUP Test Code:
0092079

ADMINISTRATIVE

CPT Codes:
83735

Malaria Panel, Blood (SQ: MALPNL)

MALPL

TESTING INFORMATION

Collect:

two lavender EDTA whole blood tubes, minimum volume 1 mL in each.Send 2 thick and 4 thin blood films, unfixed and unstained Allow to dry prior to transport

Performed:

Daily

Performing Lab:

UnityPoint Health Central Illinois Region

Testing Region:

Carle West region

MALARIA PCR WITH PARASITEMIA REFLEX (SQ: MAPCRM)

MAPCM

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

MALARIA RAPID SCREEN (SQ: MLRAPD)

MLRAP

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

MALARIA SMEAR, BLOOD (SQ: SMRMAL)

SMMAL

TESTING INFORMATION

Testing Region:

Carle West region

MALARIA SPECIES IDENTIFICATION BY PCR (SQ:LCMALA)

LCMAL

TESTING INFORMATION

Ordering Recommendations:
Not a first-line test for diagnosis of acute symptomatic malaria. Refer to Parasites Smear (Giemsa Stain), Blood (0049025) or Malaria, Rapid Screen and Giemsa Stain (2001547). May be used in accordance with CDC recommendations for asymptomatic or subclinical malaria screening of sub-Saharan African refugees.

Collect:
Lavender (EDTA) or pink (K2EDTA).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.5 mL)

Unacceptable Conditions:
Heparinized specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 week

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Interpretive Data:
Acute, symptomatic malaria: This qualitative test is intended only for the species identification of microscopically confirmed malaria infections. It is not intended to monitor treatment response or parasite clearance.

A positive result may be obtained in the absence of visible parasites. In coinfections with two or more Plasmodium species, differences in parasite burden may lead to failure of one or more species to be identified.

Asymptomatic/subclinical malaria: PCR is recommended by the CDC as the most sensitive laboratory test for detection of asymptomatic or subclinical malaria in refugee screening programs. PCR is only recommended for routine screening of refugees from sub-Saharan Africa who have not received predeparture therapy.

A negative result on this assay does not rule out the presence of PCR inhibitors in the patient specimen or assay-specific nucleic acid in concentrations below the level of detection by the assay.

Performing Lab:
ARUP

ARUP Test Code:
2004963

ADMINISTRATIVE

CPT Codes:
87798 x5

Last Reviewed:
12/2/2023

MANGANESE (SQ:MANGAA)

MANAA

TESTING INFORMATION

Ordering Recommendations:
May be useful as a reasonable indicator of recent, active exposure and provides a modest indicator for distinguishing exposed from nonexposed individuals. Not recommended for the assessment of manganese body stores. Manganese, Whole Blood (0099272) is recommended for monitoring potential accumulation with TPN.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).

Collect:
Royal Blue (No Additive).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma. Specimens that are not separated from clot, within 2 hours. Separator tubes or Royal Blue (EDTA). Specimens transported in tubes other than specified. Hemolyzed specimens.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Performed:
Sun-Sat

Reference Interval:
0.0-2.0 µg/L

Reported:
1-3 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum manganese, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Less than 5 percent of manganese present in circulation resides in the serum.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0099265

ADMINISTRATIVE

CPT Codes:
83785

MAPLE (BOX ELDER), ALLERGEN (SQ: BOXMAP)

MAPLE

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Purple Top Tube	6.0 mL	4.0 mL

Pediatric Collection:
Minimum volume 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP.
Collect 0.3mL serum or plasma for one allergen. Collect additional 0.1mL for each additional allergen.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8 degrees C for one allergen. Add 0.1 mL for each additional allergen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term Storage

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

MAT SER SCN SPCM2 (SQ:MSIS2)

MSIS2

TESTING INFORMATION

Ordering Recommendations:
Second-trimester screening test for trisomy 21 (Down syndrome), trisomy18, and open neural tube defects. Requires a previously submitted first-trimester specimen, Maternal Serum Screening, Integrated, Specimen #1, PAPP-A, NT (3000147). Risks are determined after second-trimester specimen is received, using a combination of first- and second-trimester serum markers with or without first-trimester nuchal translucency measurement.

Patient Preparation:
Specimen must be drawn between 14 weeks, 0 days and 24 weeks, 6 days gestation. The recommended time for maternal serum screening is 16 to 18 weeks gestation.

Collect:
Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 3 mL serum to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Plasma. Hemolyzed specimens.

Remarks:
Requires that a previous first trimester specimen, Maternal Serum Screening, Integrated, Specimen #1, PAPP-A, NT (ARUP test code 3000147), has been performed.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 year (Avoid repeated freeze/thaw cycles.)

Performed:
Sun-Sat

Reference Interval:
By report

Reported:
2-4 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Notes:
This test is used to screen for fetal risk of Down syndrome (trisomy 21), trisomy 18, and Open Neural Tube Defect (ONTD, spina bifida).

Interpretive Data:
Refer to report.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
3000149

ADMINISTRATIVE

CPT Codes:
81511

MATERNAL SCN AFP (SQ:MAFPSP)

MAFPS

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

FORM REQUIREMENT:
Please print and complete form and send with specimen for testing. Not having this form will delay processing and testing.

Patient History Form

Ordering Recommendations:

Second-trimester screening test for open neural tube defects. Order this test for PREGNANT FEMALE patients only. For males or non-pregnant females, refer to Alpha Fetoprotein, Serum (Tumor Marker) (0080428).

Patient Preparation:

Specimen must be drawn between 14 weeks, 0 days and 24 weeks, 6 days gestation.

Collect:

Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:

Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:

Plasma. Hemolyzed specimens.

Remarks:

Submit with Order: Patient's date of birth, current weight, due date, dating method (US, LMP), number of fetuses present, patient's race, if the patient was diabetic at the time of conception, if there is a known family history of neural tube defects, if the patient is currently smoking, if the patient is taking valproic acid or carbamazepine (Tegretol), if this is a repeat sample, and the age of the egg donor if an in vitro fertilization.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 year (Avoid repeated freeze/thaw cycles.)

Performed:

Sun-Sat

Reference Interval:

By report

Reported:

2-3 days

Methodology:

Quantitative Chemiluminescent Immunoassay

Notes:

This test is used to screen for fetal risk of Open Neural Tube Defect (i.e., spina bifida).

Interpretive Data:

Refer to report.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

3000144

ADMINISTRATIVE

CPT Codes:

82105

Last Reviewed:

12/2/2023

MATERNAL SCN QUAD (SQ:METHDA)

MTHDA

TESTING INFORMATION

Ordering Recommendations:
Use to monitor patient adherence.

Collect:
Gray (sodium fluoride/potassium oxalate). Also acceptable: Plain red, green (sodium heparin), lavender (EDTA), or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Separator tubes. Plasma or whole blood collected in lt. blue (sodium citrate). Specimens exposed to repeated freeze/thaw cycles. Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years

Performed:
Sun-Sat

Reference Interval:
Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Methadone	10 ng/mL
EDDP	10 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 10 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
0090699

ADMINISTRATIVE

CPT Codes:
80358 (Alt code: G0480)

MATERNAL SCN,SPCM 1 (SQ:MSIS1)

MSIS1

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

FORM REQUIREMENT:
Please print and complete form and send with specimen for testing. Not having this form will delay processing and testing.

Patient History Form

Ordering Recommendations:

First-trimester screening test for trisomy 21 (Down syndrome), trisomy 18, and open neural tube defects. Risks determined using a combination of first and second-trimester serum markers, with or without first-trimester nuchal translucency measurement. Risks provided after testing is completed for second-trimester specimen, Maternal Serum Screening, Integrated, Specimen #2, Alpha Fetoprotein, hCG, Estriol, and Inhibin A (3000149).

Patient Preparation:

Specimen must be drawn between 10 weeks, 0 days and 13 weeks, 6 days gestation. (If gestational age is based on crown-rump length (CRL), the specimen must be collected when the CRL is between 32.4-83.9 mm.)

Collect:

Serum separator tube (SST) or plain ped.

Specimen Preparation:

Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP standard transport tube. (Min: 0.3 mL)

Unacceptable Conditions:

Plasma. Hemolyzed specimens.

Remarks:

Submit with Order: Patient's date of birth, current weight, number of fetuses present, patient's race, if the patient was diabetic at the time of conception, if there is a known family history of neural tube defects, if the patient has had a previous pregnancy with a trisomy, if the patient is currently smoking, if the patient is taking valproic acid or carbamazepine (Tegretol), if this is a repeat sample, and the age of the egg donor if in vitro fertilization. In addition to the above, if a NT measurement is performed: the date of ultrasound, the CRL measurement, the nuchal translucency (NT) measurement, and the name and certification number of the sonographer is required. NT must be measured when the CRL is between 38-83.9 mm. or If no NT measurement is performed a due date or CRL measurement with the date of ultrasound is required. The NT measurement must also be performed by an ultrasonographer that is certified by the Fetal Medicine Foundation (FMF). To avoid possible test delays for an ultrasonographer that is new to our database, please contact a genetic counselor at 800-242-2787 extension 2141 prior to sending specimen.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 year (Avoid repeated freeze/thaw cycles.)

Performed:

Sun-Sat

Reference Interval:

By report

Reported:

2-4 days

Methodology:

Quantitative Chemiluminescent Immunoassay (CLIA)

Notes:

The first specimen of an integrated maternal serum screening is used to measure PAPP-A. Final interpretative report will be available when the second specimen test results are complete.

Interpretive Data:

Refer to report.

Performing Lab:

ARUP

ARUP Test Code:

3000147

ADMINISTRATIVE

CPT Codes:

84163

Last Reviewed:

12/2/2023

MATERNAL SERUM SCREEN QUAD (SQ:MAQAD)

MSSQ

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

FORM REQUIREMENT:
Please print and complete form and send with specimen for testing. Not having this form will delay processing and testing.

Patient History Form

Ordering Recommendations:

Second-trimester screening test for trisomy 21 (Down syndrome), trisomy 18, and open neural tube defects.

Patient Preparation:

Specimen must be drawn between 14 weeks, 0 days and 24 weeks, 6 days gestation. The recommended time for maternal serum screening is 16 to 18 weeks gestation.

Collect:

Serum Separator Tube (SST) or Plain Red.

Specimen Preparation:

Separate from cells ASAP or within 2 hours of collection. Transfer 3 mL serum to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:

Plasma. Hemolyzed specimens.

Remarks:

Submit with Order: Patient's date of birth, current weight, due date, dating method (US, LMP), number of fetuses present, patient's race, if the patient was diabetic at the time of conception, if there is a known family history of neural tube defects, if the patient has had a previous pregnancy with a trisomy, if the patient is currently smoking, if the patient is taking valproic acid or carbamazepine (Tegretol), if this is a repeat sample, and the age of the egg donor if in vitro fertilization.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 year (Avoid repeated freeze/thaw cycles.)

Performed:

Sun-Sat

Reference Interval:

By report

Reported:

2-3 days

Methodology:

Quantitative Chemiluminescent Immunoassay

Notes:

This test is used to screen for fetal risk of Down syndrome (trisomy 21), trisomy 18, and Open Neural Tube Defect (ONTD, spina bifida).

Interpretive Data:

Refer to report.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

3000143

ADMINISTRATIVE

CPT Codes:

81511

MEASLES (RUBEOLA) AB, IGM, S (SQ:RUBEMA)

RUBEO

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of acute measles infection. Consider ordering Measles (Rubeola) Antibodies, IgG and IgM (0050375).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:
0.79 AU or less: Negative - No significant level of IgM antibodies to measles (rubeola) virus detected.
0.80-1.20 AU: Equivocal - Repeat testing in 10-14 days may be helpful.
1.21 AU or greater: Positive - IgM antibodies to measles (rubeola) virus detected. Suggestive of current or recent infection or immunization. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization.

Reported:
1-5 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Performing Lab:
ARUP

ARUP Test Code:
0099597

ADMINISTRATIVE

CPT Codes:
86765

Last Reviewed:
12/2/2023

MEASLES (RUBEOLA) ANTIBODIES, IGG AND IGM (SQ:RUBEO)

RUBMG

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of measles infection. Test may not be helpful in patients who have recently received an MMR vaccination.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Refer to individual components.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon, Wed, Fri

Reference Interval:

Components	Reference Interval
Measles, Rubeola, Antibody IgM	0.79 AU or less

Reported:
1-6 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Semi-Quantitative Chemiluminescent Immunoassay

Interpretive Data:

Component	Interpretation
Measles (Rubeola) Antibody, IgG	13.4 AU/mL or less: Negative - No significant level of detectable measles (rubeola) IgG antibody. 13.5-16.4 AU/mL: Equivocal - Repeat testing in 10-14 days may be helpful. 16.5 AU/mL or greater: Positive - IgG antibody to measles (rubeola) detected, which may indicate a current or past exposure/immunization to measles (rubeola).
Measles (Rubeola) Antibody, IgM	0.79 AU or less: Negative - No significant level of IgM antibodies to measles (rubeola) virus detected. 0.80-1.20 AU: Equivocal - Repeat testing in 10-14 days may be helpful. 1.21 AU or greater: Positive - IgM antibodies to measles (rubeola) virus detected. Suggestive of current or recent infection or immunization. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization.

Performing Lab:
ARUP

ARUP Test Code:
0050375

ADMINISTRATIVE

CPT Codes:
86765 x2

Last Reviewed:
12/1/2023

MECONIUM DRUG SCREEN (SQ:MECDSA)

MCDSA

TESTING INFORMATION

Ordering Recommendations:

Use to detect and document fetal drug exposure during approximately the last trimester of a full-term pregnancy. For panel testing that includes THC metabolite, refer to Drug Detection Panel and THC Metabolite, Meconium, Qualitative (3006373).

Collect:

All meconium (blackish material) excreted until milk/formula-based stool (yellow-green) appears.

Specimen Preparation:

Transport all available meconium (2g is preferred) to routine urine collection cup or Security Kit for Meconium/Umbilical Drug Detection (ARUP supply #51548) available online through eSupply using ARUP Connect(TM) or by contacting ARUP Client Services at 800-522-2787.

Unacceptable Conditions:

Unknown fluids, pharmaceutical preparation, and breast milk. Diapers, cotton swabs, baby wipes, tongue depressors, bottles.

Storage/Transport Temperature:

Refrigerated temperature.

Stability (from collection to initiation):

Ambient: 1 week; Refrigerated: 3 weeks; Frozen: 1 year

Performed:

Sun-Sat

Reference Interval:

Drugs covered and range of cutoff concentrations.			
Drugs/Drug Classes	**Cutoff Concentrations (ng/g)**	**Drugs/Drug Classes**	**Cutoff Concentrations (ng/g)**
Buprenorphine	20	Amphetamine	20
Norbuprenorphine	20	Benzoylecgonine	20
Naloxone	20	m-OH-Benzoylecgonine	20
Codeine	20	Cocaethylene	20
Dihydrocodeine	20	Cocaine	20
Fentanyl	10	MDMA (Ecstasy)	20
Hydrocodone	20	Methamphetamine	20
Norhydrocodone	20	Phentermine	20
Hydromorphone	20	Alprazolam	5
Meperidine	20	Alpha-OH-Alprazolam	5
Methadone	10	Butalbital	50
Methadone metabolite	10	Clonazepam	5
6-Acetylmorphine	20	7-Aminoclonazepam	5
Morphine	20	Diazepam	5
Methylphenidate	20	Lorazepam	20
Oxycodone	20	Midazolam	20
Noroxycodone	20	Alpha-OH-Midazolam	20
Oxymorphone	20	Nordiazepam	20
Tapentadol	20	Oxazepam	20
Tramadol	20	Phenobarbital	200
N-desmethyltramadol	20	Temazepam	20
O-desmethyltramadol	20	Zolpidem	10
Gabapentin	20	Phencyclidine (PCP)	10
Mitragynine (Kratom)	25		

Reported:

1-3 days

Methodology:

Qualitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:

When ordering both meconium tests, unless ARUP is otherwise notified, testing will be performed in the following order of priority:

Drug Detection Panel (0.125g)
Marijuana (0.125g)

Interpretive Data:

Methodology: Qualitative Liquid Chromatography/Tandem Mass Spectrometry

Detection of drugs in meconium is intended to reflect maternal drug use during approximately the last trimester of a full-term pregnancy. The pattern and frequency of drug(s) used by the mother cannot be determined by this test. A negative result does not exclude the possibility that a mother used drugs during pregnancy. Detection of drugs in meconium depends on the extent of maternal drug use, as well as drug stability, unique characteristics of drug deposition in meconium, and the performance of the analytical method. Drugs administered during labor and delivery may be detected. Detection of drugs in meconium does not insinuate impairment and may not affect outcomes for the infant. Interpretive questions should be directed to the laboratory.

For medical purposes only; not valid for forensic use.

Performing Lab:

ARUP

ARUP Test Code:

3004583

ADMINISTRATIVE

CPT Codes:

80346; 80348; 80353; 80361; 80356; 80365; 80373; 80354; 80362; 80355; 80359; 80325; 80360; 80345; 80372; 80358; 83992; 80323; 80368 (Alt code: G0482)

Last Reviewed:

12/1/2023

MENINGITIS/ENCEPHALITIS PANEL, CSF (SQ: SFPCR)

MEPAN

TESTING INFORMATION

Ordering Recommendations:
CSF Culture MUST be ordered in conjuction with this test.

Collect:
CSF from a lumbar puncture

Unacceptable Conditions:
CSF collected from a shunt

Storage/Transport Temperature:
Transport STAT to the laboratory at ambient, room temperature.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
24 hours		7 days		

Methodology:
Biofire PCR

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Bacteria:

- Escherichia coli K1
- Haemophilus influenzae
- Listeria monocytogenes
- Nisseria menigitidis
- Streptoccus agalactiae

Virus

- Cytomegalovirus (CMV)
- Enterovirus (EV)
- herpes simplex virus 1 (HSV-1)
- Herpes Simplex virus 2 (HSV-2)
- Human Herpes Virus 6 (HHV-6)
- Human parechovirus (HpeV)
- Varicella Zoster Virus (VZV)

Yeast

- Cryptoccus neoformans/gatii

Billing Aids:
Per CMS guidelines, Molecular (Film Array) and Antigen testing for the same organism can not be billed on the same day.

ADMINISTRATIVE

CPT Codes:
87483

Billing Aids:
Per CMS guidelines, Molecular (Film Array) and Antigen testing for the same organism can not be billed on the same day.

MERCURY, BLOOD (SQ:HGA)

HG

TESTING INFORMATION

Ordering Recommendations:
Preferred test for the assessment of acute mercury exposure. For chronic exposure, Mercury, Urine (0025050) is preferred.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patient should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48 to 72 hours.

Collect:
Royal blue (K2EDTA) or royal blue (NaHep).

Specimen Preparation:
Transport 3 or 6 mL whole blood in the original collection tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens collected in tubes other than royal blue (K2EDTA) or royal blue (NaHep). Specimens transported in containers other than royal blue (K2EDTA) or royal blue (NaHep) tube or trace element-free transport tube. Clotted specimens.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 week; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Less than or equal to 10.0 µg/L

Reported:
1-3 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Notes:
Mercury is volatile; concentration may decrease over time.

Interpretive Data:
Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of blood mercury, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Blood mercury levels predominantly reflect recent exposure and are most useful in the diagnosis of acute poisoning as blood mercury concentrations rise sharply and fall quickly over several days after ingestion. Blood concentrations in unexposed individuals rarely exceed 20 µg/L. The provided reference interval relates to inorganic mercury concentrations. Dietary and non-occupational exposure to organic mercury forms may contribute to an elevated total mercury result. Clinical presentation after toxic exposure to organic mercury may include dysarthria, ataxia and constricted vision fields with mercury blood concentrations from 20 to 50 µg/L.

Performing Lab:
ARUP

ARUP Test Code:
0099305

ADMINISTRATIVE

CPT Codes:
83825

Last Reviewed:
12/2/2023

METANEPHRINES, FRACT, FREE, P (SQ:METAPF)

PMET

TESTING INFORMATION

Ordering Recommendations:
First-line test in suspected pheochromocytoma.

Patient Preparation:
Drugs and medications may affect results and should be discontinued for at least 72 hours prior to specimen collection, if possible. Collection of the specimen after the patient has rested for 15 minutes in a supine position is recommended.

Collect:
Lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Centrifuge within 1 hour. Transfer 2 mL plasma to an ARUP standard transport tube and freeze immediately. (Min: 1 mL) Avoid hemolysis.

Unacceptable Conditions:
Plasma separator tubes. Body fluids other than EDTA or heparinized plasma. Grossly hemolyzed.

Storage/Transport Temperature:
Frozen. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 10 Days; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Normetanephrine: 0.0-0.89 nmol/L
Metanephrine: 0.0-0.49 nmol/L

Reported:
2-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Isoetharine, isoproterenol, 3,4-methylenedioxyamphetamine (MDA), and 3,4-methylenedioxymethamphetamine (MDMA) are known to interfere with this test.

Many drugs/medications, including over-the-counter and herbal products, can interfere with test results. Testing for all potential interactions is not possible. If the patient is taking a drug not listed as an interferent, its potential effect on test results is unknown. If test results are inconsistent with clinical evidence, drug interference should be considered. If appropriate, the patient should discontinue the potential interferent for 48-72 hours and a new sample collected for retesting.

Interpretive Data:
This test is useful in the detection of pheochromocytoma, a rare neuroendocrine tumor. The majority of patients with pheochromocytoma have a plasma normetanephrine concentration in excess of 2.2 nmol/L and/or a metanephrine concentration in excess of 1.1 nmol/L. Increased concentrations of these analytes serve as confirmation for diagnosis. Patients with essential hypertension and plasma concentrations of normetanephrine below 0.9 nmol/L and a metanephrine concentration below 0.5 nmol/L, can be excluded from further testing. If clinical suspicion remains, repeat testing or testing for metanephrines in a 24-hr. urine specimen should be considered.

Performing Lab:
ARUP

ARUP Test Code:
0050184

ADMINISTRATIVE

CPT Codes:
83835

METANEPHRINES, FRACTIONATED, 24 HR, U (SQ:URMETA)

MTA24

TESTING INFORMATION

Ordering Recommendations:
First-line test in suspected pheochromocytoma.

Patient Preparation:
If possible, abstain from medications for 72 hours prior to collection.

Collect:
24-hour or random urine. Refrigerate 24-hour specimen during collection.

Specimen Preparation:
Thoroughly mix entire collection (24-hour or random) in one container. Transfer a 4 mL aliquot to an ARUP standard transport tube. (Min: 2.5 mL) A pH lower than 2 can cause assay interference. Record total volume and collection time interval on transport tube and test request form.
Specimen preservation can be extended to 1 month refrigerated by performing one of the following:
Option 1: Transfer a 4 mL aliquot to an ARUP standard transport tube. (Min: 2.5 mL) Adjust pH to 2.0-4.0 with 6M HCl.
Option 2: Transfer a 4 mL aliquot to an ARUP standard transport tube containing 20 mg sulfamic acid (ARUP Supply #48098), available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 2.5 mL)

Unacceptable Conditions:
Specimens preserved with boric acid or acetic acid.

Storage/Transport Temperature:
Refrigerated. Also acceptable: Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 2 weeks (unpreserved), 1 month (preserved); Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Components

Creatinine, Urine - per 24h

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

Metanephrine, Urine - per 24h

Age	Male (µg/d)	Female (µg/d)
0-6 years	Not Applicable	Not Applicable
7-12 years	45-273	40-209
13-17 years	56-298	40-209
18 years and older	55-320	36-229

Metanephrine, Urine - ratio to CRT

Age	µg/g CRT
0-3 months	0-700
4-6 months	0-650
7-11 months	0-650
1 year	0-530
2-5 years	0-500
6-17 years	0-320
18 years and older	0-300

Normetanephrine, Urine - per 24h

Age	Male (µg/d)	Female (µg/d)
0-6 years	Not Applicable	Not Applicable
7-12 years	58-670	48-474
13-17 years	82-553	65-406
18-29 years	81-667	18 years and older: 95-650
30 years and older	114-865	Not Applicable

Normetanephrine, Urine - ratio to CRT

Age	µg/g CRT
0-3 months	0-3400
4-6 months	0-2200
7-11 months	0-1100
1 year	0-1300
2-5 years	0-610
6-17 years	0-450
18 years and older	0-400

Reported:

1-5 days

Methodology:

Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:

Smaller increases in metanephrine and/or normetanephrine concentrations (less than two times the upper reference limit) usually are the result of physiological stimuli, drugs, or improper specimen collection. Essential hypertension is often associated with slight elevations (metanephrine less than 400 ug/d and normetanephrine less than 900 ug/d). Elevated concentrations may be due to intense physical activity, life-threatening illness, and drug interferences.

Significant elevation of one or both metanephrines (three or more times the upper reference limit) is associated with an increased probability of a neuroendocrine tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

Performing Lab:

ARUP

ARUP Test Code:

2007996

ADMINISTRATIVE

CPT Codes:

83835

Last Reviewed:

12/2/2023

METHADONE/METAB QUANT (SQ:MTDNUA)

MTDNU

TESTING INFORMATION

Ordering Recommendations:
Use to obtain quantitative results or to follow up a presumptive result. For general screening, the preferred test is Methadone Urine Screen with Reflex to Quantitation (2012245).

Collect:
Random urine.

Specimen Preparation:
Transfer 1 mL with no additives or preservatives urine to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years

Performed:
Sun-Sat

Reference Interval:

Drugs Covered	Cutoff Concentrations
Methadone	100 ng/mL
EDDP	100 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Compare to Pain Management, Methadone, Quantitative, with medMATCH, Urine; Pain Management, Methadone, with Confirmation with medMATCH, Urine.

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 100 ng/mL

For medical purposes only; not valid for forensic use.

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
0090362

ADMINISTRATIVE

CPT Codes:
80358 (Alt code: G0480)

Last Reviewed:
12/2/2023

METHEMOGLOBIN (SQ: MTHGB)

MTHGB

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Lithium Heparin (Green)	6.0 mL	3.0 mL
STAT:			

Specimen Preparation:

DO NOT CENTRIFUGE, no gel Mint green tube

Remarks:

Do not freeze. Avoid hemolysis. Other anticoagulants unacceptable. Samples with excessive turbidity or containing methylene blue should be avoided. Do not separate plasma from cells. DO NOT OPEN THE TUBE, DO NOT CENTRIFUGE

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
for optimum results - test immediately	3 days	

Performed:

Sunday-Saturday

Reference Interval:

0 - 1.5 %

Methodology:

Co-oximetry (spectrophotometry)

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

83050

Last Reviewed:

1/22/24

METHYLMALONIC ACID, QN, RANDOM, U (SQ:UUMMA)

MMAU

TESTING INFORMATION

Ordering Recommendations:
Use to monitor patients with methylmalonic aciduria. Diagnosis of methylmalonic aciduria requires an organic acid panel and appropriate clinical history.

Collect:
24-hour or random urine. Refrigerate 24-hour specimens during collection.

Specimen Preparation:
Transfer a 4 mL aliquot from a well-mixed 24-hour or random urine collection to an ARUP Standard Transport Tube and refrigerate or freeze immediately. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Room temperature specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
<tr><td>MMA - ratio to CRT</td><td>0.0-3.6 mmol/mol CRT</td></tr>
</table>

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Urinary methylmalonic acid, when increased, is an early and sensitive indicator of vitamin B12 (cobalamin) deficiency. This test can also be used to monitor patients with methylmalonic aciduria. Diagnosis of methylmalonic aciduria requires an organic acid panel and appropriate clinical history.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0083918

ADMINISTRATIVE

CPT Codes:
83921

Last Reviewed:
12/2/2023

METHYLMALONIC ACID, QN, S (SQ:MMAA)

MMAS

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate vitamin B12 deficiency in individuals with macrocytic or unexplained anemia, or unexplained neurologic disease. Preferred test is Vitamin B12 with Reflex to Methylmalonic Acid, Serum (Vitamin B12 Status) (0055662).

Collect:
Plain red or serum separator tube. Also acceptable: Green (sodium heparin), green (lithium heparin), lavender (EDTA), or pink (K_2EDTA).

Specimen Preparation:
Centrifuge and remove serum or plasma from cells within 2 hours of collection. Transfer 1.2 mL serum or plasma to an ARUP Standard Transport Tube and refrigerate or freeze immediately. (Min: 0.6 mL)

Unacceptable Conditions:
Room temperature specimens. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
0.00-0.40 µmol/L

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0099431

ADMINISTRATIVE

CPT Codes:
83921

Last Reviewed:
12/2/2023

METHYLPHENIDATE/METAB QUANT (SQ:FMMTUA)

FMMTU

TESTING INFORMATION

Ordering Recommendations:
Useful for general testing in contexts of compliance and/or abuse. Preferred test to follow-up presumptive results.

Collect:
Random urine.

Specimen Preparation:
Transfer 2 mL urine with no additives or preservatives to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Room temperature specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 3 weeks; Frozen: 3 months

Performed:
Mon, Thu, Sat

Reference Interval:

Drugs Covered	Methylphenidate
Methylphenidate	10 ng/mL
Ritalinic acid	50 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry
Positive Cutoff: Methylphenidate: 10 ng/mL
Ritalinic acid: 50 ng/mL

The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Interpretive questions should be directed to the laboratory.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2003115

ADMINISTRATIVE

CPT Codes:
80360 (Alt code: G0480)

Last Reviewed:
12/2/2023

MICROALBUMIN, URINE (SQ: MALBU)

MAMA7

TESTING INFORMATION

Ordering Recommendations:
Do not collect sample after exertio, in prescense of UTI, acute illness, immediately after surgery or after an acute fluid load.

Patient Preparation:
Timed specimens, must remain refrigerated during collection

Collect:

Specimen Type	Collection Container	Volume
24 hour urine	clean container with secure lid without preservatives	
Urine, random or timed collecions	clean container with secure lid without preservatives	

Unacceptable Conditions:
Frozen samples. Urine containing blood or fecal matter.

Remarks:
Specify total volume and collection time on test request form.

Storage/Transport Temperature:
Entire urine collection, or a 5 mL aliquot from a well-mixed24-hour collection, random or other timed urine collection at 2-8oC.

Performed:
Sunday-Saturday

Methodology:
Nephelometry

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
82043

Last Reviewed:
1/22/24

MICROALBUMIN/CREATININE RATIO (SQ: MACRA)

MACR7

TESTING INFORMATION

Collect:

Random Collection: Collect a voided urine specimen cup; then ensure urine is well-mixed and transfer 5mL (Min: 1 mL) into a non-additive BD urine tube for transport/testing. BD urine tube cannot be shared for UA, Micro or Drug Testing.

24 hour collection may be used

Unacceptable Conditions:

Frozen samples. Urine containing blood or fecal matter.

Remarks:

Specify total volume and hours of collection for 24 hour urines or timed collections.

Storage/Transport Temperature:

Transport urine refrigerated

Stability (from collection to initiation):

URINE STABILITY		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
hour	4 days	

Performed:

Sunday-Saturday

Methodology:

Nephelometry/Spectrophotometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

- Microalbumin, Urine Quant (MALBU)
- Creatinine Urine, Random (UCREA)

ADMINISTRATIVE

CPT Codes:

82043 - Microalbumin, Urine
82570 - Creatinine, Urine

Last Reviewed:

7/3/24

MILK COMPONENT TESTING (SQ: MLKCOM)

MILKC

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	0.3 mL - 1 allergen 0.1 mL - ea additional allergen	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	0.3 mL - 1 allergen 0.1 mL - ea additional allergen	3.0 mL
1 Lavendar Top Tube	0.3 mL - 1 allergen 0.1 mL - ea additional allergen	3.0 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP.

Unacceptable Conditions:

- Hemolyzed,
- icteric, or
- lipemic samples

Storage/Transport Temperature:

Refrigerated

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
2 days	1 week	long term storage

Reference Interval:

Class 00: 0.10 kU/L Absent or undetectable
Class 01: 0.10; 0.70 kU/L Low
Class 02: 0.71 3.50 kU/L Moderate
Class 03: 3.51; 17.50 kU/L High
Class 04: 17.51: 50.00 kU/L Very High
Class 05: 50.01: 100.00 kU/L Very High
Class 06:100 kU/L Very High

Methodology:

ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:

Results with allergens scoring in:
Class 1 should be consideredweakly positive and equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific
IgE, this may ot correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

Components:

- a-lactablumin,
- B -lactoglobulin and
- Casein

ADMINISTRATIVE

CPT Codes:

86008 x 3

Last Reviewed:
12/2/24

MILK, IGE (SQ: MILKC)

MILK

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long term storage

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
a-lactalbumin
b-lactoglobulin
Casein

ADMINISTRATIVE

Last Reviewed:
2/1/24

MISCELLANEOUS TEST #1 ARUP TESTING (SQ:MISCA1)

MISA1

TESTING INFORMATION

Ordering Recommendations:

This code is used for testing that sent to ARUP and no order code is available in our systems. Please refer to ARUP manual for their test code and include along with the test name when using this code.

Performing Lab:

ARUP

ADMINISTRATIVE

Last Reviewed:

12/2/2023

Miscellaneous Testing Sending Outside of Carle Health to MAYO (SQ: MISMGO)

MISMO

TESTING INFORMATION

Collect:
See requirement of Specific Mayo tests

Remarks:
Footnote of MAYO Test Code and Test Name requested isrequired.

Performing Lab:
Mayo Medical Laboratories

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
1/22/24

MITOCHONDRIAL ANTIBODY (SQ: MITM2A)

MTAB

TESTING INFORMATION

Ordering Recommendations:
May be useful in confirming a diagnosis of primary biliary cholangitis.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL to an ARUP standard transport tube. (Min: 0.3 mL)

Unacceptable Conditions:
Plasma. Contaminated, hemolyzed, grossly icteric, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Mitochondrial (M2) Antibody, IgG	24.9 Units or less

Reported:
1-2 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)

Interpretive Data:
Antimitochondrial antibodies (AMA) are thought to be present in 90-95% of patients with primary biliary cholangitis (PBC). However, the frequency of detected antibodies may be cohort or assay dependent, as lower sensitivities have been reported. Not all PBC patients are positive for AMA; some patients may be positive for SP100 and/or GP210 antibodies. A negative result does not rule out PBC.

Component	Interpretation
Mitochondrial M2 Antibody, IgG (ELISA)	20.0 Units or less Negative 20.1-24.9 Equivocal 25.0 Units or greater Positive

Performing Lab:
ARUP

ARUP Test Code:
0050065

ADMINISTRATIVE

CPT Codes:
86381

Last Reviewed:
12/2/2023

Monitr Crohn's Disease (SQ: MISCLB)

TESTING INFORMATION

Collect:
Specimen Type: Spun Serum (2.0 mL)
Collection tube: Spun Serum Separator Tube

Storage/Transport Temperature:
Refrigeration preferred ship with cold pack

Stability (from collection to initiation):
Room temp: 3 days
Referigerated: 14 days

Reported:
5 days once received at Referral lab

Performing Lab:
Prometheus Laboratories

Testing Region:
Carle West

MONO TEST (SQ: MONOSC)

MONOT

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top Tube	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250uL

Unacceptable Conditions:

Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluids
Incompletely labeled or mislabeled
Stability exceeded
Frozen

Storage/Transport Temperature:

EDTA whole blood transported at refrigerated 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
NA	24 hours	Unacceptable

Performed:

Daily

Reference Interval:

Negative

Methodology:

Immunochromatographic dipstick

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86308

Last Reviewed:

1/18/24:ME

MONOCLONAL GAMMOPATHY SCREEN PANEL (SQ: VMMP)

VMMP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL

Specimen Preparation:

Seperate Serum from cells ASAP

Unacceptable Conditions:

Plasma samples

Stability (from collection to initiation):

	ONCE SEPERATED FROM CELLS		
	Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
APE	8 hours	3 days	1 month
IMTYP	8 hours	10 days	21 days
FLCS	8 hours	21 days	

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

APE: 84155 and 84165
FLCS: 38521 x 2

Last Reviewed:

12/2/2024

MOUNTAIN CEDAR (T6), ALLERGEN (SQ: MTCED)

MTCE

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Purple Top Tube	4.0 mL	4.0 mL

Pediatric Collection:

Minimum volume: 0.3mL serum or plasma

Specimen Preparation:

Separate serum or plasma from cells ASAP. Collect 0.3mL serum or plasma for one allergen. Collect additional 0.1mL for each additional allergen.

Unacceptable Conditions:

Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:

0.3 mL serum at 2-8 degrees C for one allergen. Add 0.1 mL for each additional allergen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term Storage

Performed:

Variable

Reference Interval:

Negative/Undetected

Methodology:

ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:

Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86003

MPOS (SQ: MPOG)

MPOS

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL

Pediatric Collection:

0.5 mL serum

Specimen Preparation:

Separate serum from cells ASAP.

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1 mL serum or centrifuged gold top, refrigerated

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:

Variable Days

Methodology:

Multiplex Flow Immunoassay

Interpretive Data:

Negative: 1.0 AIPositive:1.0 AI

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

83516

Last Reviewed:

1/22/24

MRSA BY PCR ASSAY, NASAL (SQ: MRSPCR)

MRSA

TESTING INFORMATION

Collect:

Preferred Specimen
eSwab from both nares
Other Acceptable Speimens:
none

Unacceptable Conditions:

- Dry swab or specimen collected from source other than nares.
- Red capped dual culturette swab

Storage/Transport Temperature:
Transport promptly to laboratory at ambient temperature

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 Hours	5 Days	Unacceptable

Performed:
Daily

Methodology:
Nucleic Acid Amplification by PCR

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87641

Last Reviewed:
7/3/24

MRSA CULTURE (SQ: VCMRSA)

VMRSA

TESTING INFORMATION

Ordering Recommendations:

If site other than NARES, order Aerobic culture (Epic: VCAER)

Collect:

Specimen Type	Collection Container	Volume
NARES ONLY	eSwab	

Remarks:

All Staphylococcus aureus isolates from clinically significant sites are screened for methicillin susceptibility.

Storage/Transport Temperature:

Sterile, leak-proof container. eSwab in transport media. Transport promptly to laboratory at Ambient (room temperature) temperature or refrigeration.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 hours	48 hours	Unacceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedures for aerobic bacterial culture and identification.

Notes:

This is a MRSA screen only. Susceptibility testing not performed if postive for MRSA

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

87081

Last Reviewed:

1/19/24

MTB CMPLX RIFAMPIN RES PCR (SQ:MTBRRA)

MTBRA

TESTING INFORMATION

Ordering Recommendations:
Panel includes PCR testing to detect M. tuberculosis complex isolates and determine possible resistance to rifampin treatment. Test may be ordered for client-processed specimens. Refer to specimen requirements.

Collect:
Respiratory specimens, CSF, pleural fluid, or tissue.

Specimen Preparation:
Unprocessed Specimens: Transport 5-10 mL respiratory specimen, CSF or pleural fluid (Min: 1 mL) in a sterile container, or tissue large enough to be ground. Label as unprocessed.
Processed Specimens: Transport 2-5 mL digested/decontaminated respiratory specimen, CSF, pleural fluid, or tissue in a sterile container. (Min: 1 mL)
Place each specimen in an individually sealed bag.

Unacceptable Conditions:
Blood, paraffin blocks, stool, swabs, and urine.

Remarks:
Specimen source required. Processed Specimens: Identify method used for digestion and provide smear results.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Unprocessed: Ambient: 3 days; Refrigerated: 1 week; Frozen: 1 month
Processed: Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Notes:
Body fluids other than pleural fluid will be run with a disclaimer.

Specimen source required. To perform this test, it is essential to know whether or not the submitted specimen has been processed (digestion and decontamination procedure). If processed, smear results must be provided as a comment on the test order or requisition. Delayed turnaround time will occur if the required information is not provided.

After a positive result, repeat orders for Mycobacterium tuberculosis Complex Detection and Rifampin Resistance by PCR will continue to yield a positive result and repeat testing is not clinically indicated.

The Xpert MTB/RIF test performance has not been evaluated with samples from pediatric patients.

Interpretive Data:
Mycobacterial culture is a more sensitive method than molecular testing for the diagnosis of tuberculosis and is still considered the gold standard. When possible, a culture must be performed regardless of the molecular method test result.

Performing Lab:
ARUP

ARUP Test Code:
2010775

ADMINISTRATIVE

CPT Codes:
87564

Last Reviewed:
12/2/2023

MTHFR MUTATION DETECTION (SQ: MTHFR)

MHFR

TESTING INFORMATION

Ordering Recommendations:
Examines one genetic factor that contributes to hyperhomocysteinemia. Test is not recommended for recurrent pregnancy loss, thrombophilia screening, or neural tube defect risk assessment, or for family members of individuals with known MTHFR variants.

Collect:
Lavender (EDTA), pink (K_2EDTA), or yellow (ACD Solution A or B).

Specimen Preparation:
Transport 3 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Plasma or serum. Heparinized specimens. Frozen specimens in glass collection tubes.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Negative: Neither of the MTHFR variants tested, c.665C>T (previously designated C677T) and c.1286A>C (previously designated A1298C), were detected. Other causes of elevated homocysteine levels were not evaluated.

Reported:
2-6 days

Methodology:
Polymerase Chain Reaction (PCR)/Fluorescence Monitoring

Interpretive Data:
Background Information for Methylenetetrahydrofolate Reductase (MTHFR), 2 Variants:
Characteristics: Variants in the MTHFR gene may reduce enzyme activity contributing to hyperhomocysteinemia. Although hyperhomocysteinemia was previously reported to be a risk factor for many conditions, especially venous thrombosis and cardiovascular disease, recent meta-analysis casts doubt on whether lifelong moderate homocysteine elevation has an effect on cardiovascular disease. The American College of Medical Genetics Practice Guidelines indicate that individuals with elevated homocysteine and two copies of the c.665C>T variant have an odds ratio of 1.27 for venous thromboembolism. Thus, they recommend MTHFR genotyping not be ordered as part of a routine evaluation for recurrent pregnancy loss or thrombophilia due to questionable clinical significance.
Incidence: The allele frequency of the c.665C>T variant is 0.35 in European Caucasians, 0.5 in Hispanics, and 0.12 in African Americans.
Inheritance: Autosomal recessive; two copies of the c.665C>T variant may be a contributing factor to hyperhomocysteinemia.
Variants Tested: c.665C>T(p.Ala222Val) and c.1286A>C(p.Glu429Ala). (legacy names, C677T and A1298C, respectively).
Clinical Sensitivity: Undefined; hyperhomocysteinemia is caused by genetic, physiologic and environmental factors. MTHFR variants are only one contributing factor.
Methodology: Polymerase chain reaction (PCR) and fluorescence monitoring.
Analytical Sensitivity & Specificity: 99 percent.
Limitations: Only two MTHFR gene variants (c.665C>T and c.1286A>C) are tested. Diagnostic errors can occur due to rare sequence variations.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

Performing Lab:
ARUP

ARUP Test Code:
0055655

ADMINISTRATIVE

CPT Codes:
81291

Last Reviewed:
12/2/2023

MULBERRY (T70) (SQ: MULBRY)

MUBY

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Purple Top Tube	4.0 mL	2.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term Storage

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

Reference Ranges for Evaluation of Specific IgE

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be consideredweakly positive or equivocal.Class 2 and higher should beconsidered positive.Although increasing class ranges (01-06)are reflective or increasing concentrations of allergen specificIgE, this may not correlate with the degree of clinical responsewhen challenged with the specific allergen.The correlationof allergy laboratory results with clinical history isessential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

MUMPS AB, IGM, S (SQ:MUMPMB)

MMPAB

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of suspected mumps infection.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:
0.79 IV or less: Negative - No significant level of detectable IgM antibody to Mumps virus.
0.80-1.20 IV: Equivocal - Borderline levels of IgM antibody to Mumps virus. Repeat testing in 10-14 days may be helpful.
1.21 IV or greater: Positive - Presence of IgM antibody to Mumps virus detected, which may indicate a current or recent infection. However, low levels of IgM antibody may occasionally persist for more than 12 months post-infection or immunization.

Reported:
1-5 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Performing Lab:
ARUP

ARUP Test Code:
0099589

ADMINISTRATIVE

CPT Codes:
86735

MUMPS ANTIBODY, IGG (SQ:MMPSAB)

MPG

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
1 Purple Top Tube	4.0 mL	2.0 mL

Pediatric Collection:
Minimum volume: 0.5mL serum or plasma

Unacceptable Conditions:
Hemolysis

Storage/Transport Temperature:
1.0 mL serum or plasma or centrifuged gold top tube, refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:

Antibody Index (AI)	Status	Interpretation
Less than or equal to 0.8 AI	Negative	No IgG antibodies specific to mumps detected. Patient is presumed not to have had a previous exposure to mumps through infection or vaccination.
0.9-1.0 AI	Equivocal	Obtain an additional sample for retesting.
Greater than or equal to 1.1 AI	Positive	IgG antibodies to mumps detected. This may indicate the patient was exposed to mumps through infection or vaccination.

Reported:
2-3 days

Methodology:
Multiplex flow immunoassay

Performing Lab:
Methodist Hospital Lab

Testing Region:
Carle West Region

MUSK IGG ANTIBODY WITH REFLEX TO TITER, S (SQ:MUSKAR)

MUSAR

TESTING INFORMATION

Ordering Recommendations:
Secondary test for the diagnosis of generalized or ocular myasthenia gravis in patients with no detectable acetylcholine receptor (AChR) antibodies.

Collect:
One 4 mL plain red or serum separator tube (SST)

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL of serum to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Grossly lipemic, icteric, or hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month (avoid multiple freeze/thaw cycles)

Performed:
Mon, Wed, Fri

Reference Interval:

Components	Reference Interval
MuSK Ab IgG CBA IFA Screen, Serum	Less than 1:10

Reported:
1-6 days

Methodology:
Semi-Quantitative Cell-Based Indirect Fluorescent Antibody

Notes:
If MuSK SER antibody IgG is positive, then titer will be added. Additional charges apply.

Interpretive Data:
Muscle-specific kinase (MuSK) antibody is found in a subset of patients with myasthenia gravis, primarily those seronegative for muscle acetylcholine receptor (AChR) antibody. Decreasing antibody levels may be associated with therapeutic response; therefore, clinical correlation must be strongly considered. A negative test result does not rule out a diagnosis of myasthenia gravis.

This indirect fluorescent antibody cell-based assay (CBA) utilizes muscle-specific kinase (MuSK) transfected cells for the detection of the MuSK IgG antibody.

Performing Lab:
ARUP

ARUP Test Code:
3006198

ADMINISTRATIVE

CPT Codes:
86366; if reflexed, add 86256

MYASTHENIA GRAVIS EVAL W/ MUSK REFLEX, S (SQ:MGRMA)

MGMR

TESTING INFORMATION

Ordering Recommendations:
Establish or confirm a clinical diagnosis of myasthenia gravis. Includes acetylocholine receptor (AChR) binding and blocking antibodies with reflex to AChR modulating antibodies or MuSK antibodies.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Acetylcholine Binding Antibody	0.4 nmol/L or less
Acetylcholine Blocking Antibody	26 or less blocking

Reported:
3-8 days

Methodology:
Quantitative Radioimmunoassay (RIA)/Semi-Quantitative Flow Cytometry

Notes:
If Acetylcholine Receptor Binding Antibody result is greater than 0.4 nmol/L or Acetylcholine Receptor Blocking Antibody result is greater than 26 percent, then Acetylcholine Receptor Modulating Antibody (ARUP test code 0099521) will be added. If Acetylcholine Receptor Binding Antibody result is less than or equal to 0.4 nmol/L, then Muscle-Specific Kinase (MuSK) Ab, IgG (ARUP test code 3006198) will be added. Additional charges apply.

Interpretive Data:
Approximately 85-90 percent of patients with myasthenia gravis (MG) express antibodies to the acetylcholine receptor (AChR), which can be divided into binding, blocking, and modulating antibodies. Binding antibody can activate complement and lead to loss of AChR. Blocking antibody may impair binding of acetylcholine to the receptor, leading to poor muscle contraction. Modulating antibody causes receptor endocytosis resulting in loss of AChR expression, which correlates most closely with clinical severity of disease. Approximately 10-15 percent of individuals with confirmed myasthenia gravis have no measurable binding, blocking, or modulating antibodies.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Components	Interpretive Data
Acetylcholine Binding Antibody	0.0-0.4 nmol/L: Negative 0.5 nmol/L or greater: Positive
Acetylcholine Blocking Antibody	0-26% blocking: Negative 27-41% blocking: Indeterminate 42% or greater blocking: Positive

Performing Lab:
ARUP

ARUP Test Code:
3001869

ADMINISTRATIVE

CPT Codes:
86041; 86042; if reflexed, add 86043; 86366; 86256

Last Reviewed:
12/1/2023

MYCOBACTERIA CULTURE and AFB STAIN (SQ: AFBCAS)

CTBC

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

This test is performed at ARUP, an exception for our lab would be Susceptibility reflexed on isolates with exception to M. gordonae.

- Stain reported withing 24 hours.
- Negative cultures reported at 8 weeks.
- Positive cultures are reported as soon as detected.

See Collection Instructions for Patients

Ordering Recommendations:

Gold standard test for diagnosing the presence of mycobacteria organisms.

Patient Preparation:

Recommended collection: Three sputum specimens at 8-24 hour intervals (24 hours when possible) and at least one first-morning specimen. An individual order must be submitted for each specimen.

Collect:

Respiratory specimens. Also acceptable: Body fluid, CSF, gastric aspirate, tissue, or urine.

Specimen Preparation:

Place each specimen into 50 ml sterile specimen transport tube (ARUP Supply #29582) and place in an individually sealed bag.
Respiratory Specimens: Transfer (for each collection) 5-10 mL to a sterile container. (Min: 1 mL)
Body Fluids: Transfer 5 mL to a sterile container. (Min: 1 mL culture only)
CSF: Transfer 5 mL to a sterile container. (Min: 1 mL culture only. Min: 5 mL culture and stain)
Gastric Aspirates: Must be neutralized (pH7) with sodium carbonate if transport is delayed for more than four hours. Transfer 5-10 mL to a sterile container. (Min: 1 mL)
Tissue: Transfer to a sterile container. (Min: Visible, for small tissue that cannot be ground, acid fast stain will not be performed.)
Urine: Transfer at least 40 mL to a sterile container. (Min: 10 mL culture only. Min: 40 mL culture and stain)

Unacceptable Conditions:

Dry material or material collected and transported on a swab.
Acid Fast Stain: Stool, blood, bone marrow, grossly bloody specimens.

Remarks:

Specimen source required.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

Ambient: 24 hours; Refrigerated: 1 week; Frozen: 2 weeks

Performed:

Sun-Sat

Reference Interval:

Effective May 20, 2013

Culture negative for acid fast bacilli.
Identification performed on positives.
Susceptibility performed on all initial isolates of M. tuberculosis complex.
Susceptibility performed on significant isolates of Mycobacterium other than M. tuberculosis complex isolates.

Reported:

1-62 days

Methodology:

Stain/Culture/Matrix-Assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF) Mass Spectrometry/16SrDNA Sequencing/Polymerase Chain Reaction/Broth Microdilution

Notes:

Respiratory specimens, body fluids, CSF, gastric aspirates that are under 5 mL and urine specimens under 40 mL will receive a volume suboptimal disclaimer in the report.

Positive cultures are reported as soon as detected. AFB stain, AFB identification of positives, and susceptibility tests are billed separately from culture. Identification of positive culture is billed by matrix-assisted laser desorption ionization (MALDI) and/or sequencing tests performed. Mycobacterium tuberculosis Complex Detection and Rifampin Resistance by PCR (ARUP test code 2010775) is available for respiratory, CSF, or body fluid specimens.

The laboratory should be notified when the presence of Mycobacterium genavense or Mycobacterium haemophilum is suspected, as these organisms will not grow on media routinely used for Mycobacterium isolation.

The laboratory should be notified when M. xenopi is suspected, as this organism requires a different temperature from routine culture setup.

The laboratory should be notified if the specimen is from a cystic fibrosis patient, as these specimens need additional decontamination from routine culture setup.

Susceptibility will be performed on organisms isolated from a sterile source and isolates of Mycobacterium tuberculosis complex, M. chelonae, M. abscesses, M. fortuitum complex, M. immunogenum, M. mucogenicum. Susceptibility testing will be performed by request only on M. kansasii and M. marinum. Susceptibility testing of M. gordonae is inappropriate.

For AFB susceptibility information, refer to Antimicrobial Susceptibility - AFB Mycobacteria (ARUP test code 0060217).

For AFB culture on blood refer to Culture, Acid-Fast Bacillus, Blood (ARUP test code 0060060).

Performing Lab:

ARUP

ARUP Test Code:

0060152

ADMINISTRATIVE

CPT Codes:

87116; CPT codes for identification and susceptibility vary based on method.

Last Reviewed:

12/2/2023

MYCOPHENOLIC ACID, S (SQ:MYCOPA)

MPA

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K_3EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.1 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 6 weeks; Refrigerated: 6 weeks; Frozen: 11 months

Performed:
Sun-Sat

Reference Interval:

Component	Therapeutic Range	Toxic
Mycophenolic Acid	1.0 - 3.5 µg/mL	Greater than 25.0 µg/mL
Mycophenolic Acid Glucuronide	35.0-100.0 µg/mL	Not well established

Reported:
1-4 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. A proposed therapeutic range is 1.0-3.5 µg/mL for a 2 g/day dose. A 3 g/day dose may have plasma concentrations up to 5.0 µg/mL. Trough concentrations between 2.0 and 4.0 µg/mL have been suggested to maximize efficacy and minimize adverse effects. Mycophenolic acid glucuronide is an inactive metabolite and a range of 35.0-100.0 µg/mL indicates normal metabolism. During the first two weeks of transplantation, mycophenolic acid glucuronide concentrations are typically 100 - 250 µg/mL. Adverse effects of toxicity include abdominal pain, peripheral edema, cardiac abnormalities, hypertension and electrolyte disturbances.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2010359

ADMINISTRATIVE

CPT Codes:
80180

MYCOPL PNEUMO AB (SQ:MPNEUM)

MPNEU

TESTING INFORMATION

Ordering Recommendations:
May aid in the diagnosis of Mycoplasma pneumoniae in patient with persistent pneumonia that is outside of the expected acute phase.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Mycoplasma Pneumoniae Antibody IgG	Less than or equal to 0.09 U/L
Mycoplasma Pneumoniae Antibody IgM	Less than or equal to 0.76 U/L

Reported:
1-3 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:

Component	Interpretation
Mycoplasma pneumoniae Antibody, IgG	< 0.10 U/L: Negative 0.10-0.32 U/L: Equivocal > 0.32 U/L: Positive
Mycoplasma pneumoniae Antibody, IgM	0.76 U/L or less: Negative - No clinically significant amount of M. pneumoniae IgM antibody detected. 0.77-0.95 U/L: Low Positive - M. pneumoniae-specific IgM presumptively detected. Collection of a follow-up sample in one to two weeks is recommended to assure reactivity. 0.96 U/L or greater: Positive - Highly significant amount of M. pneumoniae-specific IgM antibody detected. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.

Performing Lab:
ARUP

ARUP Test Code:
0050399

ADMINISTRATIVE

CPT Codes:
86738 x2

MYCOPLASMA / UREAPLASMA CULTURE (SQ: URMYCL)

URMYC

TESTING INFORMATION

Ordering Recommendations:
Culture identification of Ureaplasma species and Mycoplasma hominis organisms.

Collect:
Body fluid, CSF, semen, cervical or urethral swab, tissue, or urine. Also acceptable: Respiratory specimens from patients younger than 1 year of age

Specimen Preparation:
Place swab or 0.5 mL of fluid (Min: 0.3 mL). in Mycoplasma/Ureaplasma transport media (UTM) (ARUP supply #12884) immediately. Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. Also acceptable: Any transport media validated for Mycoplasma/Ureaplasma transport such as M4 (DO NOT USE M4 RT).

Unacceptable Conditions:
Nonpatient specimens. Specimens not in Mycoplasma/Ureaplasma transport media. M4 RT or bacterial transport media. Dry swabs

Remarks:
Specimen source preferred.

Storage/Transport Temperature:
Frozen. Transport specimen on dry ice.

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 48 hours; Frozen at -20°C: Unacceptable; Frozen at -70°C: 1 month

Performed:
Sun-Sat

Reported:
1-10 days

Methodology:
Culture

Notes:
This culture will recover both Mycoplasma hominis and Ureaplasma spp., if present.

No environmental cultures performed. This testing is not suitable for determining mycoplasma contamination in any cell line or tissue culture. This test is not appropriate for adult respiratory specimens other than lung transplant specimens. See Mycoplasma pneumonia by PCR (ARUP test code 0060256).

Performing Lab:
ARUP

ARUP Test Code:
0065031

ADMINISTRATIVE

CPT Codes:
87109

Last Reviewed:
12/2/2023

MYCOPLASMA PNEUMONIAE PCR (SQ:MYCPCR)

MYCPC

TESTING INFORMATION

Ordering Recommendations:
Detect M. pneumoniae bacteria.

Collect:
Respiratory specimen: Bronchoalveolar lavage (BAL), bronchial brushings, nasopharyngeal swab, sputum, tracheal aspirates or pleural fluid. OR CSF.

Specimen Preparation:
CSF: Transfer 1 mL CSF to a sterile container. (Min: 0.5 mL).
Fluid: Transfer 2 mL respiratory specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to viral transport media (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787
Swabs: Place in viral transport media. Place each specimen in an individually sealed bag.

Unacceptable Conditions:
Tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 5 days; Frozen: 1 year.

Performed:
Mon, Wed, Fri

Reported:
1-4 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0060256

ADMINISTRATIVE

CPT Codes:
87581

MYELIN ASSOC GLYCOP (SQ:MAGA)

MAGA

TESTING INFORMATION

Ordering Recommendations:
Stand-alone test for autoimmune neuropathies. Test by itself is not diagnostic and should be used in conjunction with other clinical parameters to confirm disease.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL)

Unacceptable Conditions:
Urine. Contaminated, heat inactivated, hemolyzed, severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Tue, Thu, Sat

Reference Interval:
Less than 1000 TU

Reported:
1-4 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
An elevated IgM antibody concentration greater than 999 TU against myelin-associated glycoprotein (MAG) suggests active demyelination in peripheral neuropathy. A normal concentration (less than 999 TU) generally rules out an anti-MAG antibody-associated peripheral neuropathy.

TU=Titer Units

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0051285

ADMINISTRATIVE

CPT Codes:
83516

Last Reviewed:
12/2/2023

MYELIN BASIC PROTEIN, CSF (SQ:SFMBPA)

SFMBP

TESTING INFORMATION

Ordering Recommendations:
Not recommended for the workup of suspected multiple sclerosis. Preferred test is Oligoclonal Band Profile (0080440).

Collect:
CSF.

Specimen Preparation:
Transport 1 mL CSF. (Min: 0.3 mL) Avoid hemolysis. If CSF is bloody, centrifuge the sample and separate supernatant from cells prior to freezing the sample.

Unacceptable Conditions:
Hemolysis.

Remarks:
CSF should be free from contamination with blood. Hemolysis is associated with falsely-elevated levels of MBP.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 3 weeks (Avoid freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
0.00-5.50 ng/mL

Reported:
1-4 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0080515

ADMINISTRATIVE

CPT Codes:
83873

Last Reviewed:
12/2/2023

MYOGLOBIN, RANDOM URINE (SQ:UMYOGA)

MYOU

TESTING INFORMATION

Collect:
Random or 24-hour urine. Refrigerate during collection.

Specimen Preparation:
Thoroughly mix entire collection, then, perform one of the two processing options below:
Option 1: Immediately after collection, adjust pH to 8-9 by adding 10 percent Na2CO3. Transfer 1 mL aliquot urine to an ARUP Standard Transport Tube. (Min: 0.5 mL)
Option 2: Immediately after collection, transfer a maximum of 4 mL urine to an ARUP Standard Transport Tube prefilled with Sodium Carbonate (ARUP)supply #48096). (Min: 0.5 mL) Available online through eSupply using ARUP Connect or contact ARUP Client Services at (800) 522-2787.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
pH 8-9: Ambient: 4 hours; Refrigerated: 72 hours; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
0-1 mg/L

Reported:
Within 24 hours

Methodology:
Quantitative Electrochemiluminescent Immunoassay

Interpretive Data:
Patients with urine myoglobin greater than 15 mg/L are at risk of acute renal failure. Usual results are less than 1 mg/L. Results between 1 and 15 mg/L are associated with vigorous exercise, myocardial infarct, mild muscle injury, and other conditions.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0020223

ADMINISTRATIVE

CPT Codes:
83874

Last Reviewed:
12/1/2023

MYOGLOBIN, SERUM (SQ: MYOG)

MYOSR

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Vol	Min Volume
Routine:	1 Serum or Plasma Seperator Tube (Gold)	6.0 mL	0.5 mL
Stat:			

Specimen Preparation:

Separate serum or plasma from cells ASAP or within 2 hours of collection

Storage/Transport Temperature:

1 mL serum/plasma. (Min: 0.3 mL) at Ambient (room temperature) or 2-8 degrees C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	28 days

Performed:

Sunday-Saturday

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

88374

Last Reviewed:

1/22/24

MYOMARKER PANEL (SQ: MYOEP)

FMP3

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
3001781

ADMINISTRATIVE

Last Reviewed:
12/2/2023

NASAL CULTURE (SQ: VCNOS)

VCNOS

COLLECTION DEVICE

Preferred Collection Device:
E-swab

TESTING INFORMATION

Ordering Recommendations:
For MRSA Screening order EPIC Code VMRSA

Collect:
Nasal Collection:

- E-swab
- Sterile, leak-proof container

Unacceptable Conditions:
Non-sterile or leaking containers

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
48 hours		48 hours		Not Acceptable

Performed:
Daily

Methodology:
Standard reference procedures for aerobic bacterial culture and identification.

Notes:
Identification and susceptibility tests are billed seperately from culture.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

NASAL SM EOS (SQ: NEOS)

NASEO

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

NEISSERIA GONORRHEA DNA PROBE, DIRECT (SQ: GCPRV)

GCPRV

TESTING INFORMATION

Ordering Recommendations:

Use this test when patients have suspected STI

Collect:

Urine preferred specimen
Male and Female Urine specimens
Collect: Use only the COBAS PCR urine sample kit to collect urine specimens for the COBAS CTNG.

Female endocervical or vaginal specimens
Collect: Use only the COBAS PCR female Dual swab sample kit.

For endocervical collection, use the woven swab to remove excess mucus and collect the specimen with the flocked swab (brush). The collection tube should only contain the flocked swab. The specmen will be rejected if the tube contains no swab or 2 swabs.; For vaginal collection, use the woven swab from the collection kit. Discard the flocked swab-do not use for the vaginal collection.; For both samples types, after collecting carefully leverage the swab against the tube rim to break the swab shaft at the dark line. Discard the top portion of the swab. Tightly re-cap the cobas PCR media tube.

Pediatric Collection:

Ordering Chlamydia trachomatis and Neisseria gonorrhea For Pediatrics Under Age 14

Chlamydia trachomatis and Neisseria gonorrhea molecular testing at Carle Health Peoria utilizes the Roche Cobas 6800 instrument. This assay is validated for patients 14 years and older. Specimens on patients 13 years or younger will be sent to OSF. Additionally, for patients under 12 years old, positive molecular results require a secondary test as confirmation.

For For patients 13 years or younger, order a Miscellaneous (MISCA1) and Free Text CT/NG PCR testing to OSF.

Patients 13 years of age:
Using the current collection media, transfer urine into a standard Cobas PCR Urine sample kit and submit to laboratory.

Patients under 12 years of age:
Prior to sampling, the patient should not have urinated for at least one hour. The patient should collect first -catch urine (about 10-50mL) of the initial urine stream into a cup. Using the current collection media, transfer urine into a standard Cobas PCR Urine Sample kit. Submit the Cobas PCR urine sample kit AND the original urine in the UA cup to the laboratory within 12 hours of collection. The original urine sample should be stored between 2-8 degrees C after collected. If positive, the additional urine sample will be submitted by OSF for reference testing confirmation. If the original urine is not sent with the molecular collection kit, the test will be cancelled

Unacceptable Conditions:

Endocervical or vaginal specimen: will reject if the tube contains no swab or 2 swabs. Urine Specimen: Incorrect urine volume in the Cobas urine sample PCR media tube. Excessive mucous or moderate or grossly bloody specimens may cause inhibition in the assay.

Remarks:

This assay should not be used for the evaluation for suspected sexual abuse or for other medico-legal indications

Stability (from collection to initiation):

Swabs and urine stabilized in PCR media 12 months at 2-3 degrees C. Unpreserved Urine 24 hours at 2-3 degrees C.

Performed:

Monday - Friday

Methodology:

DNA Probe, RT-PCR

Notes:

Culture is recommended as the standard for Neiserria Gonorrhoeae in suspected sexual abuse or for other medico-legal purposes.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

87591

Last Reviewed:

2/1/24

NEURONAL NUCLEAR AB IGG (SQ:NNIBA)

NNIBA

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
not performed in house

Performing Lab:
IN HOUSE M/P/P

NEUTROPHIL ASSOCIATED ANTIBODIES (SQ:NEUAAB)

NAA

TESTING INFORMATION

Ordering Recommendations:
Support the diagnosis of immune neutropenia in various autoimmune disorders.

Collect:
Plain red or serum separator tube.

Specimen Preparation:
Remove serum from cells ASAP or within 2 hours of collection. Transfer 3 mL serum to an ARUP Standard Transport Tube and freeze. (Min: 0.5 mL)

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Mon, Thu

Reference Interval:
Negative

Reported:
1-5 days

Methodology:
Qualitative Flow Cytometry

Notes:
Circulating antibodies in patient's serum are measured by flow cytometry after incubation with normal neutrophils. Values greater than 2 standard deviations of a normal control population are interpreted as "weakly positive" and greater than 3 standard deviations as "positive".

This test should not be confused with Anti-Neutrophil Cytoplasmic Antibody, IgG (0050811 - ANCA).

Interpretive Data:
Neutrophil-associated antibodies may cause neutropenia in various autoimmune disorders including Felty syndrome, SLE and drug-induced neutropenia. Febrile transfusion reactions and isoimmune neonatal neutropenia may also be caused by antibodies to neutrophil-specific antigens or HLA antigens.

A positive result on this test is not definitive for specific antineutrophil antibodies, since anti-HLA antibodies and immune complexes may also cause a positive result. The results of this test should be correlated to clinical history and other data.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0055506

ADMINISTRATIVE

CPT Codes:
86021

Last Reviewed:
12/2/2023

NICOTINE AND METABOLITES (SQ: NICUA)

NICU

TESTING INFORMATION

Ordering Recommendations:
Use to obtain quantitative results or to follow up a presumptive result. For general screening, the preferred test is Cotinine Screen, Urine (2007081).

Collect:
Random urine.

Specimen Preparation:
Transfer 4 mL with no additives or preservatives urine to an ARUP standard transport tube. (Min: 1 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 10 days; Refrigerated: 10 days; Frozen: 8 months

Performed:
Sun-Sat

Reference Interval:
Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Nicotine	15 ng/mL
Cotinine (metabolite)	15 ng/mL
3-OH-Cotinine (metabolite)	50 ng/mL
Anabasine (tobacco biomarker)	5 ng/mL

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff:
Nicotine: 15 ng/mL
Cotinine: 15 ng/mL
3-OH-Cotinine: 50 ng/mL
Anabasine: 5 ng/mL

For medical purposes only; not valid for forensic use.

This test is designed to evaluate recent use of nicotine-containing products. Passive and active exposure cannot be discriminated definitively, although a cutoff of 100 ng/mL cotinine is frequently used for surgery qualification purposes. For smoking cessation programs or compliance testing, the absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration value must be greater than or equal to the cutoff to be reported as positive. Anabasine is included as a biomarker of tobacco use, versus nicotine replacement. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
0092356

ADMINISTRATIVE

CPT Codes:
80323 (Alt code: G0480)

Last Reviewed:
12/2/2023

NICOTINE AND METABOLITES, S (SQ: NICA)

NICS

TESTING INFORMATION

Ordering Recommendations:
Use to detect and monitor nicotine and cotinine in serum or plasma. Serum or plasma testing may be useful when a valid urine specimen cannot be obtained (eg, due to anuria or dialysis).

Collect:
Plain red, green (sodium heparin), lavender (EDTA), or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 4 mL serum or plasma to an ARUP standard transport tube. (Min: 1 mL)

Unacceptable Conditions:
Plasma or whole blood collected in lt. blue (sodium citrate) or SST. Specimens exposed to repeated freeze/thaw cycles. Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years

Performed:
Sun-Sat

Reference Interval:
Effective August 15, 2022

Drugs Covered	Cutoff Concentrations
Nicotine	5 ng/mL
Cotinine (metabolite)	5 ng/mL

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 5 ng/mL

For medical purposes only; not valid for forensic use.

This test is designed to evaluate recent use of nicotine-containing products. Passive and active exposure cannot be discriminated definitively, although a cutoff of 10 ng/mL cotinine is frequently used for surgery qualification purposes. For smoking cessation programs or compliance testing, the absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. This test cannot distinguish between use of tobacco and purified nicotine products. The concentration value must be greater than or equal to the cutoff to be reported as positive.

Performing Lab:
ARUP

ARUP Test Code:
0092361

ADMINISTRATIVE

CPT Codes:
80323 (Alt code: G0480)

Last Reviewed:
12/2/2023

NICOTINE URINE CONFIRMATION (ONLY ORDER FOR UPH HEALTH RISK ASSESSMENT) (SQ: NICCON)

NICCN

TESTING INFORMATION

Testing Region:

Carle West region

NORTRIPTYLINE (SQ:NORTRA)

NRTRA

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
If amitriptyline is administered, order Amitriptyline and Nortriptyline (ARUP test code 0090158). Timing of specimen collection: Predose (trough) draw at steady-state concentration.

Collect:
Plain red. Also acceptable: Lavender (K2 or K3EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 days; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Fri

Reference Interval:
Therapeutic Range:
50-150 ng/mL
Toxic: > 500 ng/mL

Reported:
2-8 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Toxic concentrations may cause anticholinergic effects, cardiac abnormalities, and seizures.

Performing Lab:
ARUP

ARUP Test Code:
0090074

ADMINISTRATIVE

CPT Codes:
80335 (Alt code: G0480)

Last Reviewed:
12/2/2023

N-TELOPEPTIDE X-LINK (SQ: SNTXA)

SNTXA

TESTING INFORMATION

Collect:
Plain red or serum separator tube.

Specimen Preparation:
Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Unacceptable Conditions:
Severely hemolyzed specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 5 hours; Refrigerated: 24 hours; Frozen: 6 months

Performed:
Mon, Wed, Fri

Reference Interval:
Adult Male: 5.4-24.2 nM BCE
Premenopausal, Adult Female: 6.2-19.0 nM BCE

Reported:
1-4 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
The target value for treated postmenopausal adult females is the same as the premenopausal reference interval.
BCE = Bone Collagen Equivalent

Performing Lab:
ARUP

ARUP Test Code:
0070500

ADMINISTRATIVE

CPT Codes:
82523

Last Reviewed:
12/2/2023

NTX-TELOPEPTIDE, RANDOM UR (SQ:NTXA)

NTXPR

TESTING INFORMATION

Patient Preparation:
For monitoring therapy, a baseline specimen should be collected prior to initiation of therapy. Subsequent specimens for comparison should be collected at the same time of day as the baseline specimen.

Collect:
Second-morning void or 24-hour urine. Refrigerate during collection. Collect without preservative.

Specimen Preparation:
Transfer a 1 mL aliquot of urine from a well-mixed, second-morning void or 24-hour collection to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens contaminated with blood or extensive hemolysis.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 4 weeks

Performed:
Tue-Sat

Reference Interval:

Age	Male	Female
7-9 years	167-578 nM BCE/mM creatinine	201-626 nM BCE/mM creatinine
10-12 years	152-505 nM BCE/mM creatinine	173-728 nM BCE/mM creatinine
13-15 years	103-776 nM BCE/mM creatinine	38-515 nM BCE/mM creatinine
16-17 years	34-313 nM BCE/mM creatinine	20-144 nM BCE/mM creatinine
18 years and older	21-83 nM BCE/mM creatinine	
Premenopausal		17-94 nM BCE/mM creatinine
Postmenopausal		26-124 nM BCE/mM creatinine

Reported:
1-4 days

Methodology:
Quantitative Chemiluminescent Immunoassay (CLIA)

Interpretive Data:
NTx Units = nM BCE/mM creatinine

A decrease of 30-40% from the NTx baseline after three months of therapy is a typical response to anti-resorptive therapy.

NTx = Cross-linked N-telopeptide of Type I Collagen
BCE = Bone Collagen Equivalent

Performing Lab:
ARUP

ARUP Test Code:
0070062

ADMINISTRATIVE

CPT Codes:
82523

OAK (QUERCUS ALBA) (SQ: OAK)

OAK

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

OB PROFILE (SQ: OBSPAN)

OBPA5

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold) 1 EDTA Pink 1 Lavendar	6.0 mL	3.0 mL 3.0 mL 5.0 mL
STAT:			

Specimen Preparation:

Blood Bank Type Screen must also be ordered in addition

Storage/Transport Temperature:

Whole blood at Ambient (room temperature) or 2-8o C. Do notseparate.

Performed:

Sunday-Saturday

Methodology:

See Individual Test Components

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

Panel Includes: ABO-Rh, AntibodyScreen, Syphilis IgG and IgM Antibody, Rubella, CBC Hepatitis Bs Ag

ADMINISTRATIVE

Last Reviewed:

1/22/24

OLIGOCLONAL BANDING (SQ:SFOLGA)

SFOLG

TESTING INFORMATION

Ordering Recommendations:
Preferred test in the assessment of multiple sclerosis to detect unique IgG oligoclonal bands in cerebrospinal fluid (CSF) in conjunction with a matched serum specimen. Test calculates CSF IgG index.

Collect:
CSF AND serum separator tube or plain red.

Specimen Preparation:
Allow serum to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transport two specimens. Transfer 1.5 mL CSF to an ARUP standard transport tube. (Min: 1.0 mL) AND transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.6 mL)

Unacceptable Conditions:
Grossly bloody or hemolyzed specimens or severe lipemia.

Remarks:
Recommendation is for CSF and serum to be collected within 24 hours of each other. Specimens collected outside this timeframe will be accepted at ordering provider's discretion.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Albumin, CSF	0-35 mg/dL
Immunoglobulin G	<table><tr><th>Age</th><th>Reference Interval (mg/dL)</th></tr><tr><td>0-2 years</td><td>242-1108</td></tr><tr><td>3-4 years</td><td>485-1160</td></tr><tr><td>5-9 years</td><td>514-1672</td></tr><tr><td>10-14 years</td><td>581-1652</td></tr><tr><td>15-18 years</td><td>479-1433</td></tr><tr><td>19 years and older</td><td>768-1632</td></tr></table>
Immunoglobulin G CSF	0.0-6.0 mg/dL
Albumin, Serum	3500-5200 mg/dL
Albumin Index	0.0-9.0
CSF IgG Synthesis Rate	Less than or equal to 8.0 mg/d
CSF IgG/Albumin Ratio	0.09-0.25
IgG Index	0.28-0.66
Oligoclonal Bands Number, CSF	0 - 1 Bands

Reported:
1-3 days

Methodology:
Qualitative Isoelectric Focusing/Electrophoresis/Quantitative Immunoturbidimetry

Notes:
Specimens must be assayed together for interpretation.
A patient is considered positive for CSF oligoclonal bands if there are two or more bands in the CSF immunoglobulin region that are not present in the serum. In order to confirm local production of oligoclonal IgG in CSF, a matched serum sample is required. Oligoclonal bands present in CSF, but not in serum, indicate central nervous system production. Oligoclonal bands are performed using isoelectric focusing and immunofixation.

Interpretive Data:
To ensure accurate result interpretation, it is recommended that both CSF and serum specimens be collected on the same day. If specimens are not collected within this specified timeframe, it is advised to exercise caution when interpreting the results

Performing Lab:
ARUP

ARUP Test Code:
0080440

ADMINISTRATIVE

CPT Codes:
83916; 82784 x2; 82040; 82042

Last Reviewed:
12/1/2023

OPIATE CONFIRMATION SER/PLA (SQ: OPIATA)

OPIAT

TESTING INFORMATION

Ordering Recommendations:
Use to monitor patient adherence.

Collect:
Gray (sodium fluoride/potassium oxalate). Also acceptable: Plain red, green (sodium heparin), lavender (EDTA), or pink (K2EDTA).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Separator tubes. Plasma or whole blood collected in light blue (sodium citrate). Specimens exposed to repeated freeze/thaw cycles. Hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 2 weeks; Frozen: 3 years

Performed:
Mon, Wed, Fri

Reference Interval:
Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Codeine	2 ng/mL
Morphine	2 ng/mL
6-acetylmorphine	2 ng/mL
Hydrocodone	2 ng/mL
Hydromorphone	2 ng/mL
Oxycodone	2 ng/mL
Oxymorphone	2 ng/mL

Reported:
1-6 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 2 ng/mL

For medical purposes only; not valid for forensic use.

Identification of specific drug(s) taken by specimen donor is problematic due to common metabolites, some of which are prescriptions drugs themselves. The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, or limitations of testing. All drugs covered are the nonglucuronidated (free) form. The concentration value must be greater than or equal to the cutoff to be reported as positive. A very small amount of an unexpected drug analyte in the presence of a large amount of an expected drug analyte may reflect pharmaceutical impurity. Interpretive questions should be directed to the laboratory.

Performing Lab:
ARUP

ARUP Test Code:
0092354

ADMINISTRATIVE

CPT Codes:
80361; 80365 (Alt code: G0480)

Last Reviewed:
12/2/2023

OPIATE CONFIRMATION, URINE (SQ:OPATUA)

OPATU

TESTING INFORMATION

Ordering Recommendations:
Preferred test to follow-up presumptive results. For general screening, Opiates, Urine Screen with Reflex to Quantitation (2005093) is preferred.

Collect:
Random urine.

Specimen Preparation:
Transfer 0.5 mL with no additives or preservatives urine to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Specimens exposed to repeated freeze/thaw cycles.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 1 week; Refrigerated: 1 month; Frozen: 3 years

Performed:
Sun-Sat

Reference Interval:
Effective August 17, 2015

Drugs Covered	Cutoff Concentrations
Codeine	20 ng/mL
Morphine	20 ng/mL
6-acetylmorphine	10 ng/mL
Hydrocodone	20 ng/mL
Norhydrocodone	20 ng/mL
Hydromorphone	20 ng/mL
Oxycodone	20 ng/mL
Noroxycodone	20 ng/mL
Oxymorphone	20 ng/mL
Noroxymorphone	20 ng/mL

Reported:
1-4 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Methodology: Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Positive cutoff: 20 ng/mL except as specified below:
6-acetylmorphine10 ng/mL

For medical purposes only; not valid for forensic use.

Identification of specific drug(s) taken by specimen donor is problematic due to common metabolites, some of which are prescription drugs themselves. The absence of expected drug(s) and/or drug metabolite(s) may indicate non-compliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. All drug analytes covered are in the non-glucuronidated (free) forms. The concentration value must be greater than or equal to the cutoff to be reported as positive. A very small amount of an unexpected drug analyte in the presence of a large amount of an expected drug analyte may reflect pharmaceutical impurity. Interpretive questions should be directed to the laboratory.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0090364

ADMINISTRATIVE

CPT Codes:
80361; 80365 (Alt code: G0480)

Last Reviewed:
12/2/2023

OPIATE, QUALITATIVE, URINE (SQ: UOPI)

UOPI

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

OR URINE CULTURE (SQ: VCORUR)

VCOUR

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Cystoscopic urines	• Boric Acid C&S Urine Preservation Tube (Preferred) • Sterile, leak-proof container	

Specimen Preparation:

Specimen is collected during surgical procedure using aseptic technique.

Unacceptable Conditions:

- Non-sterile or leaking container,
- Delayed transport to the lab (greater than 2 hours at room temperature or greater than 24 hours refrigerated in sterile container

Remarks:

Urines not meeting collection requirements will be changed to a routine urine culture (EPIC: VCURC)

Storage/Transport Temperature:

Boric Acid C&S urine preservation tube or sterile container delivered to laboratory promptly.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Sterile container: 2 hours Boric Acid Tube: 48 hours	Sterile container: 24 hours Boric Acid tube: 48 hours	

Performed:

Sunday-Saturday

Methodology:

Standard reference procedures for bacterial culture and identification.

Notes:

Identification and susceptibility tests are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

87086

Last Reviewed:

1/19/24

ORGANIC ACIDS,URINE ARUP (SQ:UORGA)

UORGA

TESTING INFORMATION

Ordering Recommendations:
Diagnostic evaluation of patients with possible organic acidemias, fatty acid oxidation disorders, and other conditions.

Collect:
Random urine. Avoid dilute urine when possible.

Specimen Preparation:
Transfer 9 mL urine to ARUP standard tubes and freeze immediately. (Min: 3mL. For volumes less than 3mL, contact the Biochemical Genetics Lab before sending the specimen.) Avoid dilute urine when possible.

Remarks:
Clinical information is needed for appropriate interpretation. Additional required information includes age, gender, diet (e.g., TPN therapy), drug therapy, and family history. Biochemical Genetics Patient History Form is available on the ARUP Web site at http://www.aruplab.com/patienthistory or by contacting ARUP Client Services.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Tue-Sat

Reference Interval:
Reports include age appropriate reference intervals and interpretation.

Reported:
3-7 days

Methodology:
Gas Chromatography-Mass Spectrometry (GC-MS)

Notes:
Certain analytes will be reported only if present at clinically significant concentrations (elevated). Client may request special reporting of an analyte of interest by one of the following methods: transmitting an ORDER COMMENT; faxing the request on the form, Patient History for Biochemical Genetics; or by contacting an ARUP Genetic Counselor at 800- 242-2787 extension 2141.

Performing Lab:
ARUP

ARUP Test Code:
0098389

ADMINISTRATIVE

CPT Codes:
83918

OSMOLALITY, SERUM OR PLASMA (SQ: OSMO)

OSMOS

TESTING INFORMATION

Collect:

Preferred Spcimen Collection:

Priority	Specimen Type	Requested Vol.	Min Vol.
Routine	1 Serum Seperator Tube (Gold)	6 mL	3 mL
STAT			

Other Acceptable Specimen (s):

Specimen Type	Requested Vol.	Min Vol.
1 Red Top Tube		
1 Green (heparin) Top Tube		

Pediatric Collection:

0.1 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 hours	5 days	Indefinitely

Performed:

Sunday-Saturday

Methodology:

Freezing Point

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

83930

Last Reviewed:

1/22/24

OSMOLALITY, URINE (SQ: UOSMO)

OSMOU

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Urine, Random or timed	Clean, dry container with secure lid	

Unacceptable Conditions:

Urine collected with preservatives.

Storage/Transport Temperature:

5 mL random urine or entire urine collection sent promptly at ambient (room temperature) or refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	5 days	Indefinitely

Performed:

Sunday-Saturday

Methodology:

Freezing Point

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

83935

Last Reviewed:

1/22/24

OVA AND PARASITES STAIN AND CONCENTRATE, STOOL (SQ:OAPIHA)

OAP

TESTING INFORMATION

Ordering Recommendations:
If parasite infection is suspected as cause of persistent diarrhea (>14 days), specific pathogen testing is recommended (refer to Gastrointestinal Parasite Panel by PCR (2011150); Giardia Antigen by EIA (0060048); Entamoeba histolytica Antigen, EIA (0058001); or Cryptosporidium Antigen by EIA (0060045)). Do not order for patients who develop diarrhea during a prolonged hospitalization.

Patient Preparation:
Specimens analyzed to determine the efficacy of treatment should be collected three to four weeks after completion of therapy. Antibiotics may affect results of exam.

Collect:
Stool. Recommended collection: 3 separate stool specimens within a 5-7-day period (an individual order must be submitted for each specimen).

Specimen Preparation:
Transfer 2 g of stool within one hour of collection into AlcorFix (ARUP Supply #52059) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 1 g)
Also acceptable: Transfer 5 g of stool within one hour of collection into both 10 percent formalin and modified PVA (10 g total). (Min: 10 g total)
Additional specimen collection instructions can be found at https://www.aruplab.com/parasep

Unacceptable Conditions:
Rectal swabs, unpreserved, SAF (sodium acetate formalin), and any PVA fixative containing mercury such as LV-PVA (low viscosity PVA). Multiple specimens collected within a 24 hour period. Specimens containing barium, bismuth, or urine.

Remarks:
Indicate suspected parasites.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 9 months; Refrigerated: 9 months; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Negative

Reported:
3-7 days

Methodology:
Qualitative Concentration/Trichrome Stain/Microscopy

Notes:
For ova and parasite exams from nonstool sources, refer to Ova and Parasite Exam, Body Fluid or Urine (ARUP test code 3001663). For Cryptosporidium, Cyclospora, and Cystoisospora stains, refer to Parasitology Stain by Modified Acid-Fast (ARUP test code 0060046). For macroscopic parasite identification (worms or proglottids), refer to Parasite Examination, Macroscopic (ARUP test code 2007361). For additional test information refer to ARUP Consult, https://arupconsult.com/content/diarrhea

Interpretive Data:
Method for identification of ova and parasites includes wet mount and trichrome stain.

Due to the various shedding cycles of many parasites, three separate stool specimens collected over a 5-7-day period are recommended for ova and parasite examination. A single negative result does not rule out the possibility of a parasitic infection. The ova and parasite exam does not specifically detect Cryptosporidium, Cyclospora, Cystoisospora, and Microsporidia. For additional test information refer to ARUP Consult, https://arupconsult.com/content/diarrhea

Performing Lab:
ARUP

ARUP Test Code:
3001662

ADMINISTRATIVE

CPT Codes:
87177; 87209

Last Reviewed:
12/2/2023

OXALATE, 24 HR, U (SQ:UOXAA)

OXU24

TESTING INFORMATION

Ordering Recommendations:
Evaluate individuals with calcium oxalate renal calculi.

Patient Preparation:
Patient should avoid ingestion of vitamin C prior to collection.

Collect:
24-hour urine. Refrigerate during collection.

Specimen Preparation:
Thoroughly mix entire collection (24-hour) in one container. Do not exceed 4 mL in Tubes.
Preserved: Transfer 4 mL aliquot to an ARUP Transport Tube with Sulfamic Acid (ARUP supply #48098). Available online through eSupply using ARUP Connect or contact ARUP client services at (800) 522-2787. (Min: 1.5 mL) Mix well. Freeze immediately.
Unpreserved: Transport a 4 mL unadjusted aliquot of urine to an ARUP Standard Transport Tube. (Min: 1.5 mL) Freeze immediately.

Remarks:
Record total volume and collection time interval on transport tube and test request form.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered

Stability (from collection to initiation):
After collection complete: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Mon-Fri

Reference Interval:

Components: Creatinine, Urine - per 24h

Age	Male (mg/d)	Female (mg/d)
3-8 years	140-700	140-700
9-12 years	300-1300	300-1300
13-17 years	500-2300	400-1600
18-50 years	1000-2500	700-1600
51-80 years	800-2100	500-1400
81 years and older	600-2000	400-1300

Components: Oxalate, Urine - per 24h

Age	Male (mg/d)	Female (mg/d)
0-12 years	7-31	7-31
13 years and older	16-49	13-40

Reported:
1-4 days

Methodology:
Quantitative Spectrophotometry

Notes:
Vitamin C (ascorbic acid) quickly degrades to oxalate in non-acidified urine. Patients should discontinue use of vitamin C supplements at least 48 hours prior to the start of urine collection and abstain until collection is complete.

Preservation with Sulfamic Acid before transporting is highly recommended.

Interpretive Data:
Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0020482

ADMINISTRATIVE

CPT Codes:
83945

Last Reviewed:
12/1/2023

OXCARBAZEPINE METABOLITE (MHC), S (SQ:OXYAA)

OMHC

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0098834

ADMINISTRATIVE

Last Reviewed:
12/1/2023

OXCARBAZEPINE OR ESLICARBAZEPINE METABOLITE (SQ: OXYAA)

OMHC

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Predose (trough) draw at steady state concentration.

Collect:
Plain red.

Specimen Preparation:
Separate serum from cells within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 1 month 3 freeze/thaw cycles

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval	
	Therapeutic Range	**Toxic Range**
OXCARB Metabolite	10.0 - 35.0 ug/mL	>=40.0 ug/mL

Reported:
1-2 days

Methodology:
Quantitative Enzyme Immunoassay (EIA)

Interpretive Data:
This test measures monohydroxyoxcarbazepine (MHD). Adverse effects may include dizziness, fatigue, nausea, headache, somnolence, ataxia, and tremor.

Performing Lab:
ARUP Laboratories

ARUP Test Code:
3017889

ADMINISTRATIVE

CPT Codes:
80183

OXYGEN SATURATION (SQ: SO2)

PCSO2

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Blood	hemparinized syringe	

Specimen Preparation:

Remove needle, expel any air bubbles, cap tightly and gently mix well.

Unacceptable Conditions:

- Syringe with needle attached;
- uncapped specimen;
- clotted specimen

Remarks:

Specimen must be tightly capped. Specify site of collection (e.g. arterial, venous, mixed venous, etc.) and FIO2

Storage/Transport Temperature:

1.0 mL whole blood immediately at Ambient (room temperature) temperature. If delivery will be delayed over 30 min., placesyringe on ice and deliver ASAP

Performed:

Sunday-Saturday

Methodology:

Ion Selective Electrode

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

82810

Last Reviewed:

1/22/24

PAIN MANAGEMENT DRUG PANEL (SQ:PMDPMS)

PMDPM

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

performing in house now

Ordering Recommendations:

Qualitative test to monitor medication compliance and to detect undisclosed drug/substance use in support of pain management, substance use disorders treatment, and other pharmacotherapies involving controlled substances.If expert result interpretation is desired, refer to Drug Profile, Targeted with Interpretation by Tandem Mass Spectrometry and Enzyme Immunoassay, Urine (2009288). For a traditional screen with reflex to secondary quantitative testing, refer to Drug Profile, Screen with Reflex to Quantitation (2012312).This test does not distinguish between the delta-8 and delta-9 forms of THC or their metabolites.

Collect:

Random urine.

Specimen Preparation:

Transfer 4 mL each into two (2) ARUP standard transport tubes of urine with no additives or preservatives. (Min: 2 mL each)

Unacceptable Conditions:

Specimens exposed to repeated freeze/thaw cycles.

Stability (from collection to initiation):

Ambient: 1 week (Clonazepam may be unstable at ambient condition beyond three days); Refrigerated: 1 month; Frozen: 1 month

Performed:

Sun-Sat

Reference Interval:

Drugs covered and range of cutoff concentrations.
Note: Some drugs are identified based on the presence of unique drug metabolites not listed below.

Drugs/Drug Classes	Range of Cutoff Concentrations
Barbiturates	200 ng/mL
Benzodiazepine-like: alprazolam, clonazepam, diazepam, lorazepam, midazolam, nordiazepam, oxazepam, temazepam, zolpidem	20 - 60 ng/mL
Cannabinoids (11-nor-9-carboxy-THC)	50 ng/mL
Ethyl Glucuronide	500 ng/mL
Muscle Relaxant(s): carisoprodol, meprobamate	100 ng/mL
Opiates/Opioids: buprenorphine, codeine, fentanyl, heroin, hydrocodone, hydromorphone, meperidine, methadone, morphine, naloxone, oxycodone, oxymorphone, tapentadol, tramadol	2-200 ng/mL
GABA analogues: Gabapentin, pregabalin	3,000 ng/mL
Phencyclidine (PCP)	25 ng/mL
Stimulants: amphetamine, cocaine, methamphetamine, methylphenidate, MDMA (Ecstasy), MDEA (Eve), MDA, phentermine	50-200 ng/mL

Methodology:

Qualitative Tandem Mass Spectrometry/Qualitative Enzyme Multiplied Immunoassay Technique (EMIT)/Qualitative Spectrophotometry

Notes:

Creatinine concentration is also provided. The carisoprodol immunoassay has cross-reactivity to carisoprodol and meprobamate.

Interpretive Data:

Methodology: Qualitative Enzyme Immunoassay and Qualitative Liquid Chromatography-Tandem Mass Spectrometry, Quantitative Spectrophotometry

The absence of expected drug(s) and/or drug metabolite(s) may indicate noncompliance, inappropriate timing of specimen collection relative to drug administration, poor drug absorption, diluted/adulterated urine, or limitations of testing. The concentration must be greater than or equal to the cutoff concentration to be reported as present. If specific drug concentrations are required, contact the laboratory within two weeks of specimen collection to request confirmation and quantification by a second analytical technique. Interpretive questions should be directed to the laboratory.

Results based on immunoassay detection that do not match clinical expectations should be interpreted with caution. Confirmatory testing by mass spectrometry for immunoassay-based results is available, if ordered within two weeks of specimen collection. Additional charges apply.

For medical purposes only; not valid for forensic use.

Performing Lab:

ARUP

ARUP Test Code:

2007479

ADMINISTRATIVE

CPT Codes:

80307; 80326; 80359; 80360; 80361; 80364; 80365; 80372; 80348; 80345; 80356; 80347; 80368; 80366; 80355 (Alt code: G0482)

Last Reviewed:

12/2/2023

PAIN MANAGEMENT PANEL WITH INTERP, URINE (SQ: UPNMGI)

PMGUI

COLLECTION DEVICE

Preferred Collection Device:
YELLOW URINE TUBE

TESTING INFORMATION

Ordering Recommendations:
Billing: see billing info section for pre-authorization requirements.

Testing NOTE: Must include a list of patient's current prescription medication. If a list of prescriptions is not available, then order Pain Management panel (PMGU).

Collect:

Specimen Type	Requested Volume	Minimum Volume
Unpreservered urine	10 mL	3 tubes, 1 ml each

Unacceptable Conditions:

- Room temperature storage
- Grossly hemolyzed or icteric samples

Storage/Transport Temperature:
Must be refrigerated or frozen within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	14 days Exception of: Zolpidem metabolites, alpha-hydroxymidazolam, and traizolam have only 7 day stability.	14 days Exception of: Zolpidem metabolites, alpha-hydroxymidazolam, and traizolam have only 7 day stability.

Performed:
Monday, Wednesday, Thursday

Reference Interval:

Drug	The following cutoff concentrations were used to identify positive results:
Morphine	25
Noroxymorphone	25
Oxymorphone	25
Norhydromorphone	25
Pseudoephendrine	5
Dihydrocodine	10
Codeine	25
Naloxone	10
Noroxycodone	25
Amphetamine	100
Acetyl Norfentanyl	5
Oxycodone	25
Naltrexone	10
MDA	100
6-Acetylmorphine	10
Norhydrocodone	50
O-Desmethyl-cis-tramadol	25
Methamphetamine	100
Hydrocodone	25
MDMA	100
Ritalinic Acid	100
Zolpidem Phenyl-4-Carboxylic Acid	10

Benzoylecgonine	100
Norfentanyl	5
Dextrophan tartrate	2.5
Cis-Tramadol	25
Methylphenidate	25
7-Aminoclonazepam	10
Tapentadol	25
NorMeperidine	10
Merperidine	25
Meprobamate	100
Phenobarbital	50
Norbuprenorphine	25
Acetyl fentanyl	2.5
Zolpidem	2.5
Butalbital	50
PCP	25
Dextromethorphan	2.5
Fentanyl	2.5
Doxepin	25
EDDP	25
Alpha-Hydroxytriazolam	10
Alpha-Hydroxyalprazolam	25
Secobarbital	50
Oxazepam	25
N-Desmethylclobazam	10
Clonazepam	10
Chlordiazepoxide	10
Lorazepam	25
Carisoprodol	100
Cyclobenzaprine	25
Buprenorphine	25
Alpha-Hydroxymidazolam	10
Flunitrazepam	25
Triazolam	10
Desalkylflurazepam	25
Methadone	25
Midazolam	10
Temazepam	25
Nordiazepam	10
Clobazam	10
Diazepam	10
THC (this platform does not distinguish between Delta-8-THC-COOH and Delta-9-THC-COOH)	25

Reported:

24-48 hours
Tuesday, Thursday, Friday

Methodology:

Mass Spectrometry

Notes:

Click here for Interfering Substances

For pain management testing with interpretation, a list of the patients current prescription medications is required.

Performing Lab:

METHODIST

Testing Region:
CARLE WEST REGION

Billing Aids:
Certain instances require prior authorization for this lab test. It is crucial to verify with the payer before proceeding. The lab requires a copy of the prior authorization (or assigned number) to be sent along with the order and insurance information. Failure to provide this documenatiton may result in delays or denial of the test. Ensure all necessary paperwork is complete and accuate at time of submission.

Current known payer requiring authorizations: Meridian Health.

ADMINISTRATIVE

CPT Codes:
G0482

Billing Aids:
Certain instances require prior authorization for this lab test. It is crucial to verify with the payer before proceeding. The lab requires a copy of the prior authorization (or assigned number) to be sent along with the order and insurance information. Failure to provide this documenatiton may result in delays or denial of the test. Ensure all necessary paperwork is complete and accuate at time of submission.

Current known payer requiring authorizations: Meridian Health.

Last Reviewed:
8/10/24

PAIN MANAGEMENT PANEL, URINE (SQ: UPNMG)

PMGU

COLLECTION DEVICE

Preferred Collection Device:
YELLOW URINE TUBE

TESTING INFORMATION

Ordering Recommendations:
Billing: see section with pre-authorization requirements.

Collect:

Specimen Type	Requested Volume	Minimum Volume
Unpreservered urine	10 mL	3 tubes - 1 mL each

Unacceptable Conditions:

- Room temperature storage.
- Grossly hemolyzed or icteric samples

Storage/Transport Temperature:
Must be refrigerated or frozen within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	14 days Exception of: Zolpidem metabolites, alpha-hydroxymidazolam, and traizolam have only 7 day stability.	14 days Exception of: Zolpidem metabolites, alpha-hydroxymidazolam, and traizolam have only 7 day stability.

Performed:
Monday, Wednesday, Thursday

Reference Interval:

Drug	The following cutoff concentrations were used to identify positive results:
Morphine	25
Noroxymorphone	25
Oxymorphone	25
Norhydromorphone	25
Pseudoephendrine	5
Dihydrocodine	10
Codeine	25
Naloxone	10
Noroxycodone	25
Amphetamine	100
Acetyl Norfentanyl	5
Oxycodone	25
Naltrexone	10
MDA	100
6-Acetylmorphine	10
Norhydrocodone	50
O-Desmethyl-cis-tramadol	25
Methamphetamine	100
Hydrocodone	25
MDMA	100
Ritalinic Acid	100
Zolpidem Phenyl-4-Carboxylic Acid	10
Benzoylecgonine	100
Norfentanyl	5

Dextrophan tartrate	2.5
Cis-Tramadol	25
Methylphenidate	25
7-Aminoclonazepam	10
Tapentadol	25
NorMeperidine	10
Merperidine	25
Meprobamate	100
Phenobarbital	50
Norbuprenorphine	25
Acetyl fentanyl	2.5
Zolpidem	2.5
Butalbital	50
PCP	25
Dextromethorphan	2.5
Fentanyl	2.5
Doxepin	25
EDDP	25
Alpha-Hydroxytriazolam	10
Alpha-Hydroxyalprazolam	25
Secobarbital	50
Oxazepam	25
N-Desmethylclobazam	10
Clonazepam	10
Chlordiazepoxide	10
Lorazepam	25
Carisoprodol	100
Cyclobenzaprine	25
Buprenorphine	25
Alpha-Hydroxymidazolam	10
Flunitrazepam	25
Triazolam	10
Desalkylflurazepam	25
Methadone	25
Midazolam	10
Temazepam	25
Nordiazepam	10
Clobazam	10
Diazepam	10
THC (this platform does not distinguish between Delta-8-THC-COOH and Delta-9-THC-COOH)	25

Reported:
24-48 hours
Tuesday, Thursday, Friday

Methodology:
Mass Spectrometry

Notes:
Click here for Interfering Substances

Performing Lab:
METHODIST

Testing Region:
CARLE WEST REGION

Billing Aids:

Certain instances require prior authorization for this lab test. It is crucial to verify with the payer before proceeding. The lab requires a copy of the prior authorization (or assigned number) to be sent along with the order and insurance information. Failure to provide this documenatiton may result in delays or denial of the test. Ensure all necessary paperwork is complete and accuate at time of submission.

Current known payer requiring authorizations: Meridian Health.

ADMINISTRATIVE

CPT Codes:

G0482

Billing Aids:

Certain instances require prior authorization for this lab test. It is crucial to verify with the payer before proceeding. The lab requires a copy of the prior authorization (or assigned number) to be sent along with the order and insurance information. Failure to provide this documenatiton may result in delays or denial of the test. Ensure all necessary paperwork is complete and accuate at time of submission.

Current known payer requiring authorizations: Meridian Health.

Last Reviewed:

6/4/24

PANCREATIC ELASTASE IN STOOL (SQ:PANESA)

PELAS

TESTING INFORMATION

Ordering Recommendations:
Tests for exocrine pancreatic insufficiency.

Collect:
Stool.

Specimen Preparation:
Transfer 5 g stool to an unpreserved stool transport vial (ARUP supply #40910). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 1 g)

Unacceptable Conditions:
Stool in media or preservative. Swabs.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 2 weeks; Frozen: 30 days.

Performed:
Sun-Sat

Reference Interval:
Effective August 17, 2020

Greater or equal to 200 µg/g	Normal
100 to <200 µg/g	Moderate to mild exocrine pancreatic insufficiency
Less than 100 µg/g	Severe exocrine pancreatic insufficiency

Reported:
1-4 days

Methodology:
Quantitative Chemiluminescent Immunoassay (CLIA)

Notes:
Enzyme substitution therapy does not influence the determination of Pancreatic Elastase-1.

Interpretive Data:
Reference range does not apply for infants less than one month old.

Performing Lab:
ARUP

ARUP Test Code:
3002858

ADMINISTRATIVE

CPT Codes:
82653

Last Reviewed:
12/2/2023

PARANEOPLASTIC AB RFLX (SQ:PCCA)

PCCA

TESTING INFORMATION

Ordering Recommendations:
Aid in the diagnosis of paraneoplastic neurologic syndromes associated with malignancy. Order based on clinical presentation.

Collect:
Serum separator tube

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 0.75 mL)

Unacceptable Conditions:
Contaminated, heat-inactivated, hemolyzed, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun, Wed, Fri

Reference Interval:

Components	Reference Interval
Purkinje Cell/Neuronal Nuclear IgG Scrn	None Detected

Reported:
1-6 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody/Qualitative Immunoblot

Notes:
Purkinje Cell (PCCA) antibody and Neuronal Nuclear (ANNA) antibody IgG are screened by IFA. If the IFA screen is indeterminate, then a Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be added. If the IFA screen is positive at 1:10 or greater, then a PCCA/ANNA antibodies titer and Neuronal Nuclear Antibodies (Hu, Ri, Yo, and Tr/DNER) IgG by Immunoblot will be added. Additional charges apply.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2007961

ADMINISTRATIVE

CPT Codes:
86255; if reflexed add 84182 x4 and/or 86256

Last Reviewed:
12/1/2023

PARASITEMIA % RFLX (SQ: MALCTM)

MALCM

TESTING INFORMATION

Collect:
1 mL serum/plasma or centrifuged gold top, refrigerated

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

Components:
HSVG1 HSVG2

PARASITOLOGY STAIN (SQ:CYSPA)

CYSPA

TESTING INFORMATION

Ordering Recommendations:
Test for persistent diarrhea (>14 days) or known risk factors if Cryptosporidium, Cyclospora or Cystoisospora is the suspected infectious agent.

Collect:
Stool. Due to the various shedding cycles of many parasites, three separate stool specimens collected over a 5-7 day period are recommended.

Specimen Preparation:
Preserve 2 g of stool within one hour of collection in AlcorFix (ARUP Supply #52059) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 1 g) Additional specimen collection instructions can be found at https://www.aruplab.com/parasep. Preserving in 10 percent formalin is also acceptable.

Unacceptable Conditions:
Specimens other than stool or unpreserved stool.

Storage/Transport Temperature:
Room temperature.

Stability (from collection to initiation):
Ambient: 9 months; Refrigerated: 9 months; Frozen: Unacceptable

Performed:
Mon-Fri

Reference Interval:
Negative

Reported:
1-3 days

Methodology:
Qualitative Concentration/Stain/Microscopy

Notes:
Cryptosporidium antigen detection by EIA is also available for stool samples only. Refer to Cryptosporidium Antigen by EIA (0060045). Nucleic Acid Amplification Testing (NAAT) for Cryptosporidium and Cyclospora is also available.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
0060046

ADMINISTRATIVE

CPT Codes:
87177; 87207

Last Reviewed:
12/1/2023

PARATHYROID HORMONE-RELATED PEPTIDE, P (SQ:PTHRPA)

PTHRP

TESTING INFORMATION

Ordering Recommendations:
Aid in the evaluation of unexplained hypercalcemia, particularly in suspected hypercalcemia of malignancy. Amino (N)- and carboxy (C)-terminus PTHrP fragments, such as those produced by some patients with renal insufficiency, do not interfere with this assay.

Collect:
Protease Inhibitor tube (PPACK; Phe-Pro-Arg-chloromethylketone) (ARUP supply #49662), available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. A winged collection set must be used.

Specimen Preparation:
Mix well. Separate from cells within 1 hour of collection. Transfer 1.5 mL plasma to an ARUP Standard Transport Tube. (Min: 0.7 mL)

Unacceptable Conditions:
Grossly hemolyzed specimens.

Storage/Transport Temperature:
Frozen. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 months

Performed:
Sun, Mon, Wed, Fri

Reference Interval:
Effective August 17, 2015

Age	Male	Female
Under 18 years	Not established	Not established
18 years and older	0.0-2.3 pmol/L	0.0-3.4 pmol/L

Reported:
2-6 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Amino (N)- and carboxy (C)-terminus PTHrP fragments, such as those produced by some patients with renal insufficiency, do not interfere with this assay.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2010677

ADMINISTRATIVE

CPT Codes:
82542

Last Reviewed:
12/2/2023

PARIETAL CELL ABS, IGG, S (SQ:GPCABA)

PCAB

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate pernicious anemia or immune-mediated deficiency of vitamin B12 with or without megaloblastic anemia. Negative results do not rule out pernicious anemia.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.25 mL)

Unacceptable Conditions:
Urine or plasma. Contaminated, heat-inactivated, grossly hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon, Wed-Sat

Reference Interval:

Components	Reference Interval
Gastric Parietal Cell Antibody, IgG	24.9 Units or less

Reported:
1-3 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Notes:
Most patients with pernicious anemia have parietal cell antibodies. However, the fact that such antibodies are found with increased frequency in unaffected family members, as well as in patients with other autoimmune diseases, suggests these antibodies do not cause disease by themselves.

Interpretive Data:
In the context of vitamin B12 deficiency, the presence of gastric parietal cell antibodies (PCA) and/or intrinsic factor antibodies in association with macrocytic anemia is considered diagnostic for pernicious anemia (PA). However, the presence of gastric PCAs alone is not specific for PA. Gastric PCAs may occur with increased frequency in unaffected family members, a small percentage of healthy individuals, and patients with other autoimmune diseases, such as autoimmune thyroiditis.

Component	Interpretation
Parietal Cell Antibody, IgG	0.0-20.0 Units Negative 20.1-24.9 Units Equivocal 25.0 Units or greater Positive

Performing Lab:
ARUP

ARUP Test Code:
0050596

ADMINISTRATIVE

CPT Codes:
83516

Last Reviewed:
12/2/23

PAROXYSMAL NOCTURNAL HEMOGLOBINURIA,WBC (SQ: PNHWBA)

PNHWB

TESTING INFORMATION

Ordering Recommendations:
Use to quantify or monitor paroxysmal nocturnal hemoglobinuria clone size. Preferred initial diagnostic test is Paroxysmal Nocturnal Hemoglobinuria (PNH), High Sensitivity, RBC and WBC (2005006).

Patient Preparation:
New York State Clients: Testing is only approved for the Paroxysmal Nocturnal Hemoglobinuria Panel (ARUP test code 2005006) on whole blood specimens.

Collect:
Lavender (EDTA), pink (K2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Transport 4 mL whole blood. (Min: 4 mL)

Unacceptable Conditions:
Clotted or hemolyzed specimens.

Remarks:
New York State Clients: Testing is only approved for the Paroxysmal Nocturnal Hemoglobinuria Panel (ARUP test code 2005006) on whole blood specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
By report

Reported:
1-3 days

Methodology:
Quantitative Flow Cytometry

Interpretive Data:
WBC analysis is the most accurate measurement of the PNH clone size. In this high-sensitivity assay, FLAER and CD157 are used as GPI-linked markers; CD15 (PMNs) and CD64 (monocytes) are used as lineage-specific markers. The assay was developed according to published guidelines (Cytometry B Clin. Cytom. 2010; 78:211) and as updated in 2018 (Cytometry B Clin. Cytom. 2018; 94B:49). The lower limit of quantification is 0.02 percent for PNH PMNs (based on 250,000 cells analyzed) and 0.5 percent for PNH monocytes (based on 10,000 cells analyzed). The lower limit of detection for PNH PMNs is 0.008 percent and for PNH monocytes 0.2 percent. For severely pancytopenic patients, the WBC assay sensitivity will be much lower.

The presence of a subclinical PNH population in myelodysplastic bone marrow disorders, such as aplastic anemia or refractory anemia, may correlate with a positive immunotherapeutic response (Blood 2006; 107, 1308-1314).

For initial diagnosis of PNH, order High Sensitivity RBC and WBC Panel (ARUP test code 2005006).

For delineation of RBC Types II and III populations when the RBC clone size is greater than 1 percent, order PNH, High Sensitivity, RBC (ARUP test code 2004366).

Patient Retesting Recommendations: The frequency of testing is dictated by clinical and hematological parameters. Repeat testing is indicated upon any significant change in clinical or laboratory parameters and is suggested at least annually for routine monitoring. In the setting of aplastic anemia, international guidelines recommend screening for PNH at diagnosis, and every 3 to 6 months initially, reducing the frequency of testing if the proportion of GPI-deficient cells has remained stable over an initial two-year period (Int J Lab Hematol 2019;41 Suppl 1:73-81).

Performing Lab:
ARUP

ARUP Test Code:
2005003

ADMINISTRATIVE

CPT Codes:
86356 x4

Last Reviewed:
12/2/2023

PARVOVIRUS B19 AB, IGG & IGM, S (SQ:PARVAB)

PARV

TESTING INFORMATION

Ordering Recommendations:
Aids in the diagnosis of parvovirus infection.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum to an ARUP standard transport tube. (Min: 0.3 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens.

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Remarks:
Mark specimens plainly as "acute" or "convalescent."

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Parvovirus B19 Antibody IgG	0.90 IV or less
Parvovirus B19 Antibody IgM	0.89 IV or less

Reported:
1-3 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)

Interpretive Data:

Component	Results	Interpretation
Parvovirus B19 Antibody, IgG	0.90 IV or less 0.91-1.09 IV 1.10 IV or greater	Negative: No significant level of detectable Parvovirus B19 IgG antibody. Equivocal: Repeat testing in 7-21 days may be helpful. Positive: IgG antibody to Parvovirus B19 detected, which may indicate a current or past infection.
Parvovirus B19 Antibody, IgM	0.89 IV or less 0.90-1.10 IV 1.11 IV or greater	Negative: No significant level of detectable Parvovirus B19 IgG antibody. Equivocal: Repeat testing in 7-21 days may be helpful. Positive: IgG antibody to Parvovirus B19 detected, which may indicate a current or past infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post infection.

Performing Lab:
ARUP

ARUP Test Code:
0065120

ADMINISTRATIVE

CPT Codes:
86747 x2

Last Reviewed:
12/2/2023

PATHOLOGY INTERP BB (SQ: PATHBB)

PTHBB

TESTING INFORMATION

Storage/Transport Temperature:
Sterile Leak-proof container or Hemoccult Card

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PATHOLOGY REVIEW (SQ: YPATHR)

YPTHR

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PEANUT COMPONENT TESTING (SQ: NUTCOM)

PNUTC

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.6 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 0.4mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Ara h8
Ara h9
Ara h1
Ara h2
Ara h3
Ara h6

ADMINISTRATIVE

Last Reviewed:
2/1/24

PEANUT, IGE (SQ: PEANUT)

PEANT

COLLECTION DEVICE

Preferred Collection Device:

Gold SST

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	1 week	Freeze for long term storage

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

PENICILLIUM NOTATIM (M1) (SQ: PNMOLD)

PENO

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Freeze for long term storage

Reference Interval:

kU/L	Clinical Implications
<0.10	Absent or undetectable
0.10-0.70	Low level of allergy, indicative of ongoing sensitization
0.71-3.50	Moderate level of allergy, indicative of stronger ongoing sensitization
3.51-17.50	High Level of allergy, indicative of high level of sensitization
17.51-50.00	Very high level of allergy, indicative of very high level of sensitization
50.01-100.00	Very high level of allergy, indicative of very high level of sensitization
>100.00	Very high level of allerge, indicative of very high level of sensitization

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

PH, BODY FL. (SQ: FPH)

BFPH

TESTING INFORMATION

Collect:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine	clean plastic or glass container with secured lid		1 mL
STAT:			

Storage/Transport Temperature:

Immediately at room temperature or refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
	24 hours	Indefinitely

Performed:

Sunday - Saturday

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83986

Last Reviewed:

1/22/24

PH, VENOUS (SQ: PHV)

BGPHV

TESTING INFORMATION

Testing Region:

Carle West region

PHENOBARBITAL (SQ: PHENO)

PHENO

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	2.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	2.0 mL
1 Green Top Tube	6.0 mL	2.0 mL

Specimen Preparation:

Seperate serum or plasma from cells ASAP or within 2 hours of collection.

Storage/Transport Temperature:

1 mL serum/plasma at room temperature or refrigerated.

If Gold STT is used for collection, serum must be analyzed within 24 hours or removed from gel tube for storage.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
2 days	1 month	3 months

Performed:

Sunday - Saturday

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

80184

Last Reviewed:

1/22/24

PHENYTOIN (SQ: PTN)

PHENY

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Specimen Preparation:

Sepeate serum or plasma from cells ASAP or within 2 hours of collection.

Remarks:

Draw 1 hour after IV or 24 hours after PO loading dose
Trough - before next dose

Storage/Transport Temperature:

1 mL serum/plasma at 2-8° C (Min: 0.5 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	24 hours	1 month

Performed:

Sunday - Saturday

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

80185

Last Reviewed:

1/22/24

PHENYTOIN FREE/TOTAL (SQ: DILFTA)

PNYFT

TESTING INFORMATION

Ordering Recommendations:
Preferred test for therapeutic drug management in patients with renal failure or conditions that may alter albumin concentrations.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain Red.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Whole blood. Citrated plasma. Serum separator tubes (SST). Tubes that contain liquid anticoagulant.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 4 days; Refrigerated: 4 days; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Effective May 16, 2016

Components	Therapeutic Range
Phenytoin - Total	Therapeutic: 10.0-20.0 µg/mL Toxic: > 30.0 µg/mL
Phenytoin - Free Level	Therapeutic: 1.0-2.5 µg/mL Toxic: > 2.5 µg/mL
Phenytoin - Percent Free	8.0-14.0%

Reported:
1-4 days

Methodology:
Quantitative Enzyme Multiplied Immunoassay Technique

Interpretive Data:
The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Free phenytoin may be important to monitor in patients with altered or unpredictable protein binding capacity because phenytoin is highly bound (greater than 90 percent) at therapeutic concentrations. Phenytoin is also subject to drug-drug interactions due to displacement of protein binding and extensive metabolism. Cross-reactivity with metabolites may account for differences in phenytoin concentrations among analytical methods. Calculating percent free attempts to minimize differences in assay cross-reactivity and may be useful in dose optimization.

Performing Lab:
ARUP

ARUP Test Code:
0090141

ADMINISTRATIVE

CPT Codes:
80185; 80186

Last Reviewed:
12/2/2023

PHOSPHATIDYLETHANOL (SQ:PETHA)

PETHA

TESTING INFORMATION

Ordering Recommendations:
Biomarker associated with ethanol consumption; may be helpful in monitoring alcohol abstinence.

Collect:
Lavender (K2 or K3EDTA), pink (K2EDTA), dark green (lithium heparin), or gray (potassium oxalate).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.5 mL)

Unacceptable Conditions:
Gel separator tubes, plain red, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated. Also acceptable: Frozen.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: 2 weeks; Frozen: 1 month (-20°C)

Performed:
Sun-Sat

Reference Interval:
Effective September 8, 2020

By Report

Reported:
1-4 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Phosphatidylethanol (PEth) is a group of phospholipids formed in the presence of ethanol, phospholipase D, and phosphatidylcholine. PEth is known to be a direct alcohol biomarker. The predominant PEth homologues are PEth 16:0/18:1 (POPEth) and PEth 16:0/18:2 (PLPEth), which account for 37-46% and 26-28% of the total PEth homologues, respectively. PEth is incorporated into the phospholipid membrane of red blood cells and has a general half-life of 4-10 days and a window of detection of 2-4 weeks. However, the window of detection is longer in individuals who chronically or excessively consume alcohol. Serial monitoring of PEth may be helpful in monitoring alcohol abstinence over time. PEth results should be interpreted in the context of the patient's clinical and behavioral history. Patients with advanced liver disease may have falsely elevated PEth concentrations (Nguyen VL, et al, Alcoholism: Clinical and Experimental Research, 2018).

Performing Lab:
ARUP

ARUP Test Code:
3002598

ADMINISTRATIVE

CPT Codes:
80321 (Alt code: G0480)

Last Reviewed:
12/1/2023

PHOSPHORUS (SQ: PHOS)

PHOS

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	0.5 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	0.5 mL
1 Green Top Tube	6.0 mL	0.5 mL

Specimen Preparation:

Serum or plasma should be seperated from Red Cells promptly (within 1 hour) Centrifuged gold or 1 mL serum/plasma at 2-8° C (Min: 0.5 mL)

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum/plasma at 2-8° C. (Min: 0.5 mL)
Serum or plasma should be seperated from Red Cells promptly (within 1 hour)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	48 hours	2 months
<=8 hours - Pekin & Proctor	<= 7 days - Pekin & Proctor	<= 3 months - Pekin & Proctor

Performed:

Sunday-Saturday

Reference Interval:

2.5 - 4.9 mg/dL

Performing Lab:

Methodist, Pekin and Proctor Hospitals

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

84100

Last Reviewed:

1/22/24

PHOSPHORUS, RANDOM URINE (SQ: UPHOS)

RPHU

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
Random urine	5.0 mL	1.0 mL

Unacceptable Conditions:

Bloody urine or urine contaminated with fecal matter.

Storage/Transport Temperature:

Transport urine in sealed container at ambient or refrigerated temperatures.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	2 weeks	1 month

Performed:

Daily

Reference Interval:

Reference interval has not been established for random urine phosphorus.

Methodology:

Bichromatic endpoint.

Performing Lab:

Methodist, Pekin, and Proctor

Testing Region:

Carle West region

PHOSPHORUS, URINE (24HR) (SQ: UPHO24)

PHO24

TESTING INFORMATION

Collect:
Collect 24 hour urine. If sending an aliquot (minimum 5mL), must include hours collected and total volume of the 24 hour urine collection.

Unacceptable Conditions:
Urine containing blood or fecal matter.

Storage/Transport Temperature:
Transport urine in sealed container at ambient or refrigerated temperature.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
24 hours		2 weeks		1 month

Performed:
Daily

Reference Interval:
400-1300 mg/24h

Methodology:
Bichromatic endpoint

Performing Lab:
Methodist

Testing Region:
Carle West region

PINWORM PREP (SQ: PINPAD)

PIN

TESTING INFORMATION

Collect:
Pinworm paddle, perianal material.

Unacceptable Conditions:
Frosted Tape

Storage/Transport Temperature:
Place pinworm paddle in transport sleeve, snap close and deliver to laboratory as soon as possible.

Performed:
Monday-Friday

Methodology:
Microscopic Examination

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

PLASMINOGEN ACTIV 1, INHIBITOR (SQ:PAIAA)

PAIAA

TESTING INFORMATION

Ordering Recommendations:
Detect elevated concentrations of plasminogen activator inhibitor 1 (PAI-1). Low concentrations of PAI-1 may not be accurately quantified. Not a first-line test for diagnosing inherited thrombotic or bleeding disorders.

Patient Preparation:
Collect specimen between 8 a.m. and 12 p.m.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Centrifuge plasma. Within 1 hour of draw, transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube and freeze. (Min: 1 mL)

Unacceptable Conditions:
Serum, EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Additional specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 1 hour; Refrigerated: Unacceptable; Frozen: 2 months

Performed:
Tue, Wed, Thu

Reference Interval:
By report

Reported:
1-8 days

Methodology:
Bioimmunoassay

Interpretive Data:
Refer to report

Performing Lab:
ARUP

ARUP Test Code:
0098781

ADMINISTRATIVE

CPT Codes:
85415

Last Reviewed:
12/2/2023

PLATELET ANTIBODIES, INDIRECT (SQ: PLATAB)

PLABN

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
inactivated by ARUP

Performing Lab:
ARUP

ARUP Test Code:
0051050

ADMINISTRATIVE

Last Reviewed:
12/2/2023

PLATELET ASSOC ABS DIRECT ASSAY (SQ:PAIGAA)

PAADA

TESTING INFORMATION

Ordering Recommendations:
Support the diagnosis of autoimmune thrombocytopenia (AITP).

Collect:
Lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Transport 4 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Clotted, hemolyzed, frozen, or refrigerated specimens. Specimens older than 48 hours.

Remarks:
Specimens must be analyzed within 48 hours of collection. Required amount of blood may be dependent on platelet count.

Storage/Transport Temperature:
CRITICAL ROOM TEMPERATURE.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: Unacceptable; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
IgG: Negative
IgM: Negative

Reported:
2-3 days

Methodology:
Qualitative Flow Cytometry

Notes:
Detection of platelet-associated IgG and/or IgM may be used to separate thrombocytopenia of immune origin from nonimmune origin. Most patients with ITP have abnormally high levels of IgG associated with their platelets. Occasionally patients will have normal IgG levels but abnormally high levels of IgM. Dual staining and flow cytometric analysis ensures that only platelets are analyzed and relatively small volumes of blood are required. This assay does not distinguish between autoantibodies and alloantibodies, nor does it identify specific types of antiplatelet antibodies, such as those against HPA-1a.

Interpretive Data:
Negative (IgG & IgM): No excess antibodies were associated with the patient's platelets. An immune cause of thrombocytopenia is unlikely.
Positive (IgG and/or IgM): An increase in platelet associated immunoglobulin is noted. An immune cause of thrombocytopenia should be considered. However, many conditions can result in an increase in platelet associated antibodies; for example, IgM rheumatoid factor antibodies.
Strong Positive (IgG and/or IgM): A definite increase in platelet associated immunoglobulin is noted and an immune cause of thrombocytopenia should be considered. However, many conditions can result in an increase in platelet associated antibodies; for example, IgM rheumatoid factor antibodies.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0095614

ADMINISTRATIVE

CPT Codes:
86023 x2

Last Reviewed:
12/2/2023

Platelet Count (SQ: PLTCNT)

PLTCN

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top Tube	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250uL

Unacceptable Conditions:

Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Stability exceeded
Frozen

Storage/Transport Temperature:

EDTA Whole blood transported at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 Hours	48 Hours	Unacceptable

Performed:

Daily

Reference Interval:

Platelet Count, ($x10^3$/uL)			
Age	Male	Female	Combined
0-14 days	218-419	144-449	
15-34 days	248-586	279-571	
35-55 days	229-562	331-597	
56 days-6months	244-529	247-580	
6 months-2 years	206-445	214-459	
2-3 years	202-403	189-394	
3-6 years			187-445
6-10 years			187-400
10-14 years			177-381
14-18 years	139-320	158-362	
>=18 years			150-400

Methodology:

Hydrodynamic focusing

Notes:

One sodium citrate light blue top tube may be sent with the lavender tube for accurate platelet counts in patients with EDTA platelet clumping. Sodium citrate tube must be completely filled with whole blood to the volume indicator and should not be spun or aliquoted.

Performing Lab:

Methodist, Proctor, and Pekin

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/18/24:ME

Platelet Function Assay (SQ: COLEPI)

COADP

TESTING INFORMATION

Patient Preparation:

Please notify Methodist laboratory customer service (309-672-4911) prior to sending specimens

Collect:

Specimen Type	Requested Volume	Minimum Volume
Two 3.2% sodium citrate light blue top tubes. Both tubes must be filled completely to the fill line.	6.0 mL	6.0 mL

Specimen Preparation:

Must be drawn with a 21-gauge needle or larger.
Do not draw with a butterfly collection set or from an indwelling catheter.

Unacceptable Conditions:

Improper anticoagulant, insufficient volume, clotted or evidence of fibrin strands, hemolyzed, centrifuged, contaminated with IV fluids, incompletely labeled or mislabeled, exceeding stability requirements, refrigerated, or frozen.

Storage/Transport Temperature:

18-25 degrees C whole blood.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	Unacceptable	Unacceptable

Performed:

Daily

Reference Interval:

Collagen/ADP: 55-140 seconds
Collagen/Epinephrine: 82-150 seconds

Methodology:

Platelet activation/aggregation

Performing Lab:

OSF St Francis System Laboratory

Clinical Information:

Tests platelet function by measuring both platelet adhesion and aggregation. Common clinical applications include the following: preoperative evaluation, evaluation of menorrhagia, determining the presence of drug-induced platelet dysfunction, and determining patient compliance with aspring and other antiplatelet drugs.

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/18/24

Plavix VerifyNow Platelet Reactivity (SQ: PRUVN)

PRUT

TESTING INFORMATION

Ordering Recommendations:

Therapy	Dose	Suggested Test Timing
Clopidogrel (Plavix)	75 mg	>= 7 days on maintenance
	300 mg	>= 8 hours post-bolus
	600 mg	>= 6 hours post-bolus
Prasugrel (Effient)	5 mg	>= 5 days on maintenance
	10mg	>= 5 days on maintenance
	60 mg	>= 45 minutes post-bolus
Ticagrelor (Brilinta)	180 mg	>= 2 hours post-bolus (within 8 hours)

Patient Preparation:

Patients who have been treated with Glycoprotein IIb/IIIa inhibitor drugs should not be tested until platelet function has recovered. This time period is approximately 14 days after discontinuation of drug adminstration for abciximab (ReoPro) and up to 48 hours for eptifibatide (Integrilin) and tirofiban (Aggrastat). The platelet function recovery time varies among individuals and is longer for patients with renal dysfunction.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One Greiner 2.0mL partial-fill 3.2% sodium citrate blue top tube. Tubes must be filled to the small black line. Collection kits may be obtained from the laboratory.	2.0mL	2.0mL

Specimen Preparation:

- Must be drawn with a 21-gauge needle or larger with at least a 2mL discard tube first
- If drawn from indwelling catheter, at least a 5mL discard should be utilized first
- Specimens must be hand delivered to the laboratory

Unacceptable Conditions:

Improper anticoagulant, insufficient volume, clotted or evidence of fibrin strands, hemolyzed, centrifuged, contaminated with IV fluid, incompletely labeled or mislabeled, stability exceeded, refrigerated, frozen, not hand delivered to laboratory.

Storage/Transport Temperature:

Whole blood hand delivered to the laboratory at 18-25°C, room temperature.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	Unacceptable	Unacceptable

Performed:

Daily

Reference Interval:

182-335 PRU

Methodology:

Turbidimetric optical detection

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/18/24:ME

PML RARA TRANSLOCATION 15 17 (SQ:PMLQTA)

PMLQT

TESTING INFORMATION

Ordering Recommendations:
Use to detect and quantitate PML-RARA fusion transcripts in patients with acute promyelocytic leukemia. Use to monitor minimal residual disease and assess the risk of disease relapse.

Collect:
Whole blood or bone marrow in lavender (EDTA).

Specimen Preparation:
Whole Blood: Transport 5 mL whole blood. (Min: 3 mL)
Bone Marrow: Transport 3 mL bone marrow. (Min: 1 mL)
Refrigerate immediately. Specimens must be received within 48 hours of collection due to lability of RNA.

Unacceptable Conditions:
Serum, plasma, extracted DNA, CSF, FFPE tissue, ambient whole blood, or frozen whole blood or bone marrow.
Specimens collected in anticoagulants other than EDTA. Severely hemolyzed or clotted specimens.
Ambient bone marrow specimens past 7 days will be canceled. Refrigerated whole blood or bone marrow specimens past 7 days will be canceled.

Storage/Transport Temperature:
Whole Blood and Bone Marrow: CRITICAL REFRIGERATED. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 48 hours; Frozen: Unacceptable

Performed:
Varies

Reference Interval:
By report

Reported:
2-9 days

Methodology:
Reverse Transcription Polymerase Chain Reaction

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
2002871

ADMINISTRATIVE

CPT Codes:
81315

Last Reviewed:
12/2/2023

PNEUMOCOCCAL ANTIBODY PANEL (SQ:SPNVAC)

SPNVC

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate antibody production and rule out antibody deficiency in patients vaccinated with a pure polysaccharide vaccine (eg, Pneumovax) or protein conjugated vaccine (eg, Prevnar or Vaxneuvance).

Collect:
Serum separator tube. Postimmunization specimen should be drawn 30 days after immunization and, if shipped separately, must be received within 60 days of preimmunization specimen.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to an ARUP standard transport tube. (Min: 0.25 mL) MARK SPECIMENS CLEARLY AS "PRE" OR "POST" SO SPECIMENS WILL BE SAVED AND TESTED SIMULTANEOUSLY.

Unacceptable Conditions:
Plasma or other body fluids. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 60 days (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Quantitative Multiplex Chemiluminescent Immunoassay

Interpretive Data:
A pre- and postvaccination comparison is required to adequately assess the humoral immune response to the pure polysaccharide Pneumovax 23 (PNX) and/or the protein conjugated Prevnar 7 (P7), Prevnar 13 (P13), Prevnar 20 (P20), and Vaxneuvance (V15) Streptococcus pneumoniae vaccines. Prevaccination samples should be collected prior to vaccine administration. Postvaccination samples should be obtained at least 4 weeks after immunization. Testing of postvaccination samples alone will provide only general immune status of the individual to various pneumococcal serotypes.

In the case of pure polysaccharide vaccine, indication of immune system competence is further delineated as an adequate response to at least 50 percent of the serotypes in the vaccine challenge for those 2-5 years of age and to at least 70 percent of the serotypes in the vaccine challenge for those 6-65 years of age. Individual immune response may vary based on age, past exposure, immunocompetence, and pneumococcal serotype.

Responder Status Antibody Ratio

Nonresponder . . . . . Less than twofold increase and postvaccination concentration less than 1.3 ug/mL

Good responder . . . . . .At least a twofold increase and/or a postvaccination concentration greater than or equal to 1.3 ug/mL

A response to 50-70 percent or more of the serotypes in the vaccine challenge is considered a normal humoral response. (Daly, 2014) Antibody concentration greater than 1.0-1.3 ug/mL is generally considered long-term protection. (Daly, 2015)

References:

1. Daly TM, Pickering JW, Zhang X, et al. Multilaboratory assessment of threshold versus fold-change algorithms for minimizing analytical variability in multiplexed pneumococcal IgG measurements. Clin Vaccine Immunol. 2014;21(7):982-988.

2. Daly TM, Hill HR. Use and clinical interpretation of pneumococcal antibody measurements in the evaluation of humoral immune function. Clin Vaccine Immunol. 2015;22(2):148-152.

Performing Lab:
ARUP

ARUP Test Code:
0050725

ADMINISTRATIVE

CPT Codes:
86581

Last Reviewed:
12/2/2023

PNEUMOCOCCAL UR AG (SQ: USPNAG)

PNEUG

TESTING INFORMATION

Collect:
Random Urine into sterile collection container. Boric acid tube is also acceptable.

Storage/Transport Temperature:
1 ml aliquot from a well mixed random sample. See stability information for transport temperatures.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
24 hours		14 days		14 days

Performed:
Sunday-Saturday

Reference Interval:
Negative

Methodology:
Immunochromatographic Membrane Assay

Interpretive Data:
This assay detects Streptococcus pneumoniae antigen: A negativetest does not exclude infection with S. pneumoniae, thereforeresutls of this test as well as culture results, serology or otherantigen detection methods, should be used in conjuntion withclinical findings to make an accurate diagnosis.

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87449

PNEUMOCYSTIS JIROVECI PCR (SQ:PCYSTA)

PNRP

TESTING INFORMATION

Ordering Recommendations:
Detect P. jirovecii. Preferred test for immunocompromised patients who do not have HIV.

Collect:
Respiratory specimen: Bronchoalveolar lavage (BAL), bronchial wash, or sputum.

Specimen Preparation:
Transfer 2 mL respiratory specimen to a sterile container. (Min: 0.5 mL). Also acceptable: Transfer to viral transport media (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. Place each specimen in an individually sealed bag.

Remarks:
Specimen source required. Bronchoalveolar lavage (BAL), bronchial wash or induced sputum are the preferred specimen types. Expectorated sputum is acceptable but not preferred.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 7 days; Frozen: 1 month.

Performed:
Mon, Wed, Fri

Reported:
1-5 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2006254

ADMINISTRATIVE

CPT Codes:
87594

Pneumonia Film Array - Sputum (SQ: PNSPUT)

PNSPU

TESTING INFORMATION

Ordering Recommendations:

- Inpatient Testing Onlly
- Must be ordered with Sputum Culture

Patient Preparation:

Collection Instructions for Patients

Collect:

Specimen Type	Collection Container	Volume
Sputum, purulent sputum	Sterile Container	

Unacceptable Conditions:

- Non-Sterile Container
- Leaking Container

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
24 hours	24 hours	not acceptable

Methodology:

Biofire

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

effective 1/1/25 - 0528U

Last Reviewed:

1/17/25

POC POTASSIUM (SQ: POCK)

PCK

TESTING INFORMATION

Storage/Transport Temperature:
Whole blood (lavender, EDTA) refrigerated (2-8 degrees C);

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

POCT PH (SQ: PH)

PCPH

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PORPHOBILINOGEN, QN, RANDOM, U (SQ:UPBGA)

PBGQU

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
2011476

PORPHYRINS, FRACTIONATION AND QUANTITATION, URINE (SQ:UPORA)

UPORA

TESTING INFORMATION

Ordering Recommendations:
Evaluate cutaneous photosensitivity to exclude or include porphyria cutanea tarda (PCT).

Collect:
24-hour or random urine. Refrigerate 24-hour specimens during collection.

Specimen Preparation:
Protect from light. Transfer 4 mL aliquot of urine to an ARUP Amber Transport Tube. (Min: 2 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Body fluids other than urine.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 4 days; Frozen: 1 month

Performed:
Mon-Fri

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
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<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
<tr><td>Uroporphyrin - ratio to CRT</td><td>0-4 µmol/mol CRT</td></tr>
<tr><td>Heptacarboxylate - ratio to CRT</td><td>0-2 µmol/mol CRT</td></tr>
<tr><td>Coproporphyrin I - ratio to CRT</td><td>0-6 µmol/mol CRT</td></tr>
<tr><td>Coproporphyrin III - ratio to CRT</td><td>0-14 µmol/mol CRT</td></tr>
</table>

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography (HPLC)

Notes:
Urine porphyrins are useful for the evaluation of cutaneous photosensitivity to exclude porphyria cutanea tarda (PCT). Evaluation of neurologic and/or psychiatric symptoms associated with acute porphyrias such as acute intermittent porphyria (AIP) requires urine porphobilinogen (PBG) testing. Refer to Porphobilinogen (PBG), Urine (ARUP test code 0080260).

Interpretive Data:
Results are normalized to creatinine concentration and reported as a ratio of amounts (micromoles of porphyrin/moles of creatinine).

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2002058

ADMINISTRATIVE

CPT Codes:
84120

Last Reviewed:
12/2/2023

PORPHYRINS, QN, 24 HR, U (SQ:PBGUR)

PRPQN

TESTING INFORMATION

Ordering Recommendations:
Evaluate patients with suspected porphyria presenting with neurologic/psychiatric, abdominal, and/or cutaneous symptoms.

Collect:
24-hour or random urine. Refrigerate 24-hour specimens during collection.

Specimen Preparation:
Protect from light. Transfer 8 mL aliquot to an ARUP amber transport tube. (Min: 4 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Body fluids other than urine.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 4 days; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
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<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
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</table>
</td></tr>
<tr><td>Porphobilinogen, Urine - ratio to CRT</td><td>0.0 - 0.2 mmol/mol CRT</td></tr>
<tr><td>Uroporphyrin - ratio to CRT</td><td>0-4 µmol/mol CRT</td></tr>
<tr><td>Heptacarboxylate - ratio to CRT</td><td>0-2 µmol/mol CRT</td></tr>
<tr><td>Porphobilinogen (PBG), Urine -per 24h</td><td>0.4 - 1.5 µmol/d</td></tr>
<tr><td>Coproporphyrin I - ratio to CRT</td><td>0-6 µmol/mol CRT</td></tr>
<tr><td>Coproporphyrin III - ratio to CRT</td><td>0-14 µmol/mol CRT</td></tr>
</table>

Reported:
2-5 days

Methodology:
Quantitative High Performance Liquid Chromatography (HPLC)/Quantitative Spectrophotometry/Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Urine porphyrins are useful for the evaluation of cutaneous photosensitivity to exclude porphyria cutanea tarda (PCT). Urine porphobilinogen (PBG) is useful for the evaluation of neurologic and/or psychiatric symptoms to exclude acute porphyrias such as acute intermittent porphyria (AIP).

Interpretive Data:

Results are normalized to creatinine concentration and reported as a ratio of amounts (micromoles of porphyrin/moles of creatinine).

Porphobilinogen (PBG), Urine

Results for random urine specimens are normalized to creatinine (CRT) concentration and reported as a ratio of amounts (millimoles of PBG/mole of creatinine).

Porphobilinogen (PBG) in a random urine specimen is used to evaluate an attack of acute porphyria. Slight increases in urinary PBG are associated with acute porphyrias other than acute intermittent porphyria (AIP) and may indicate a resolving or treated acute porphyria.

Urinary PBG in excess of two times the upper reference limit is consistent with acute porphyria.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

Performing Lab:

ARUP

ARUP Test Code:

2002181

ADMINISTRATIVE

CPT Codes:

84120; 84110

Last Reviewed:

12/2/2023

PORPHYRINS,PLASMA (SQ: PORPLA)

PORPL

TESTING INFORMATION

Ordering Recommendations:
Monitor porphyria cutanea tarda (PCT). Confirm diagnosis of suspected variegate porphyria (VP) and erythropoietic protoporphyria (EPP).

Collect:
Green (heparin), lavender (EDTA), or plain red

Specimen Preparation:
CRITICAL: Protect from light during collection, storage, and shipment. Separate plasma or serum from cells within 1 hour of collection. Transfer 2 mL plasma or serum to an ARUP Amber Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Body fluids other than plasma or serum. Frozen whole blood. Hemolyzed specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 14 days; Frozen: 3 month

Performed:
Sun, Tue, Thu

Reference Interval:
0-15 nmol/L

Reported:
1-4 days

Methodology:
Quantitative Fluorometry

Notes:
Useful for evaluation of cutaneous photosensitivity to rule out porphyrin disorders, particularly erythropoietic protoporphyria. Urine is the best specimen for evaluation of suspected porphyria cutanea tarda (PCT), but monitoring of PCT with plasma or serum is an acceptable practice. Evaluation of neurologic and/or psychiatric symptoms associated with suspected acute porphyria (such as acute intermittent porphyria) requires Porphobilinogen (PBG), Urine (ARUP test code 0080260).

Specimens from patients with suspected erythropoietic protoporphyria should be carefully protected from exposure to light. Protoporphyrin is extremely light sensitive, whereas uroporphyrin and coproporphyrin are much less sensitive.

Performing Lab:
ARUP

ARUP Test Code:
0080429

ADMINISTRATIVE

CPT Codes:
84311

Last Reviewed:
12/2/2023

Potassium (SQ: K)

K

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold	6.0 mL	6 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	6 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	6 mL

Pediatric Collection:

0.2 mL plasma (1 microtainer) or serum

Specimen Preparation:

Separate serum or plasma from cells within 2 hours of collection

Unacceptable Conditions:

Hemolyzed samples. Serum/plasma in prolonged contact with cells. Serum/plasma on the cells more than 2 hours.

Storage/Transport Temperature:

Centrifuged gold or 0.5 mL serum or plasma (heparin) (Min: 0.2 mL), at Ambient (room temperature) or 2-8 degrees C.

Stability (from collection to initiation):

Specimen Type	Refrigerated	Frozen
24 hours	7 days	6 months

Performed:

Sunday-Saturday

Reference Interval:

Expected Values: 3.5-5.1 mmol/L
Critical Limits: < 3.0 mmol/L
Critical Limits: > 6.0 mmol/L

Methodology:

Methodist: Indirect Potentiometric
Proctor and Pekin: ion selective

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84132

Last Reviewed:

12/2/2023

POTASSIUM, RANDOM URINE (SQ: UK)

RKU

TESTING INFORMATION

Collect:
Random urine in clean container with secure lid. .

Unacceptable Conditions:
Urine specimen containing preservatives, blood or fecal matter

Storage/Transport Temperature:
Refrigerate and transport at 2-8^{o}C.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		7 days		1 month

Performed:
Monday - Saturday

Reference Interval:
Reference intervals have not been established.

Methodology:
Indirect Potentiometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
1/24/24

POTASSIUM, URINE (24HR) (SQ: UK24HR)

KUR24

TESTING INFORMATION

Collect:
24-hour urine or timed urine in clean container with secure lid.Refrigerate urine during collection.

Unacceptable Conditions:
Urine specimen containing preservatives, blood or fecal matter

Storage/Transport Temperature:
Transport 5mL aliquot or 24-hour urine container, refrigerated. Must include hours collected and total volume on aliquot.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		7 days		1 month

Performed:
Monday - Satuday

Reference Interval:
24-Hour Urine Potassium: 25-125 mmol/24h

Methodology:
Indirect Potentiometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

PR3S (SQ: PR3G)

PR3A

TESTING INFORMATION

Collect:
One 6 ml gold top or plain red. Separate serum from cells ASAP.

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum from cells ASAP.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
Sterile, leak-proof container. Send immediately to laboratory. Store at 2-8oC if processing is delayed.

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

PREALBUMIN (SQ: PREALB)

PAB2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within 2 hours of collection

Unacceptable Conditions:

Severely lipemic, contaminated, turbid, or hemolyzed samples.

Storage/Transport Temperature:

Centrifuged gold top or 1 mL serum or plasma (heparin or EDTA) at Ambient (room temperature) or 2-8 degrees C. (Min: 0.5 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 year

Performed:

Sunday-Saturday

Reference Interval:

20 - 40 mg/dl

Methodology:

Particle-enhanced Turbidimetric Immunoassay (PETIA) Vista

Notes:

This protein is also known as transthyretin

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84134

Last Reviewed:

1/23/24

PREG,QUAL-URINE (SQ: UHCGSC)

PRGU

TESTING INFORMATION

Collect:

First morning urine is the preferred sample as it usuallycontains the highest concentration of Beta-hCG;. Sample should becollected in a BD non-additive (pale yellow top) vacutainer tubefrom BD Vacutainer Urine Collection Kit

Unacceptable Conditions:

Non-vacutainer collection containers;Specimens past storage stability;Mislabeled/unlabeled specimens

Performed:

Daily

Methodology:

Immunosorbent assay technique.

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

PREGNENOLONE, S (SQ:PREGA)

PGNON

TESTING INFORMATION

Collect:
Serum separator tube. Also acceptable: Plain red, lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Specimen Preparation: Separate serum or plasma cells ASAP or within 2 hours of collection. Transfer 0.5 mL serum or plasma in two ARUP Standard Transport Tubes and freeze immediately. (Min: 0.25 mL/container)

Unacceptable Conditions:
Refrigerated or room temperature specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Additional specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months

Performed:
Mon-Fri

Reference Interval:

Age	Female	Male
6-12 months	13-327 ng/dL	13-327 ng/dL
13-23 months	12-171 ng/dL	12-171 ng/dL
2-4 years	15-125 ng/dL	10-125 ng/dL
5-6 years	13-191 ng/dL	10-156 ng/dL
7-9 years	14-150 ng/dL	13-205 ng/dL
10-12 years	19-220 ng/dL	15-151 ng/dL
13-15 years	22-210 ng/dL	18-197 ng/dL
16-17 years	22-229 ng/dL	17-228 ng/dL
18 years and older	15-132 ng/dL	23-173 ng/dL
Tanner Stage I	15-171 ng/dL	13-156 ng/dL
Tanner Stage II	22-229 ng/dL	12-143 ng/dL
Tanner Stage III	34-215 ng/dL	16-214 ng/dL
Tanner Stage IV-V	26-235 ng/dL	19-201 ng/dL

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0092334

ADMINISTRATIVE

CPT Codes:
84140

PRENATAL TYPE/SCREEN (SQ: PREN)

PREN

TESTING INFORMATION

Collect:
One Pink top (Min 6mL)

Unacceptable Conditions:
Frozen Samples

Storage/Transport Temperature:
Whole Blood, pink: Ambient (room temperature)

Performed:
Sunday-Saturday

Reference Interval:
Negative: Panel identification performed on all positive samples

Methodology:
Hemagglutination/Solid Phase

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86900;86901

PREPARE CRYOPRECIPITATE (IN ML) (SQ: TXCRYN)

TXCRYN

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PREPARE CRYOPRECIPITATE (SQ: TXCRY)

TXCRY

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PREPARE FRESH FROZEN PLASMA (IN ML) (SQ: TXFFPN)

TXFFPN

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PREPARE FRESH FROZEN PLASMA (SQ: TXFFP)

TXFFP

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PREPARE PLATELETS (IN ML) (SQ: TXPLTN)

TXPLTN

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PREPARE PLATELETS (SQ: TXPLT)

TXPLT

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PREPARE RBC (IN ML) (SQ: PRRBC)

PRRBC

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PREPARE RBC (SQ: PRERBC)

PRERBC

TESTING INFORMATION

Collect:
6 mL pink top, EDTA Lavender top;Blood Bank ID Band required

Unacceptable Conditions:
Frozen sample;no Blood Bank ID Band

Remarks:
New specimen required every 3 days if patient pregnant/transfused in past 3 months.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

PRIMODONE AND METABOLITE (SQ:PRIMA)

PRIMA

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence; the active metabolite of primidone is phenobarbital.

Collect:
Plain red. Also acceptable: Green (sodium heparin).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate serum from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.8 mL)

Unacceptable Conditions:
Separator tubes.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Phenobarbital	**Age** / **Reference Interval (µg/mL)** 0-2 months / 15.0-30.0 3 months and older / 15.0-40.0
Primidone (Mysoline)	5.0-12 µg/mL

Reported:
Within 24 hours

Methodology:
Immunoassay

Interpretive Data:
Primidone concentrations greater than 15 µg/mL in conjunction with therapeutic levels of phenobarbital may be associated with toxicity.

Component	Age	Interpretive Data (µg/mL)
Phenobarbital	0-2 months	Toxic: 40.1 or greater
Phenobarbital	3 months and older	Toxic: 50.1 or greater

Performing Lab:
ARUP

ARUP Test Code:
0090202

ADMINISTRATIVE

CPT Codes:
80188; 80184

Last Reviewed:
12/2/2023

PRO BNP MONOCLONAL (SQ: PBNP)

PBNPM

COLLECTION DEVICE

Preferred Collection Device:

Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Storage/Transport Temperature:

1 mL of serum or hepanized plasma
Green tube: If testing will be done right away
Gold tube, centrifuged: if specimen will NOT be received in the laboratory within 2 hours Refrigerated

Stability (from collection to initiation):

SERUM OR PLASMA SHOULD BE PHYSICALLY SEPARATED FROM CELLS AS SOON AS POSSIBLE (MAXIMUM OF TWO HOURS FROM TIME OF COLLECTION)

Ambient	Refrigerated	Frozen
3 days	3 days	1 year

Notes:

There is a chance of interference that Biotin can potentially alter results by 10%. If patient is on Biotin supplementation, beware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory testing.

Interpretive Data:

Methodist:
For all ages, NT proBNP values <300 pg/mL have a 98% negative predictive value for excluding acute congestive heart failure (CHF)

NT proBNP values consistent with CHF are:

	METHODIST
<50 years	>450 pg/mL
50 - 75 years	>900 pg/mL
>75 years	>1800 pg/ML

Results for NT proBNP and BNP are not interchangeable. Please ensure you are using the correct cutoffs when interpreting your results.

Performing Lab:

Methodist, Pekin and Proctor Hospitals

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

83880

Last Reviewed:

2/1/24

PROCALCITONIN (SQ: PROCLT)

PRCAL

TESTING INFORMATION

Collect:

Mint Green Plasma Separator Tube (PST) Gel Lithium Heparin Tube, 4.5 mL- Plasma.Post Collection:Immediately after collection, please invert 8-10 times to properly mix the anticoagulant with blood. Centrifuge within 2 hours of collection and refrigerate at 2-8 degrees Celsius. The specimen will be stable for up to 48 hours when stored refrigerated on the gel. If longer storage is required, separate a plasma aliquot and freeze for up to 6 months. It is important to note consecutive procalcitonin testing on patients should be performed on the same specimen type.;

Unacceptable Conditions:

Plasma collected in EDTA. Improper storage and/or exceeding time limits listed under stability.

Remarks:

Consecutive PCT testing on patient should be performed on same specimen type.

Storage/Transport Temperature:

Separate serum or plasma from cells ASAP or within 2 hours of collection. After separation from cells, transport 1 mL of serum or plasma refrigerated.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
4 hours	48 hours	6 months

Performed:

Sunday-Saturday

Reference Interval:

0.010 - 4.000ng/mL

Methodology:

Enzyme Linked Fluorescent Assay (ELFA) Technique

Notes:

Used in conjuction with other laboratory findings and clinical assessments, VIDAS BRAHMS PCT is intended for use as follows:to aid in risk assessment of critically ill patients on their first day of ICU admission for progression to severe sepsis and septic shock.to aid in assessing the cumulative 28-day risk of all-cause mortality for patients diagnosed with severe sepsis or septic shock in the ICU or when obtaine din the emergency department or other medical wards prior to ICU admission, using a change in PCT level over time.-to aid in decision making on antibiotic therapy for patients with suspected or confirmed lower respiratory tract of chronic obstructive pulmonary disease (AECOPD) in an inpatient setting or an emergency department.-to aid in decision making on antibiotic discontinuation for patients with suspected or confirmed sepsis.

Interpretive Data:

PSA was performed by Siemens chemiluminescent immunoassay. PSA results obtained with different manufacturers PSA assays cannot be used interchaneably.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84145

Last Reviewed:

1/22/24

PROGESTERONE-2 (SQ: PROG)

PROG2

TESTING INFORMATION

Patient Preparation:

For patients that are taking DHEA-S and need progesterone levels, please order the following Miscellaneous Test: Progesterone Quantitative by HPLC-MS/MS, Serum or Plasma

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
1 EDTA Lavender Top Tube	4.0 mL	4.0 mL

Specimen Preparation:

Separate serum from cells promptly after collection. Refrigerate if transport will be delayed.

Storage/Transport Temperature:

0.3 mL serum or plasma at 2-8 degrees C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	3 days	120 days

Performed:

Sunday-Saturday

Reference Interval:

Female (ng/mL):

Follicular Phase	0.2-1.4
Luteal Phase	3.3-25.6
Mid-luteal Phase	4.4-28.0
Post-menopausal	0.0-0.7
Pregnancy: 1st trimester	11.2-90.0
Pregnancy: 2nd trimester	25.6-89.4
Pregnancy: 3rd trimester	48.4-422.5

Male: 0.3-1.2 ng/mL

Methodology:

Chemiluminescent Immunoassay

Interpretive Data:

Progesterone assay used at Methodist has been found to have falsely elevated progesterone levels up to 3.0 ng/mL in patients using DHEA-S for in vitro fertilization therapy.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

PROINSULIN, INTACT (SQ:PROINA)

PRONA

TESTING INFORMATION

Ordering Recommendations:
Aids in the detection of insulinoma. Do not use to diagnose diabetes mellitus.

Patient Preparation:
Patient must fast for 12-15 hours prior to collection.

Collect:
Serum separator tube (SST) or plain red. Also acceptable: Lavender (K2EDTA) or pink (K2EDTA).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube and freeze immediately. (Min: 0.2 mL)

Unacceptable Conditions:
Grossly hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 24 hours; Frozen: 2 months

Performed:
Tue, Thu

Reference Interval:

Age	Reference Interval
0-17 years	Not established
18 years and older	Less than or equal to 7.2 pmol/L

Reported:
1-6 days

Methodology:
Quantitative Chemiluminescent Immunoassay (CLIA)

Performing Lab:
ARUP

ARUP Test Code:
0070112

ADMINISTRATIVE

CPT Codes:
84206

PROLACTIN-2 (SQ: PROLAC)

PROL2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Seperator Tube (Gold)	6 mL	4mL

Other Acceptable Specimen (s):

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6 mL	4 mL
1 Green Tube	6 mL	4 mL

Unacceptable Conditions:

Hemolysis, sodium azide, patient with heterophile antibodies.

Remarks:

The chance of interference is remote but can potentially alter results by 10%. If patients is on Biotin supplementation, be aware of any abnormal results and have patient discontinue supplementation prior to drawing laboratory testing.

Storage/Transport Temperature:

Centrifuge and separate serum/plasma from cells within two hours of collection. Transport minimum of 0.5 mL serum/plasma at 2-8°C.

Stability (from collection to initiation):

Ambient	Referigerated	Frozen
24 hours	7 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

	Female (ng/mL)	Male (ng/mL)
Non - Pregnant:	2.2 - 30.3	2.5 - 17.4
Pregnant:	8.1 - 347.6	
Post menopausal:	0.7 - 31.5	

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84146

Last Reviewed:

12/2/2023

PROSTATIC ACID PHOSPHATASE (SQ:PAPA)

PAPA

TESTING INFORMATION

Ordering Recommendations:
Obsolete test for prostate cancer screening; preferred test is Prostate Specific Antigen, Total (0070121) in conjunction with digital rectal exam.

Patient Preparation:
Specimen should be obtained before rectal examination, biopsy, prostatectomy or prostatic massage, since manipulation of the prostate gland may lead to elevated PAP levels persisting up to 24-48 hours.

Collect:
Serum separator tube.

Specimen Preparation:
Allow specimen to clot completely at room temperature. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens refrigerated more than 24 hours or left at room temperature more than 3 hours.

Storage/Transport Temperature:
Frozen. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: 3 hours; Refrigerated: 24 hours; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
0.0-3.5 ng/mL

Reported:
Within 24 hours

Methodology:
Quantitative Chemiluminescent Immunoassay

Interpretive Data:
The Siemens Immulite 2000 PAP chemiluminescent immunoassay method is used. Results obtained with different assay methods or kits cannot be used interchangeably. PAP may be of some use in predicting disease recurrence or monitoring treatment effects. It has little clinical utility as a screening test for prostate cancer. Prostate specific antigen (PSA) is the preferred test for prostate cancer screening, monitoring, and predicting outcomes. Benign prostatic hyperplasia, prostate massage, and prostatic infarction may result in elevated PAP concentrations. The PAP assay value, regardless of level, should not be interpreted as absolute evidence for the presence or absence of malignant disease.

Performing Lab:
ARUP

ARUP Test Code:
0070120

ADMINISTRATIVE

CPT Codes:
84066

Last Reviewed:
12/2/2023

PROTEIN C ANTIGEN, P (SQ: PROCTA)

PRCGQ

TESTING INFORMATION

Ordering Recommendations:
Not recommended for detecting protein C deficiency; preferred test is Protein C, Functional (0030113). Use to subtype deficiency in known protein C-deficient individuals. Do not order if individual has been on warfarin therapy in the previous 2-4 weeks.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months, at -70°C: 6 months

Performed:
Sun-Sat

Reference Interval:
1-4 days: 17-53%
5-29 days: 20-64%
30-89 days: 21-65%
90-179 days: 28-80%
180-364 days: 37-81%
1-5 years: 40-92%
6-10 years: 45-93%
11 years and older: 63-153%

Reported:
1-2 days

Methodology:
Enzyme Immunoassay

Interpretive Data:
Patients on warfarin may have decreased protein C values. Patients should be off warfarin therapy for two weeks for accurate measurement of protein C.

Performing Lab:
ARUP

ARUP Test Code:
0030111

ADMINISTRATIVE

CPT Codes:
85302

Last Reviewed:
12/2/2023

PROTEIN C FUNCTIONAL (SQ:PROTCA)

PRTCA

TESTING INFORMATION

Ordering Recommendations:
Recommended test to detect protein C deficiency. Do not order if individual has been on warfarin in the previous 2-4 weeks.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months, at -70°C: 6 months

Performed:
Sun-Sat

Reference Interval:
Effective November 17, 2014

Age	Reference Interval
1-4 days	17-53%
5-29 days	20-64%
30-89 days	21-65%
90-179 days	28-80%
180-364 days	37-81%
1-6 years	40-92%
7-9 years	70-142%
10-11 years	68-143%
12-13 years	66-162%
14-15 years	69-170%
16-17 years	70-171%
18 years and older	83-168%

Reported:
1-2 days

Methodology:
Electromagnetic Mechanical Clot Detection

Interpretive Data:
Refer to report

Performing Lab:
ARUP

ARUP Test Code:
0030113

ADMINISTRATIVE

CPT Codes:
85303

Last Reviewed:
12/1/2023

Protein Electrophoresis, Serum (SQ: APE)

APE

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

Plasma samples

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum at ambient (room temperature) or 2-8 degrees C (Min: 0.5 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	10 days	2 months

Performed:

Two days per week

Reference Interval:

Total Protein	6.0 - 8.2 g/dL
Alpha	0.55 - 0.92 g/dL
Albumin	3.50 - 5.00 g/dL
Beta	0.65 - 1.18 g/dL
Alpha-1	0.21 - 0.43 g/dL
Gamma	0-69 years 0.70 - 1.40 g/dL 70 and up 0.55 - 1.00 g/dL

Reported:

1-4 days

Methodology:

Capillary

Notes:

Abnormal results including hypogamma, hypergamma and abnormal SPE tracings will reflex to an IFE on initial patient specimen, based on pathology interpretation.

Interpretive Data:

Serum protein electrophoresis, when used as a screening procedure is useful in the detection of various pathophysiologic states such as inflammation, protein loss, gammaopathies and other dysproteinemias.;Immunofixation Electrophoresis (IFE) is a more senstitive technique for the identification of a small M-proteins foudn in patients with amyloidosis, early or treated myeloma or macroglobulinemia, solitary plasmacytoma or extramedullary plasmacytoma, and will be ordered reflexively when appropriate (see below)

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84155, 84165

Last Reviewed:

1/22/24:BV

PROTEIN S FREE,ANTIGEN (SQ:PSAFA)

PSAFA

TESTING INFORMATION

Ordering Recommendations:
Recommended test to detect protein S deficiency. Do not order if individual has been on warfarin therapy in the previous 2-4 weeks.

Collect:
Light blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP standard transport tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months, at -70°C: 6 months

Performed:
Mon-Sat

Reference Interval:

Age	Male	Female
1-89 days	15-55%	15-55%
90-179 days	35-92%	35-92%
180-364 days	45-115%	45-115%
1-5 years	62-120%	62-120%
6-9 years	62-130%	62-130%
10-17 years	60-140%	60-140%
18 years and older	74-147%	55-123%

Reported:
1-3 days

Methodology:
Microlatex Particle-Mediated Immunoassay

Interpretive Data:
Refer to report

Performing Lab:
ARUP

ARUP Test Code:
0098894

ADMINISTRATIVE

CPT Codes:
85306

Last Reviewed:
12/1/2023

PROTEIN S TOTAL ANTIGEN (SQ: PROTSA)

PSAGT

TESTING INFORMATION

Ordering Recommendations:
Not recommended for detecting protein S deficiency; preferred test is Protein S Free, Antigen (0098894). Use to subtype deficiency in known protein S-deficient individuals in combination with Protein S Free, Antigen (0098894), or Protein S, Functional (0030114). Do not order if individual has been on warfarin therapy in the previous 2-4 weeks.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months, at -70°C: 6 months

Performed:
Sun-Sat

Reference Interval:

Age	Male	Female
1-4 days	12-60%	12-60%
5-29 days	22-78%	22-78%
30-89 days	33-93%	33-93%
90-179 days	54-118%	54-118%
180-364 days	55-119%	55-119%
1-5 years	54-118%	54-118%
6-10 years	41-114%	41-114%
11 years and older	84-134%	63-126%

Reported:
1-2 days

Methodology:
Microlatex Particle-Mediated Immunoassay

Interpretive Data:
Patients on warfarin may have decreased protein S values. Patients should be off warfarin therapy for two weeks for accurate measurement of protein S.

Performing Lab:
ARUP

ARUP Test Code:
0030112

ADMINISTRATIVE

CPT Codes:
85305

Last Reviewed:
12/2/2023

PROTEIN S,FUNCTIONAL (SQ:PROSAC)

PRSAC

TESTING INFORMATION

Ordering Recommendations:
Acceptable test for detecting protein S deficiency. Preferred test is Protein S Free, Antigen (0098894). Do not order if the individual has been on warfarin therapy in the previous 2-4 weeks.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months, at -70°C: 6 months

Performed:
Sun-Sat

Reference Interval:
Male
1-89 days: 15-55%
90-179 days: 35-92%
180-364 days: 45-115%
1-5 years: 62-120%
6 years: 62-130%
7-9 years: 66-140%
10-11 years: 65-139%
12-13 years: 72-139%
14-15 years: 68-145%
16-17 years: 77-167%
18 years and older: 66-143%

Female
1-89 days: 15-55%
90-179 days: 35-92%
180-364 days: 45-115%
1-5 years: 62-120%
6 years: 62-130%
7-9 years: 62-151%
10-11 years: 65-142%
12-13 years: 70-140%
14-15 years: 55-145%
16-17 years: 51-147%
18 years and older: 57-131%

Reported:
1-2 days

Methodology:
Electromagnetic Mechanical Clot Detection

Interpretive Data:
Patients on warfarin may have decreased functional protein S values. Patients should be off warfarin therapy for two weeks for accurate measurement of functional protein S. Artificially increased functional protein S values may be due to heparin therapy or the presence of direct thrombin inhibitors or factor Xa inhibitors.

Performing Lab:
ARUP

ARUP Test Code:
0030114

ADMINISTRATIVE

CPT Codes:
85306

Last Reviewed:
12/12023

PROTEIN, BODY FLUID (SQ: FTP)

TPBF

TESTING INFORMATION

Collect:
Body fluid in clean glass or plastic container with secure lid. Pleural or Peritoneal Fluid

Remarks:
Specify source of fluid.

Storage/Transport Temperature:
1 mL body fluid immediately at Ambient (room temperature), or refrigerate and transport at 2-8 degrees C. (Min: 0.5 mL)

Performed:
Sunday-Saturday

Reference Interval:
A reference interval has not been established for this test on the supplied specimen type. This test was developed using enzymatic methodology developed by Siemens and its performance characteristics determined by UnityPoint Health Methodist. It has not been clared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes.

Methodology:
Spectrophotometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84155

PROTEIN, CSF (SQ: SFTP)

CSFP3

TESTING INFORMATION

Collect:
CSF in clean glass or plastic container with secure lid.

Remarks:
Presence of blood in CSF sample will falsely elevate results

Storage/Transport Temperature:
0.5 mL CSF immediately at Ambient (room temperature) temperature. If transport will be delayed, refrigerate and transport at 2-8 degrees C.

Performed:
Sunday-Saturday

Methodology:
Spectrophotometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84155

PROTEIN, RANDOM URINE (SQ: UTP)

RPRU

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Urine, Random		

Unacceptable Conditions:

Urines with Particulate Matter

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
	3 days	

Reference Interval:

<11.9 mg/dL

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

Last Reviewed:

1/23/24

PROTEIN, SERUM TOTAL (SQ: TP)

TP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Storage/Transport Temperature:

Centrifuged gold or plain red promptly at Ambient (room temperature) temperature; or separate, refrigerate 1 mL serum or plasma (Min: 0.3 mL) and transport at 2-8 degrees. Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	72 hours	6 months

Performed:

Sunday-Saturday

Reference Interval:

Age	Normal Values (g/dL)
0 - 1 day	4.0 - 7.0 g/dL
1 day - 1 week	4.0 - 7.6 g/dL
1 week - 60 years	6.4 - 8.3 g/dL
60 years - 150 years	6.0 - 8.2 g/dL

Methodology:

Spectrophotometric

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84155

Last Reviewed:

12/2/2023

PROTEIN, URINE (24HR) (SQ: UTP24H)

PRU24

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
24-hour urine	clean container with secure lid. - Urine must be refrigerated during collection process	

Specimen Preparation:

Urine must be refrigerated during collection process

Unacceptable Conditions:

- Urine specimen containing preservatives, blood or fecal matter

Remarks:

Specify total volume and collection time.

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	3 days	unacceptable

Performed:

Sunday-Saturday

Reference Interval:

<= 150 mg/day

Methodology:

Spectrophotometric

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

84155

Last Reviewed:

5/13/24

PROTEIN, URINE, QUALITATIVE (SQ: UPROT)

OUPRO

TESTING INFORMATION

Collect:
First morning voided specimen most desirable

Remarks:
Testing should be done within 1 hour; if not, refrigerate specimen. Test within 4 hours of collection.

Storage/Transport Temperature:
5 mL aliquot from a well-mixed 24-hour or timed urine collection at 2-8o C.

Performed:
Sunday-Saturday

Methodology:
Reagent Dipstick

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

PROTEIN/CREATININE RATIO (SQ: UTPCRR)

PRCR3

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Random Urine,no preservative required.		

Unacceptable Conditions:

Frozen urine

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	3 days	unacceptable

Performed:

Sunday-Saturday

Reference Interval:

<\=0.3 mg/mg

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

PROTHROMBIN (20210G>A) MUTATION, B (SQ: PTNCA)

PRMU

TESTING INFORMATION

Ordering Recommendations:
Order to detect prothrombin c.*97G>A (G20210A) pathogenic variant.

Collect:
Lavender (EDTA), pink (K_2EDTA), or yellow (ACD Solution A or B).

Specimen Preparation:
Transport 3 mL whole blood. (Min: 1 mL)

Unacceptable Conditions:
Plasma or serum; collection of specimen in sodium heparin tubes. Frozen specimens in glass collection tubes.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun-Sat

Reported:
2-5 days

Methodology:
Polymerase Chain Reaction (PCR)/Fluorescence Monitoring

Interpretive Data:
Background Information for Prothrombin (F2) c.*97G>A (G20210A) Pathogenic Variant:
Characteristics: The Factor II, c.*97G>A (G20210A) pathogenic variant is a common genetic risk factor for venous thrombosis associated with elevated prothrombin levels leading to increased rates of thrombin generation and excessive growth of fibrin clots. The expression of Factor II thrombophilia is impacted by coexisting genetic thrombophilic disorders, acquired thrombophilic disorders (eg, malignancy, hyperhomocysteinemia, high factor VIII levels), and circumstances including: pregnancy, oral contraceptive use, hormone replacement therapy, selective estrogen receptor modulators, travel, central venous catheters, surgery, and organ transplantation.
Incidence: Approximately 2 percent of Caucasians and 0.3 percent of African Americans are heterozygous; homozygosity occurs in 1 in 10,000 individuals.
Inheritance: Incomplete autosomal dominant.
Penetrance: The risk of thrombosis is increased 2-4 fold for heterozygotes and further increased for homozygotes.
Cause: Homozygosity or heterozygosity for F2 c.*97G>A (G20210A).
Pathogenic Variant Tested: F2 c.*97G>A (G20210A).
Clinical Sensitivity for Venous Thrombosis: Approximately 10 percent.
Methodology: Polymerase chain reaction and fluorescence monitoring.
Analytical Sensitivity and Specificity: 99 percent.
Limitations: Diagnostic errors can occur due to rare sequence variations. F2 gene variants, other than c.*97G>A (G20210A), will not be detected.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

Performing Lab:
ARUP

ARUP Test Code:
0056060

ADMINISTRATIVE

CPT Codes:
81240

Last Reviewed:
12/2/2023

PROTIME (INR) (SQ: PTIM)

PT4

TESTING INFORMATION

Collect:

Draw a red top tube prior to drawing blue top.

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Light Blue (3.2% Sodium Citrate) Tube	Tube must fill as far as vacuum will allow.	3.0 mL
STAT:			

Specimen Preparation:

- Draw a red top tube prior to drawing blue top.
- Send specimen at room temperature unless plasma is poured off.
- If specimen is being drawn from cath line, discard 10 mL of blood prior to draw. Tube must fill as far as vacuum will allow for accuracy of results.

Unacceptable Conditions:

- Patially filled Tubes
- Serum
- Non-Frozen
- Hemolyzed Samples

Remarks:

If specimen is being drawn from cath line, discard 10 mL of blood prior to draw. Tube must fill as far as vacuum will allow for accuracy of results.

Storage/Transport Temperature:

Blue top tube or 1 mL platelet-poor plasma from sodium Citrate tube.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours without loss of factors	Unacceptable	Platelet Poor Plasma 2 weeks

Performed:

Sunday-Saturday

Reference Interval:

	Reference Interval
Normal	11.5 - 14.4 seconds
Critical Range	4.5 INR

Reported:

Sunday - Saturday

Methodology:

Electromagnetic Mechanist Clot Detection Stago Compact Max

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

85610

Last Reviewed:

12/2/2023

PROTIME WITH INR THERAPEUTIC (SQ: PTINNL)

PTINL

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
POC testing - not hospital orderable

Specimen Preparation:
8 mL aliquot from a well-mixed random collection at 2-8 degrees C.

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PSA, DIAGNOSTIC (SQ: PSAT)

PSAD2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Storage/Transport Temperature:

After seperation from cells, transport 1 mL of serum or plasma,refrigerated

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
4 hours	7 days	4 months

Performed:

Sunday-Saturday

Reference Interval:

0.010 -4.000 ng/mL
PSA was performed by Siemenschemiluminescent immunoassay
PSA results obained with different manufacturers PSA assays cannot be used interchangeably.

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84153

Last Reviewed:

1/23/24

PSA, SCREENING (SQ: PSASCM)

PSAS2

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

Gross hemolysis

Storage/Transport Temperature:

Separate serum or plasma from cells ASAP or within 2 hours of collection. After separation from cells, transport 1 mL of serum or plasma refrigerated

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
4 hours	7 days	4 months

Performed:

Sunday-Saturday

Reference Interval:

0.10 - 4,000 ng/mL

Interpretive Data:

PSA was performed by Siemens chemiluminescent immunoassay. PSA results obtained with different manufacturers PSA assays cannot be used interchaneably

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

84153

Last Reviewed:

1/23/24

PSA, TOTAL AND FREE (SQ: PSAFT)

FTPSA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

Gross hemolysis

Storage/Transport Temperature:

After separation from cells transport 1 mL of serum or plasma refrigerated

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
4 hours	7 days	4 months

Performed:

Sunday-Saturday

Reference Interval:

In patients with total PSA concentrations of 4-10 ng/mL, the probability of finding prostate cancer on needle bipsy by the age in years:

% Free PSA	50-59 years	60-69 years	70 years and older
0-10%	49%	58%	65%
11-18%	27%	34%	41%
19-25%	18%	24%	30%
>25%	9%	12%	16%

Other factors may help determine the actual risk of prostrate cancer in individual patients.

Interpretive Data:

FPSA was performed by Siemens chemilumescent immunoassay and used in conjuction with the PSA method to determine the free PSA percentage. Values obtained with methods should not be change dinterchangeably. The free PSA percentage is an aid in distinguishing prostate cancer from benign prostatic conditions in men age 50 and older with a total PSA, between 3 and 10 ng/mL and negative digital rectal examination findings. Prostatic biopsy is required for the diagnosis of cancer.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

84153;
84154

Last Reviewed:

1/23/24

PSEUDOCHOLINESTERASE (SQ: PCHET)

PCHET

TESTING INFORMATION

Collect:
Serum or Plasma collected in Gold (SST), Plain Red, or Green Vacutainer. Preferred Volume: 6.0mL, Minimum Volume Required 2.0mL

Remarks:
Sample must be drawn prior to surgery or 2 days post. Do not draw in recovery room. (Plasma acceptable if removed from cells Plasma values slightly lower than serum.

Performed:
Sunday-Saturday

Methodology:
Bichromatic Rate

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

PT CORRECTION (SQ: PTMIX)

PTMIX

TESTING INFORMATION

Collect:
Two lt blue (sodium citrate). Min: 3 mL

Unacceptable Conditions:
Specimens 24 hours old that have not been frozen, grossly hemolyzed. Do NOT draw from an arm with a heparing lock or heparinzed catheter. Must be in a ratio of 9:1 blood to anticoagulant.

Storage/Transport Temperature:
Random urine promptly at Ambient (room temperature);or refrigerate and transport at 2-8 degrees C.

Performed:
Daily

Methodology:
Mechanical measurement

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

PTH, INTACT (INTRAOPERATIVE) (SQ: PTHIN)

PTHIO

TESTING INFORMATION

Ordering Recommendations:

Calcium is no longer part of the PTH panel. If Calcium is requested, a Calcium order must be placed and sent with the appropriate tube choice.

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Vol	Minimum Vol
Routine:	1 Lavendar Top (EDTA)		
STAT:			

Other Acceptable Specimen (s)

Specimen Type	Requested Vol	Minimum Vol
1 Plain Red		
1 Green		
1 Serum Seperator (Gold)		

Specimen Preparation:

If specimen can be received to laboratory within 24 hours, send unspun lavender top tube. If not able to send to lab within 24 hours, observe the stability chart for Plasma and Serium stability.

Seperate the serum from the cells within 2 hours of collection. Whole blood lavender (EDTA) at room temperature is stable for 24 hours. Once the lavender top is spun, the EDTA plasma is stable up to 14 days refrigerated.

Storage/Transport Temperature:

Whole blood in lavender tube at room temperature is stable up to 24 hours.

Stability (from collection to initiation):

Specimen Type	Ambient	Refrigerated	Frozen
EDTA	25 hours	14 days	NA
Serum	8 hours	8 hours	1 month
Lithium Heparin	9 hours	72 hours	NA
Sodium Heparin	9 hours	72 hours	NA

Performed:

Sunday-Saturday

Reference Interval:

11 - 80 pg/mL

Reported:

Daily

Notes:

Intraoperative PTH must be scheduled and notify the Chemistrydepartment at (309) 672-4909. Collect lavender (EDTA) tubes

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

83970

Last Reviewed:

12/2/2023

PTT (SQ: PTT)

PTT

TESTING INFORMATION

Patient Preparation:

Draw specimen 1 hour before next dose of heparin if heparin is being given by intermittent infusion. If specimen is being drawn from cath line, discard 10 mL blood prior to draw.

Collect:

One light blue (3.2% buffered sodium citrate), Specimen must be filled to the fill line on the tube. Mix thoroughly by gently inversion.

Unacceptable Conditions:

Serum, clotted or grossly hemolyzed sample, improperly filled tube. Refrigerated specimens, Samples greater than 4 hours old (2 hours if patient is on heparin therapy)

Storage/Transport Temperature:

Entire collection, or 5 mL aliquot from a well-mixed random or timed collection;at 2-8 degrees C. If timed collection, specify hours of collection. (Min: 0.5 mL)

Stability (from collection to initiation):

If testing cannot be performed within 4 hours, plasma must be separated from the cells and frozen in a properly labeled plastic tube.

Performed:

Daily

Methodology:

Electromagnetic Mechanist Clot Detection Stago Compact Max

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

PTT CORRECTION (SQ: PTTMIX)

PTTMX

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

PYRUVATE KINASE (SQ:PYRKA)

PYRKA

TESTING INFORMATION

Ordering Recommendations:
Preferred initial screening test for pyruvate kinase deficiency.

Collect:
Lavender (EDTA) or Pink (K_2EDTA). Also acceptable: Green (Sodium or Lithium Heparin) or Yellow (ACD Solution A or B).

Specimen Preparation:
Do not freeze. Transport 1 mL whole blood. (Min: 0.5 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 20 days; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
4.6-11.2 U/g Hb

Reported:
1-2 days

Methodology:
Quantitative Enzymatic Assay

Notes:
Patients who have recently received transfusions have normal donor cells that may mask PK deficient erythrocytes.

Performing Lab:
ARUP

ARUP Test Code:
0080290

ADMINISTRATIVE

CPT Codes:
84220

Last Reviewed:
12/2/2023

PYRUVIC ACID, BLOOD (SQ:PYRACA)

PYR

TESTING INFORMATION

Ordering Recommendations:

An isolated pyruvic acid concentration has little clinical value. Preferred test is Lactate to Pyruvate Ratio, Whole Blood (2007935), which reports concentrations for lactate, pyruvate, and L:P ratio on the same specimen.

Patient Preparation:

Patient should be fasting and at complete rest. Patient should avoid any exercise of the arm or hand before or during collection. Draw the specimen without the use of a tourniquet or within three minutes of applying the tourniquet, but before releasing the tourniquet.

Collect:

Green (Sodium or Lithium Heparin).

Specimen Preparation:

If whole blood is collected in a syringe, transfer immediately to green (sodium or lithium heparin) tube before preparing specimen.

1) Immediately after blood is drawn, add exactly 1 mL whole blood to a chilled pyruvate collection tube containing 2 mL 8 percent (w/v) perchloric acid (ARUP supply #16567) available online through eSupply using ARUP Connect(TM) or contact Client Services at (800) 522-2787.
2) Mix well for 30 seconds then place in an ice bath for 10 minutes.
3) Centrifuge for 10 minutes at 1500 x g.
4) Decant 2 mL supernatant to an ARUP Standard Transport Tube and freeze. (Min: 1 mL)

Storage/Transport Temperature:

Frozen.

Stability (from collection to initiation):

Ambient: Unacceptable; Refrigerated: 2 days; Frozen: 4 weeks

Performed:

Sun-Sat

Reference Interval:

0.030-0.107 mmol/L (venous blood)

Reported:

1-2 days

Methodology:

Quantitative Enzymatic Assay

Notes:

If less than 1 mL of blood is added to collection tube, pH of the supernatant will be too low for testing.

Performing Lab:

ARUP

ARUP Test Code:

0080310

ADMINISTRATIVE

CPT Codes:

84210

Q FEVER AB, IGG AND IGM, S (SQ:QFABA)

QFP

TESTING INFORMATION

Ordering Recommendations:
Confirm infectious agent as C. burnetii (Q-fever) in symptomatic patients.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" and "convalescent."

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon, Wed, Fri

Reference Interval:

Components	Reference Interval
C. burnetii (Q-Fever) Ab, Phase I IgG	Negative
C. burnetii (Q-Fever) Ab, Phase II IgG	Negative
C. burnetii (Q-Fever) Ab, Phase I IgM	Negative
C. burnetii (Q-Fever) Ab, Phase II IgM	Negative

Reported:
1-6 days

Methodology:
Qualitative Indirect Fluorescent Antibody (IFA)

Notes:
For IgG or IgM testing, if any Phase I or Phase II screening result is Indeterminate or Positive, then titer(s) will be added. Additional charges apply.

Interpretive Data:
IgG: Acute Q fever is best demonstrated by a four-fold rise in phase II IgG titers when comparing two serum samples collected 3-6 weeks apart, and testing is performed in the same laboratory at the same time. Phase I IgG titers can increase during seroconversion. However, in the case of acute infection, the phase I IgG titer should remain lower than the phase II titer. In the absence of an acute sample, a single convalescent serum sample with a phase II IgG titer greater than 1:128 in a patient who has been ill greater than 1 week, indicates probable acute Q fever.

Chronic Q fever is best demonstrated by a phase I IgG titer greater than the phase II IgG titer. Phase I and phase II IgG titers may remain elevated for months.

IgM: IgM antibodies to phase II antigens provide ancillary information to IgG titers. Phase II IgM titers develop in the same time period of phase II IgG titers and can persist for over a year. A single phase II IgM positive result on an acute sample represents an early conversion or a false positive; testing of a convalescent serum is necessary. In the absence of an acute sample, a single convalescent serum sample with a phase II IgG titer greater than 1:128 in a patient who has been ill longer than 1 week indicates probable acute Q fever.

Chronic Q fever is best demonstrated by a phase I titer greater than the phase II IgG titer. Phase I IgM antibodies may also develop concurrently with phase I IgG antibodies. However, in the absence of a phase I IgG titer, the diagnostic value of a phase I IgM titer is limited. Phase I and phase II IgM and IgG titers may remain elevated for months or years after acute infection or during convalescence.

Performing Lab:
ARUP

ARUP Test Code:
2012634

ADMINISTRATIVE

CPT Codes:

86638 x4; if reflexed add 86638 per titer

QUANT IMMUNOGLOBULINS (SQ: IMUGLB)

QIMM

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top (Lithium Heparin) Tube	6.0 mL	3.0 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP.

Unacceptable Conditions:

- Severely lipemic,
- contaminated
- hemolyzed samples.
- Samples at room temp more than 8 hours.

Storage/Transport Temperature:

Centrifuged gold, or 1 mL serum/plasma (Min: 0.3 mL) at Ambient (room temperature) or 2-8 degrees C.

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	7 days	3 months

Performed:

Sunday-Saturday

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

Components:

- Immunoglobulin A (IGA)
- Immunoglobulin G (IGG)
- Immunoglobulin M (IGM)

ADMINISTRATIVE

CPT Codes:

82784 x 3

Last Reviewed:

12/2/24

QUETIAPINE (SQ:FQUETA)

FQUET

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Collect:
Plain red. Also acceptable: Lavender (K_2 or K_3EDTA) or pink (K_2 EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 4 months

Performed:
Wed

Reference Interval:
Effective Date: November 14, 2022

Therapeutic Range:	100-1000 ng/mL
Toxic:	Greater than 1000 ng/mL

Reported:
1-8 days

Methodology:
Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Quetiapine is an antipsychotic drug indicated for the treatment of schizophrenia and bipolar disorder. The pharmacokinetics of quetiapine are influenced by drug-drug interactions that may inhibit or induce CYP3A4 metabolism. Adverse effects may include somnolence, hypotension, dizziness, fatigue, constipation, weight gain.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2003118

ADMINISTRATIVE

CPT Codes:
80342 (Alt code: G0480)

RECURRENT GASTROINTESTINAL DISTRESS (SQ: GIDIS)

GIDIS

TESTING INFORMATION

Collect:
One SST (Gold)

Unacceptable Conditions:
Lipemic, hemolyzed or microbially contaminated samples may give poor results and should not be used.

Storage/Transport Temperature:
Gold or green (or 0.5 mL serum or heparinized plasma) and random urine, promptly at Ambient (room temperature) temp.

Performed:
Monday - Friday

Methodology:
GLIADAN, TISSUE TRANSGLUTIMINASE by ELiA. ALLERGENS by FEIA

Interpretive Data:
By report

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

REDUCING SUBST STOOL (SQ:REDSSA)

REDSS

TESTING INFORMATION

Ordering Recommendations:
May suggest that a reducing substance is present in stool.

Collect:
Stool.

Specimen Preparation:
Transfer 5 g stool to an unpreserved stool transport vial (ARUP Supply #40910) available online through eSupply using ARUP ConnectTM or contact ARUP Client Services at 800-522-2787. (Min: 1 g)

Unacceptable Conditions:
Diapers. Stool containing barium. Specimens in media or preservatives.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 week

Performed:
Sun-Sat

Reference Interval:
Normal

Reported:
1-2 days

Methodology:
Qualitative Colorimetry

Performing Lab:
ARUP

ARUP Test Code:
3002514

ADMINISTRATIVE

CPT Codes:
84376

Last Reviewed:
12/1/2023

RENAL FUNCTION PANEL - FASTING (SQ: RENALF)

RENLF

TESTING INFORMATION

Ordering Recommendations:
Testing is for use in Outpatient settings Only

Patient Preparation:
Fasting defined as:
No caloric intake (beverage or food) for 8 hours before the lab test
No intake of artificial sweeteners for 8 hours before the lab test.

Collect:

Specimen Type	Requested Vol.	Min Vol.
1 Serum Separator Tube (God Top)	6 mL	3 mL

Storage/Transport Temperature:
Centrifuged gold promptly at ambient (room temperature).ÿ If transport will be delayed, seperate and refrigerate 1 mL serum or heparinzied plasma into a tightly capped tube and transport at 2-8 C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 Hours	7 Days	6 Months

Performed:
Sunday-Saturday

Reference Interval:
Refer to individual components

Methodology:
Refer to individual components

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

Components:

- Sodium
- Potassium
- Chloride
- Carbon Dioxide
- Calcium
- Glucose
- BUN
- Creatinine
- Albumin
- Phosphorus

ADMINISTRATIVE

CPT Codes:
80069

Last Reviewed:
12/2/2023

RENAL FUNCTION PANEL (SQ: RENAL)

RFP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Specimen Preparation:

Centrifuged gold promptly at Ambient (room temperature)
If transport will be delayed, seperate and refrigerate 1 mL of serum or heparinized plasma into a tightly capped tube and transport Refrigerated (2-8° C)

Unacceptable Conditions:

- Uncapped,
- hemolyzed, EDTA,
- Fluoride/oxalate preserved specimens

Reference Interval:

Refer to individual components

Methodology:

Refer to individual components

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West Region

Components:

- Sodium
- Potassium
- Chloride
- Carbon Dioxide
- Calcium
- Glucose
- BUN
- Creatinine
- Albumin
- Phosphorus

ADMINISTRATIVE

CPT Codes:

80069

Last Reviewed:

12/2/2023

RENIN ACTIVITY, P (SQ:RENAC)

RNACT

TESTING INFORMATION

Ordering Recommendations:
The combined aldosterone/renin tests are preferred when screening for hyperaldosteronism. Refer to Aldosterone/Renin Activity Ratio (0070073) or Aldosterone and Renin Direct, With Ratio (3005949).

Patient Preparation:
Collect midmorning after patient has been sitting, standing, or walking for at least 2 hours and seated for 5-15 minutes. Refer to the Additional Technical Information for specific patient preparation recommendations.

Collect:
Lavender (EDTA) or Pink (K_2EDTA). Do not collect in refrigerated tubes.

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL plasma to an ARUP Standard Transport Tube and freeze immediately. (Min: 1.2 mL)

Unacceptable Conditions:
Serum. Specimens collected in citrate, heparin, or oxalate. Hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 6 hours; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:

Adult, normal sodium diet	Children, normal sodium diet, supine:	Children, normal sodium diet, upright:
Supine: 0.2-1.6 ng/mL/hr	Newborn (1-7 days): 2.0-35.0 ng/mL/hr	0-3 years: Not Available
Upright: 0.5-4.0 ng/mL/hr	Cord blood: 4.0-32.0 ng/mL/hr	4-5 years: Less than or equal to 15 ng/mL/hr
	1-12 months: 2.4-37.0 ng/mL/hr	6-10 years: Less than or equal to 17 ng/mL/hr
	13 months-3 years:1.7-11.2 ng/mL/hr	11-15 years: Less than or equal to 16 ng/mL/hr
	4-5 years:1.0-6.5 ng/mL/hr	
	6-10 years: 0.5-5.9 ng/mL/hr	
	11-15 years: 0.5-3.3 ng/mL/hr	

Reported:
1-4 days

Methodology:
Quantitative Enzyme-Linked Immunosorbent Assay

Notes:
Refer to the Additional Technical Information for Endocrine Society recommendations for patient preparation, specimen collection, medications for hypertension control during confirmatory testing for primary aldosteronism, and factors that may lead to false-positive or false-negative aldosterone-renin ratio (ARR) results.

Interpretive Data:
Plasma renin activity measures enzyme ability to convert angiotensinogen to angiotensin I and is limited by the availability of angiotensinogen. Plasma renin activity is not an accurate indicator of enzyme activity when angiotensinogen is decreased.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0070105

ADMINISTRATIVE

CPT Codes:
84244

Last Reviewed:
12/2/2023

REPTILASE TIME (SQ:REPTA)

REPTA

TESTING INFORMATION

Ordering Recommendations:
Assist in diagnosing dysfibrinogenemia or abnormalities with fibrin polymerization.

Collect:
Light Blue (Sodium Citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Reptilase Time	Less than 22.0 seconds
Reptilase Time 1:1 Mix	Less than 22.0 seconds

Reported:
1-2 days

Methodology:
Electromagnetic Mechanical Clot Detection

Notes:
If Reptilase Time is elevated, then Reptilase Time 1:1 mix will be added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
0030295

ADMINISTRATIVE

CPT Codes:
85635; if reflexed, add 85635

RESPIRATORY PATHOGENS PANEL (SQ: RESP21)

RPP

TESTING INFORMATION

Collect:

Effective February 1, 2025,

- In-Patient and Emergency Department SARS-CoV-2/Influenza testing, including the Respiratory Panel, must be collected using viral transport media (VTM), as it is the only acceptable medium at our reference laboratories for confirmatory testing. A grace period between February 1st - 15th will be provided without specimen rejection; however, subtyping may not be possible due to improperly collected specimens.
- Outpatient/Clinic Collections: Currently, the Cobas PCR Media Uni Swab is still acceptable for Outpatient SARS-CoV-2/Influenza testing. However, if your patient is at high risk for contracting H5N1, please use VTM in case further testing is needed
- Peoria Region Swab ID and use reference card

Unacceptable Conditions:

- Specimens not collected in Viral Transport Media or Saline.
- Non-nasopharyngeal specimens
- eswabs

Remarks:

Performance of detecting Influenza A may vary if other influenza strains are circulating or a novel influenza A virus emerges. Due to genetic similarity between Rhinovirus and Enterovirus, the FilmArray RP2 cannot reliably differentiate; them.A positive result should be followed up with an alternative method. Recent administration of nasal influenza vaccines (e.g. FluMist) prior to specimen collection could lead to accurate virus detetion by the FilmArray RP2.1

Storage/Transport Temperature:

Specimens should be processed and tested with the FilmArray RP2 as soon as possible.

Stability (from collection to initiation):

If storage is required prior to testing, specimens may be held at:

Ambient		Refrigerated		Frozen
4 hours		3 days		30 days

Methodology:

Biofire

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

Components:

- Adenovirus
- Coronavirus 229E
- Coronavirus HKU1
- Coronavirus NL63
- Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV-2)
- Human Metapneumovirus
- Human Rhinovirus/Enterovirus
- Influenza A, including Subtypes H1, H1-2009 and H3
- Influenza B
- Parainfluenza Virus 1-4
- Respiratory Syncytial Virus (RSV)
- Bordetella parapertussis
- Bordetella pertussis
- Chlymydia pneumoniae
- Myocoplasma pneumonia

RETICULOCYTE CT (SQ: RETLMW)

RETCT

TESTING INFORMATION

Collect:

Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250 uL

Unacceptable Conditions:

Improper anticoagulant
Insufficient volume
Clotted or evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Stability exceeded
Frozen

Storage/Transport Temperature:

EDTA Whole blood, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	48 hours	Unacceptable

Performed:

Daily

Reference Interval:

Relative Reticulocyte Count	0.66-2.35%
Absolute Reticulocyte Count	0.00-0.39 $x10^6$/uL
Immature Reticulocyte Fraction	0.00-13.33%

Methodology:

Flow Cytometry

Notes:

Reticulocyte counts are reflective of the rate of red cell production in the bone marrow. Normally circulating reticulocytes account for approximately 1% of circulating RBCs. After a severe blood loss there is an increased production of red cells with elevation of reticulocyte counts and release of increasing numbers of immature reticulocytes into the circulation with corresponding elevation of the IRF (Immature Reticulocyte Fraction).

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/18/24:ME

RH IMMUNE GLOBULIN ANTENATAL (SQ: ANTRHG)

ANRHG

TESTING INFORMATION

Collect:
6.0 mL of whole blood in K2 EDTA Pink or Lavender

Unacceptable Conditions:
Frozen Specimens

Performed:
Sunday through Saturday

Reported:
24 hours

Performing Lab:
Methodist, Pekin, and Proctor

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86900;86901;86850

Last Reviewed:
2.23.24

RH IMMUNE GLOBULIN WORKUP (SQ: RHIGP)

RHIGP

TESTING INFORMATION

Collect:
One pink top tube: (6 mL Blood)

Unacceptable Conditions:
Frozen specimens.

Remarks:
Must be drawn after delivery and in case of miscarriage after 20 weeks gestation.

Storage/Transport Temperature:
Ambient or refrigerated at 2-8 degrees C.

Performed:
Daily

Reported:
24 hous

Methodology:
Solid Phase, Hemaglutination

Performing Lab:
Methodist and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86900;86901;85461

RHEUMATOID FACTOR, QT. (SQ: RHUF)

RHF

TESTING INFORMATION

Collect:

One 6 mL Gold, Green or Red top.

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

Severely lipemic, contaminated, plasma (EDTA), or hemolyzed samples.

Remarks:

Separate serum from cells ASAP or within 2 hours of collection

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum or plasma at 2-8 ° C. (Min: 0.5 mL)

Stability (from collection to initiation):

ONCE SEPERATED FROM CELLS		
Ambient	Refrigerated	Frozen
	7 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

<15 IU/mL

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86431

Last Reviewed:

1/23/24

RIBOSOMAL P PROTEIN ANTIBODY (SQ: RIBPA)

RIBPA

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum or centrifuged gold top refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:
Reference Interval: Negative

Methodology:
Multiplex Flow Immunoassay

Interpretive Data:
Results of less than 1.0 AI are considered negative.
Results of 1.0 AI or greater are considered positive.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Test is included in the following test panels: ANASN, ANASEN, CENAPN

ADMINISTRATIVE

CPT Codes:
83516

RiskImmune (SQ: MISCLB)

TESTING INFORMATION

Collect:
Specimen type: Whole Blood
Specimen Collection Tube: EDTA/Lavendar-Top Tube (2.0 mL)

Unacceptable Conditions:
Frozen

Storage/Transport Temperature:
Transportation Kit - Ambient or cold acceptable\
Storage Condiitons: Room temperature or refrigerated

Stability (from collection to initiation):
Room Temp: 10 days
Refrigerated: 30 days

Reported:
4 days once received at testing laboratory.

Performing Lab:
Prometheus Laboratory

RISPERIDONE AND METAB (SQ:FRISPA)

FRISP

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence. This test detects risperidone (parent) AND paliperidone (9-hydroxyrisperidone, metabolite). For paliperidone (9-hydroxyrisperidone) only, order Paliperidone, Serum or Plasma (2007949).

Patient Preparation:
Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain Red. Also acceptable: Lavender (EDTA) or Pink (K_2EDTA).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Remarks:
N/A

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 months

Performed:
Mon, Wed, Sat

Reference Interval:
Effective June 7, 2021

Therapeutic range (Risperidone)	20-60 ng/mL
Therapeutic range (9-hydroxyrisperidone (Paliperidone))	20-60 ng/mL
Toxic range (Risperidone and Metabolite)	Greater than 120 ng/mL

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
The therapeutic range is based on serum pre-dose (trough) draw at steady-state concentration. Adverse effects to risperidone therapy may include headache, nausea, dizziness, tachycardia, orthostatic hypotension and dyskinesia.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2007951

ADMINISTRATIVE

CPT Codes:
80342 (Alt code: G0480)

Last Reviewed:
12/2/2023

RNA POLYMER III IGG (SQ: RNAP3A)

RNP3A

TESTING INFORMATION

Ordering Recommendations:
First-line test for the evaluation of systemic sclerosis, or connective tissue disease with renal or cutaneous involvement. Preferred test is Comprehensive Systemic Sclerosis Panel (3000480).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun, Tue, Thu

Reference Interval:

Components	Reference Interval
RNA Polymerase III Antibody, IgG	19 Units or less

Reported:
1-4 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
The presence of RNA polymerase III IgG antibody, when considered in conjunction with other laboratory and clinical findings, is an aid in the diagnosis of systemic sclerosis (SSc) with increased incidence of skin involvement and renal crisis with the diffuse cutaneous form of SSc. RNA polymerase III IgG antibody occur in about 11-23 percent of SSc patients, and typically in the absence of anti-centromere and anti-Scl-70 antibodies.
A negative result indicates no detectable IgG antibodies to the dominant antigen of RNA polymerase III and does not rule out the possibility of SSc. False-positive results may also occur due to non-specific binding of immune complexes. Strong clinical correlation is recommended.

If clinical suspicion remains, consider additional testing for other antibodies associated with SSc, including centromere, Scl-70, U3-RNP, PM/Scl, or Th/To.

Component	Interpretation
RNA Polymerase III Antibody, IgG	19 Units or less Negative 20-39 Units Weak Positive 40-80 Units Moderate Positive 81 Units or greater Strong Positive

Performing Lab:
ARUP

ARUP Test Code:
2001601

ADMINISTRATIVE

CPT Codes:
83516

Last Reviewed:
12/2/2023

ROUGH MARSH ELDER (IVA) (SQ: MARSEL)

RMAR

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

ROUGH PIGWEED (W14) (SQ: PIGWEE)

RPW

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

RPR REVERSE W TITER OR TPPA (SQ:RPRWTP)

RPRWT

TESTING INFORMATION

Ordering Recommendations:
Order to confirm a reactive treponemal screening test (eg, CIA, EIA) when using the reverse testing algorithm to screen for syphilis.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL). Avoid freezing if possible.

Unacceptable Conditions:
Contaminated, grossly hemolyzed, grossly lipemic, plasma, CSF, or other body fluids.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Rapid Plasma Reagin (RPR)	Non Reactive

Reported:
1-4 days

Methodology:
Semi-Quantitative Particle Agglutination

Notes:
If RPR is reactive, then a titer to endpoint will be added. If RPR is nonreactive, a TP-PA (MHA) confirmation will be added. Additional charges apply.

Interpretive Data:

Component	Interpretation
Rapid Plasma Reagin (RPR)	RPR (+) = Reactive RPR (-) = Nonreactive

Performing Lab:
ARUP

ARUP Test Code:
2007443

ADMINISTRATIVE

CPT Codes:
86592 RPR; if reflexed, add (nonreactive) TP-PA 86780 or (reactive) 86593 RPR titer

Last Reviewed:
12/2/2023

RPR TITER (SQ:RPRTIT)

RPTIT

TESTING INFORMATION

Performing Lab:

IN HOUSE M/P/P

RPR W/REFLEX TO TITER (SQ:RPAWR)

RPAWR

TESTING INFORMATION

Ordering Recommendations:
Recommended test for syphilis screening and diagnosis (traditional algorithm).

Collect:
Serum separator tube

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL) Avoid freezing if possible.

Unacceptable Conditions:
Contaminated, grossly hemolyzed, grossly lipemic, plasma, CSF, or other body fluids.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Rapid Plasma Reagin (RPR)	Non Reactive
Rapid Plasma Reagin (RPR) Titer	< 1:1
Treponema pallidum Ab by TP-PA Reflex	Nonreactive

Reported:
1-4 days

Methodology:
Semi-Quantitative Particle Agglutination

Notes:
This panel is for clients in states where automatic confirmation using a treponemal test is required for all reactive RPR tests.

If RPR is reactive, then a titer to endpoint and TP-PA confirmation will be added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
0050478

ADMINISTRATIVE

CPT Codes:
86592; if reflexed, add 86593; 86780

Last Reviewed:
12/2/2023

RUBELLA ANTIBODY, IGM (SQ: RUBM)

RUBM

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1ml serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:

Rubella IgM Interpretation:

Negative	<=7 IU/mL
Equivocal	8-9 IU/mL
Positive	>= 10 IU/mL

Methodology:
Mutliplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

RUBELLA IGG AB (SQ: RUBEAB)

RUBG

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL of serum or centrifuged gold top, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:
Rubella IgG Interpretation:

Negative	<=7 IU/mL
Equivocal	8-9 IU/mL
Positive	>= 10 IU/mL

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

RUBEOLA ANTIBODY IGG IMMUNE STATUS (SQ: MEASAB)

MEASB

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
Once separated from cells: spun gold or 1 mL of serum or plasma Refrigerated (2-8°C)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reference Interval:

Negative	<=7 IU/mL
Equivocal	8-9 IU/mL
Positive	>= 10 IU/mL

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

RUFINAMIDE,SERUM OR PLASMA (SQ:RUFINA)

RUFIA

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain Red. Also acceptable: Lavender (K_2 or K_3EDTA), or Pink (K_2EDTA).

Specimen Preparation:
Separate from cells ASAP or within 2 hours. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 2 weeks

Performed:
Mon-Fri

Reference Interval:

Therapeutic Range	5-30 µg/mL
Dose-related range (values at dosages of 800-7200 mg/day)	3-30 µg/mL
Toxic	Not well established

Reported:
1-7 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
Adverse effects may include somnolence, vomiting, headache and fatigue.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2003176

ADMINISTRATIVE

CPT Codes:
80210

Last Reviewed:
12/2/2023

RUSSIAN THISTLE (W11) (SQ: RUSWEE)

RUTH

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

S. PNEUMONIAE IGG AB,23 SEROTYPES, S (SQ:STRE23)

SPN23

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate antibody production and rule out antibody deficiency in patients vaccinated with a pure polysaccharide vaccine (eg, Pneumovax) or protein conjugated vaccine (eg, Prevnar or Vaxneuvance).

Collect:
Serum separator tube. Postimmunization specimen should be drawn 30 days after immunization and, if shipped separately, must be received within 60 days of preimmunization specimen.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to an ARUP standard transport tube. (Min: 0.25 mL) MARK SPECIMENS CLEARLY AS "PRE" OR "POST" SO SPECIMENS WILL BE SAVED AND TESTED SIMULTANEOUSLY

Unacceptable Conditions:
Plasma or other body fluids. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated. "Pre" and "post" pneumococcal vaccine specimens can be submitted separately or together for testing.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 60 days (avoid repeated freeze/thaw cycles).

Performed:
Tue, Fri

Reported:
1-5 days

Methodology:
Quantitative Multiplex Chemiluminescent Immunoassay

Interpretive Data:
A pre- and postvaccination comparison is required to adequately assess the humoral immune response to the pure polysaccharide Pneumovax 23 (PNX) and/or the protein conjugated Prevnar 7 (P7), Prevnar 13 (P13), Prevnar 20 (P20), and Vaxneuvance (V15) Streptococcus pneumoniae vaccines. Prevaccination samples should be collected prior to vaccine administration. Postvaccination samples should be obtained at least 4 weeks after immunization. Testing of postvaccination samples alone will provide only general immune status of the individual to various pneumococcal serotypes.

In the case of pure polysaccharide vaccine, indication of immune system competence is further delineated as an adequate response to at least 50 percent of the serotypes in the vaccine challenge for those 2-5 years of age and to at least 70 percent of the serotypes in the vaccine challenge for those 6-65 years of age. Individual immune response may vary based on age, past exposure, immunocompetence, and pneumococcal serotype.

Responder Status Antibody Ratio

Nonresponder . . . . . .Less than twofold increase and postvaccination concentration less than 1.3 ug/mL

Good responder . . . . . .At least a twofold increase and/or a postvaccination concentration greater than or equal to 1.3 ug/mL

A response to 50-70 percent or more of the serotypes in the vaccine challenge is considered a normal humoral response. (Daly, 2014) Antibody concentration greater than 1.0-1.3 ug/mL is generally considered long-term protection. (Daly, 2015)

References:

1. Daly TM, Pickering JW, Zhang X, et al. Multilaboratory assessment of threshold versus fold-change algorithms for minimizing analytical variability in multiplexed pneumococcal IgG measurements. Clin Vaccine Immunol. 2014;21(7):982-988.

2. Daly TM, Hill HR. Use and clinical interpretation of pneumococcal antibody measurements in the evaluation of humoral immune function. Clin Vaccine Immunol. 2015;22(2):148-152.

Performing Lab:
ARUP

ARUP Test Code:
2005779

ADMINISTRATIVE

CPT Codes:
86581

Last Reviewed:
12/1/2023

SALICYLATE (SQ: SALI)

SALIC

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
Methodist: 1 Serum Separator Tube (Gold)	6.0 mL	2.0 mL
Pekin & Proctor: Serum collected in Gold (SST), Plain Red, or Green Lithium Heparin Top.	6.0 mL	2.0 mL

Specimen Preparation:

Separate from cells within 2 hours of collection.

Storage/Transport Temperature:

Separate from cells within two hours of collection.
Transport serum at ambient or refrigerated temperature.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
7 days	2 weeks	6 months

Performed:

Daily

Methodology:

Methodist: Spectrophotometric, Bichromatic endpoint. Pekin and Proctor: Trinder colorimetric technique

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

9.10.24:AG

SCALLOP ALLERGY, S (SQ: SCALOP)

SCAL

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

SCL-70 (SQ: SCLA)

SCLP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

SELENIUM (SQ:SELENA)

SELNA

TESTING INFORMATION

Ordering Recommendations:
May be useful in the assessment of recent intake. For the assessment of deficiency or toxicity, Selenium, Urine (0025067) is preferred.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician).

Collect:
Royal blue (No Additive), Royal blue (K2EDTA), or Royal blue (NaHep).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum or plasma to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens that are not separated from the red cells or clot within 2 hours. Specimens collected in containers other than specified. Specimens transported in containers other than specified.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated or frozen.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Performed:
Sun-Sat

Reference Interval:
23.0-190.0 µg/L

Reported:
1-3 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
Elevated results may be due to contamination from skin or other collection-related issues, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum/plasma selenium, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Serum selenium levels can be used in the determination of deficiency or toxicity. Plasma and serum contains 75 percent of the selenium measured in whole blood and reflects recent dietary intake. Selenium deficiency can occur endemically or as a result of sustained TPN or restricted diets and has been associated with cardiomyopathy and may exacerbate hypothyroidism. Selenium toxicity is relatively rare. Excess intake of selenium can result in symptoms consistent with selenosis and include gastrointestinal upset, hair loss, white blotchy nails, and mild nerve damage.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0025023

ADMINISTRATIVE

CPT Codes:
84255

Last Reviewed:
12/2/2023

SEMEN ANALYSIS (SQ: SEMEFE)

SEMFE

TESTING INFORMATION

Ordering Recommendations:
This test requires an appointment made with Carle Health System scheduling Department at 309-671-8282.

Performing Lab:
Proctor Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
89321

Last Reviewed:
1/19/24

SEMEN ANALYSIS, POST-VASECTOMY (SQ: SEMPV)

SEMPV

TESTING INFORMATION

Ordering Recommendations:
This test requires an appointment made with Carle Health System scheduling Department at 309-671-8282.

Performing Lab:
Proctor Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
83920

Last Reviewed:
1/19/24

SEROTONIN RELEASE ASSAY, UNFRACTIONATED HEPARIN (SQ:SRAUHA)

FPORC

TESTING INFORMATION

Ordering Recommendations:
Gold standard test for diagnosis of heparin-induced thrombocytopenia (HIT).

Collect:
Serum separator tube.

Specimen Preparation:
Transfer 5 mL serum to ARUP Standard Transport Tubes. (Min: 1 mL)

Storage/Transport Temperature:
Frozen. Also acceptable: Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: Indefinitely

Performed:
Mon-Sat

Reference Interval:
By report

Reported:
2-4 days

Methodology:
Qualitative Serotonin Release Assay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2005631

ADMINISTRATIVE

CPT Codes:
86022

Last Reviewed:
12/2/2023

SEROTONIN, S (SQ:SERTA)

SER

TESTING INFORMATION

Ordering Recommendations:
Preferred serotonin test when diagnosing carcinoid tumors is Serotonin, Whole Blood (0080395).

Patient Preparation:
Abstain from medications for 72 hours prior to collection.

Collect:
Serum Separator Tube(SST).

Specimen Preparation:
Separate from cells within 1 hour of collection. Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Unacceptable Conditions:
Specimens other than serum. Non-frozen specimens.

Storage/Transport Temperature:
Frozen. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 24 hours; Frozen: 1 month

Performed:
Mon, Wed, Thu, Fri, Sat

Reference Interval:
50-220 ng/mL

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography (HPLC)

Notes:
Medications that may affect serotonin concentrations include lithium, MAO inhibitors, methyldopa, morphine, and reserpine. In general, foods that contain serotonin do not interfere significantly. Slight increases may be seen in acute intestinal obstruction, acute MI, cystic fibrosis, dumping syndromes, and nontropical sprue. Metastasizing abdominal carcinoid tumors often show serotonin concentrations greater than 400 ng/mL.

In general, EDTA whole blood (as compared to serum) preserved with ascorbic acid will give values most representative of blood concentrations. Most (95 percent) of blood serotonin is found in platelets. Refer to Serotonin, Whole Blood (ARUP test code 0080395).

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0080397

ADMINISTRATIVE

CPT Codes:
84260

SESAME (SQ: SESAME)

SESA

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Purple Top Tube	4.0 mL	2.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP.
0.3mL serum or plasma for one allergen. Collect additional 0.1mL for each additional allergen.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum or plasma at 2-8 degrees C for one allergen. Add 0.1 mL for each additional allergen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term Storage

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

Reference Ranges for Evaluation of Specific IgE

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be consideredweakly positive or equivocal.Class 2 and higher should beconsidered positive.Although increasing class ranges (01-06)are reflective or increasing concentrations of allergen specificIgE, this may not correlate with the degree of clinical responsewhen challenged with the specific allergen.The correlationof allergy laboratory results with clinical history isessential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

SEX HORMONE BIND GLOB (SQ: SHMBG)

SHMBG

TESTING INFORMATION

Collect:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
1 Green Lithium Heparin Tube	6.0 mL	4.0 mL

Specimen Preparation:

Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Storage/Transport Temperature:

1 mL serum or plasma refrigerated, 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	6 days	1 month

Performed:

Daily

Reference Interval:

SHBG		
Males	17-66	nmol/L
Female, Pre-menopausal	28-146	nmol/L
Female, Post-menopausal	12-166	nmol/L

Methodology:

Sandwich Immunoassay, ADVIA Centaur

Interpretive Data:

Refer to report.

Performing Lab:

Methodist

Testing Region:

Carle West region

SHRIMP, IGE (SQ: SHRIMP)

SHRMP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:

Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

SICKLE CELL SCREEN (SQ: SICKLE)

SICKL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
One K2EDTA Lavender Top	4.0 mL	1.0 mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250 uL

Unacceptable Conditions:

Improper anticoagulant
Insufficient Volume
Clotted or Evidence of fibrin strands
Hemolyzed
Contaminated with IV fluid
Incompletely labeled or mislabeled
Stability exceeded
Frozen

Storage/Transport Temperature:

Whole blood transported at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	14 days	Unacceptable

Performed:

Daily

Reference Interval:

Negative

Methodology:

Modified Nalbandian

Notes:

Positive results should be confirmed with hemoglobin electrophoresis.

Performing Lab:

Methodist

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/18/24:ME

SIROLIMUS, TROUGH, B (SQ:SIROLA)

SIROL

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Predose (trough) levels should be drawn.

Collect:
Lavender (EDTA) or pink (K2EDTA).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.25 mL)

Unacceptable Conditions:
Serum or plasma. Specimens left at room temperature for longer than 24 hours. Clotted specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
Effective February 18, 2014

	Therapeutic Range:
Kidney transplant (in combination with Cyclosporine):	4-12 ng/mL
Toxic value:	Greater than 25 ng/mL

Reported:
1-2 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Sirolimus (Rapamune) whole blood concentrations can be measured by either chromatographic or immunoassay methodologies. These two methodologies are not directly interchangeable and the measured sirolimus whole blood concentration depends on the methodology used. Reference ranges may vary according to the specific immunoassay or HPLC-MS/MS test. Generally, immunoassays have been reported to have a positive bias relative to HPLC-MS/MS assays due to the detection of antibody cross-reactivity with sirolimus metabolites.

Interpretive Data:
A range of 12-20 ng/mL has been suggested for liver transplant. The optimal therapeutic range for a given patient may differ from this suggested range based on the indication for therapy, treatment phase (initiation or maintenance), use in combination with other drugs, time of specimen collection relative to prior dose, type of transplanted organ, and/or the therapeutic approach of the transplant center.

Performing Lab:
ARUP

ARUP Test Code:
0098467

ADMINISTRATIVE

CPT Codes:
80195

Last Reviewed:
12/2/2023

SJOGREN'S SSA (SQ: SSAROA)

SSA3

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

SJOGREN'S SSB (SQ: SSBLA)

SSBP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

SM AND RNP ANTIBODIES (SQ: SMRNP)

RNPSM

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

Smear - Pathologist Review (SQ: PATHSM)

BSPI

TESTING INFORMATION

Ordering Recommendations:

A Peripheral smear order is an add-on component to the CBC with differential and not a standalone test. CBC with Differential must be ordered with all smear pathologist review orders.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Lavender (EDTA) top orLavender Microtainer	4.0 mL	1.0mL

Pediatric Collection:

K2EDTA Lavender Microtainer, Minimum 250uL

Storage/Transport Temperature:

Whole blood, K2EDTA samples transported at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	48 hours	Unacceptable

Performed:

Methodist: Monday - Saturday
Pekin and Proctor Labs: Monday -Friday

Reported:

1-2 days

Methodology:

Manual microscopic slide examination

Notes:

A CBC with differential must be ordered in addition to this test.

Performing Lab:

Methodist, Pekin and Proctor Hospitals

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

85060

Last Reviewed:

1/18/24:ME

SMITH ANTIBODY (SQ: SMA)

SMP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86235

Last Reviewed:
2/1/24

SMOOTH MUSCLE AB IGG W/RFLX (SQ:SMABA)

SMABA

TESTING INFORMATION

Ordering Recommendations:
May be helpful in evaluating for autoimmune liver disease. For a more comprehensive reflex panel, refer to Autoimmune Liver Disease Reflexive Panel (3002479).

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube.(Min: 0.25 mL)

Unacceptable Conditions:
Plasma. Contaminated, heat-inactivated, hemolyzed, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
F-Actin (Smooth Muscle) Ab, IgG by ELISA	19 Units or less

Reported:
1-5 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay/Semi-Quantitative Indirect Fluorescent Antibody

Notes:
In viral hepatitis the titers are generally less than 1:80 and are transient. The titers in primary biliary cirrhosis are also low, ranging from 1:20 to 1:40.

If F-Actin is 20 Units or greater, then Smooth Muscle Ab, IgG IFA titer will be added. Additional charges apply

Interpretive Data:

F-Actin (Smooth Muscle) Antibody, IgG	Interpretive Data
19 Units or less	Negative
20-30 Units	Weak Positive - Suggest repeat testing in two or three weeks with a fresh specimen.
31 Units or greater	Positive - Suggestive of autoimmune hepatitis or chronic active hepatitis.

Performing Lab:
ARUP

ARUP Test Code:
0051174

ADMINISTRATIVE

CPT Codes:
86015; if reflexed, add 86256

Last Reviewed:
12/2/2023

SMOOTH MUSCLE ANTIBODY, IGG TITER (SQ: SMIFA)

SMAGT

TESTING INFORMATION

Ordering Recommendations:
May be helpful in evaluating for autoimmune liver disease. For a more comprehensive reflex panel, refer to Autoimmune Liver Disease Reflexive Panel (3002479).

Collect:
Serum separator tube

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Contaminated, hemolyzed, or severly lipemic specimens.

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Smooth Muscle Ab, IgG Titer	Less than 1:20

Reported:
1-3 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody

Interpretive Data:

Component	Result	Interpretation
Smooth Muscle Antibody, IgG Titer	1:20 or less 1:20-1:80 1:160 or greater	Negative - No Antibody detected. Weak Positive - Suggest repeat testing in two to three weeks with fresh specimen. Positive - Suggestive of autoimmune hepatitis or chronic active hepatitis.

Performing Lab:
ARUP

ARUP Test Code:
0051244

ADMINISTRATIVE

CPT Codes:
86256

Last Reviewed:
12/2/2023

SODIUM (SQ: NA)

NA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold	6.0 mL	0.5 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	0.5 mL
1 Green Top Tube	6.0 mL	0.5 mL

Pediatric Collection:

0.2 mL plasma (1 microtainer) or serum

Unacceptable Conditions:

Potassium oxalate and sodium fluoride specimens, Hemolyzed samples, Serum/plasma in prolonged contact with cells

Storage/Transport Temperature:

Centrifuged gold or 0.5 mL serum or plasma (heparin) (Min: 0.2mL), at Ambient (room temperature) or 2-8 degrees C. Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
7 days	7 days	1 year

Performed:

Sunday-Saturday

Reference Interval:

AGE	RANGE (mmol/L)
birth - 1 week	131 - 144
1 week - 1 year	132 - 142
1 year - 150 years	135-145
CRITICAL	<120 mmol/L and >155 mmol/L

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

84295

Last Reviewed:

1/23/24

SODIUM, RANDOM URINE (SQ: UNA)

RNAU

TESTING INFORMATION

Collect:
Random urine in clean, dry container with secure lid.

Unacceptable Conditions:
Urine containing blood or fecal matter.

Storage/Transport Temperature:
1 ml of serum or plasma Refrigerated (2-8oC) Stability:or 1 centrifuged gold top refrigerated.

Performed:
Sunday-Saturday

Methodology:
Indirect Potentiometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

SODIUM, URINE (24HR) (SQ: UNA24H)

NAU24

TESTING INFORMATION

Storage/Transport Temperature:

Centrifuged gold top or 0.3 ml serum or plasma at Ambient (room temperature);or refrigerate (2-8oC). Separate serum or plasma from cells ASAP or within 2 hours of collection.

Performing Lab:

IN HOUSE M/P/P

Testing Region:

Carle West region

SODIUM, WHOLE BLOOD (SQ: POCNA)

PCNA

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

SOLUBLE TRANSFERRIN RECEPTOR (STFR), S (SQ:STFRA)

STFR

TESTING INFORMATION

Collect:
Serum separator tube or plasma separator tube. Also acceptable: green (lithium heparin).

Specimen Preparation:
Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Contaminated, severely hemolyzed, icteric, or lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 1 week; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Male - 18 years & older: 2.2-5.0 mg/L
Female - 18 years & older: 1.9-4.4 mg/L

Reported:
Within 24 hours

Methodology:
Quantitative Immunoturbidimetry

Interpretive Data:
People of African descent and those residing at 5,200 feet (1,600 meters) above sea level were found to have a 6% higher normal value. These differences were additive. Reference intervals have not been established for pregnant females, patients under 18 years of age, and recent or frequent blood donors.

Serum soluble transferrin receptor increases in iron deficiency and is usually unaffected by chronic disease states. In general, to increase sensitivity and specificity, the measurement of serum soluble transferrin receptor should be performed in combination with other tests of iron status, including ferritin, TIBC, and serum iron (refer to table below).

	Tests for Changes in:	Iron Deficiency Anemia	Anemia of Chronic Disease	Iron Deficiency & Anemia of Chronic Disease
Ferritin	Iron Stores	Low	High	Normal or High
TIBC	Iron Status	High	Low	Normal or High
Serum Iron	Iron Status	Low	Low	Low
sTfR	Iron Status	High	Normal	High

Performing Lab:
ARUP

ARUP Test Code:
0070283

ADMINISTRATIVE

CPT Codes:
84238

Last Reviewed:
12/1/2023

SOYBEAN, IGE (SQ: SOY)

SOYB

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

SPOTTED FEVER GRP AB, IGG, IGM, S (SQ:RMSFAB)

SFGP

TESTING INFORMATION

Ordering Recommendations:
Preferred test for acute or convalescent phase of disease. Acute and convalescent titers often necessary.

Collect:
Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.4 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens.

Unacceptable Conditions:
Contaminated, hemolyzed, or severely lipemic specimens.

Remarks:
Mark specimens plainly as "acute" or "convalescent."

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Rocky Mt Spotted Fever IgG	Less than 1:64
Rocky Mt Spotted Fever IgM	Less than 1:64

Reported:
1-3 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)

Interpretive Data:
The CDC does not use IgM results for routine diagnostic testing of Rocky Mountain Spotted Fever, as the response may not be specific for the agent (resulting in false positives) and the IgM response may be persistent from past infection.

Antibody reactivity to Rickettsia rickettsii antigen should be considered Spotted Fever group reactive. Other organisms within the group include R. akari, R. conorrii, R. australis, and R. sibirica.

Seroconversion, a fourfold or greater rise in antibody titer, between acute and convalescent sera is considered strong evidence of recent infection. Acute-phase specimens are collected during the first week of illness and convalescent-phase samples are generally obtained 2-4 weeks after resolution of illness. Ideally these samples should be tested simultaneously at the same facility. If the sample submitted was collected during the acute-phase of illness, submit a marked convalescent sample within 25 days for paired testing.

Component	Unit Of Measure	Interpretation
Rocky Mt Spotted Fever IgG	Less than 1:64 1:64 - 1:128 1:256 or greater	Negative - No significant level of IgG antibody detected. Low Positive - Presence of IgG antibody detected, suggestive of current or past infection. Positive - Presence of IgG antibody suggestive of recent or current infection.
Rocky Mt Spotted Fever IgM	Less than 1:64 1:64 or greater	Negative - No significant level of IgM antibody detected. Positive - Presence of IgM antibody detected, which may indicate a current or recent infection; however, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection.

Performing Lab:
ARUP

ARUP Test Code:
0050371

ADMINISTRATIVE

CPT Codes:
86757 x2

Last Reviewed:
12/2/2023

SPUTUM CULTURE (SQ: VCSPT)

VCSPT

TESTING INFORMATION

Patient Preparation:

Collection Instructions for Patients

Collect:

Specimen Type	Collection Container	Volume
purulent sputum	Sterile Container	purulent sputum is more critical than volume

Unacceptable Conditions:

Non-sterile or leaking container, multiple specimens (more than one in 24 hours), dry specimen, poor quality sputum (presence of greater than 10 epithelial cells per 10x field)

Remarks:

All sputums will be screened for oral pharyngeal contamination. Specimens with epithelial cells/LPFwill be rejected.

Storage/Transport Temperature:

Sterile, leak-proff container. Transport promptly to laboratory at room temperature.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 hours	24 hours	unacceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedures for cultures and identification.

Notes:

Gram stain, identification, susceptibility tests are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87070 - Culture, Aerobic
87205 - Gram Stain

Last Reviewed:

1/19/24

STACLOT LA (SQ: HEXPNA)

HEXPN

TESTING INFORMATION

Ordering Recommendations:
Preferred test is Lupus Anticoagulant Reflex Panel (3017009).

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum, EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Varies

Reference Interval:
Negative

Reported:
1-4 days

Methodology:
Qualitative Clotting

Performing Lab:
ARUP

ARUP Test Code:
0030064

ADMINISTRATIVE

CPT Codes:
85598

Last Reviewed:
12/2/2023

STAPH AUREUS CULTURE (SQ: VCSTAP)

VCSTA

COLLECTION DEVICE

Preferred Collection Device:

E-Swab
Sterile, leak-proof container

TESTING INFORMATION

Ordering Recommendations:

For MRSA screening, order EPIC code VMRSA.

Collect:

Nasal Collection.

- E-Swab
- Sterile, leak-proof container

Unacceptable Conditions:

Non-sterile, or leaking container.

Remarks:

No susceptibility performed on this culture.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
48 hours		48 hours		Not Acceptable

Performed:

Daily

Methodology:

Standard reference procedures for aerobic bacterial culture and identification.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

2/1/24

STOOL CULTURE (SQ:STECST)

STECS

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:
Please note: This test should not be collected on Fridays due to Stability concerns.

Ordering Recommendations:
Preferred test for suspected bacterial diarrhea evaluation. Testing includes cultures for Salmonella, Shigella, Campylobacter, E. coli O157, and EIA for Shiga-like toxin from E. coli. Can be used to rule out Aeromonas and Plesiomonas; specify the pathogen to rule out. For C. difficile testing, refer to Clostridium difficile toxin B gene (tcdB) by PCR (2002838).

Collect:
Stool.

Specimen Preparation:
Place 5 mL stool in enteric transport media (Cary-Blair, ARUP supply #29799) immediately after collection. Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787. (Min: 1 mL)

Unacceptable Conditions:
Multiple specimens (more than one in 24 hours). Delayed transport without use of appropriate transport media.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
In transport media: Ambient: 1 hour; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Effective May 16, 2011.

Culture negative for Salmonella, Shigella, Campylobacter, and E. coli 0157.

Reported:
1-5 days

Methodology:
Culture/Identification

Notes:
Identification and susceptibility tests are billed separately from culture. Stool Culture includes culture for Salmonella, Shigella, Campylobacter, and E. coli 0157 as well as EIA for Shiga-like toxin from E. coli. E. coli Shiga-like Toxin by EIA is billed separately.

If an isolate requires testing for Shiga-like toxin (e.g., STEC), refer to E.coli Shiga-like Toxin by EIA (ARUP test code 0060047).

Performing Lab:
ARUP

ARUP Test Code:
0060134

ADMINISTRATIVE

CPT Codes:
87045; 87046 x2; Identification CPT codes may vary based on method

Last Reviewed:
8/21/24

Strep Group A Molecular Test (SQ: STREPA)

STRPA

TESTING INFORMATION

Ordering Recommendations:

This test has not been evaluated for patients without signs or symptoms of Strep A.

Collect:

For testing performed at the Hospital or Methodist Reference Lab testing collect:eSwab Transport System, containing a sterile swab and tube filled with 1mL of Amies Liquid transport medium --- swabbing the back of the throat, the tonsils, and against any white patches in the tonsillar area.For testing performed at Carle Health Clinics use one of the following:Sterile Foamed tipped applicator- swabbing ONLY the posterior pharynx and tonsils.
Orange cap COPAN FLOQSwab - swabbing ONLY the posterior pharynx and tonsils.

Unacceptable Conditions:

Do not use cotton or calcium alginate swabs, or swabs with wooden shafts.
Specimens with blood or mucus may produce invalid result.

Remarks:

Negative results do not prelude Strep A infection and should not be used as the sole basis for treatment or other patient management decisions. Results should be interpreted in conjunction with other laboratory and clinical data. Additional follow up testing by culture is required if Strep A assay result is negative and clinical symptoms persist.

Storage/Transport Temperature:

Ambient air directly following collection to perform testing

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
48 hours		48 hours (preferred)		

Reference Interval:

Negative test for Strep A

Methodology:

Real-time PCR

Performing Lab:

Methodist, Pekin and Proctor Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

87651

SUPERSATURATION PROFILE, 24 HR, U (SQ:STONRK)

SSAT2

TESTING INFORMATION

Ordering Recommendations:

Use for kidney stone risk assessment and monitoring; includes interpretation of data. Panel includes calcium, chloride, citric acid, creatinine, magnesium, oxalate, pH, phosphorous, potassium, sodium, sulfate, and uric acid.

Collect:

24-hour urine. Refrigerate during collection.

Specimen Preparation:

Thoroughly mix entire collection (24-hour) in one container. Transport four separate 4 mL aliquots of urine using Calculi Risk/Supersaturation Urine Collection Kit (ARUP supply# 46007). Available online through eSupply using ARUP Connect(TM) or contact Client Services at (800) 522-2787. Do not exceed 4 mL in tubes.
Aliquot according to the following specifications:
1st aliquot (pH 2): Transfer 4 mL urine into a Sulfamic Acid Tube. (Min: 4 mL) Mix well. Freeze immediately.
2nd aliquot (pH 2): Transfer 4 mL urine into a Sulfamic Acid Tube. (Min: 4 mL) Mix well. Freeze immediately.
3rd aliquot (pH 9): Transfer 4 mL urine into a Sodium Carbonate Tube. (Min: 4 mL) Mix well. Freeze immediately.
4th aliquot: Transfer 4 mL urine into an Unpreserved Tube. (Min: 4 mL) Freeze immediately.
If collection kit is unavailable, transport four 4 mL unadjusted aliquots of urine.
New York State Clients: Two 100 mL aliquots

Remarks:

Record total volume and collection time interval on tube and test request form.

Storage/Transport Temperature:

CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):

Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:

Mon, Wed, Fri

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Calcium, Urine - per 24h</td><td>
<table>
<tr><th>Diet</th><th>Reference Interval (mg/d)</th></tr>
<tr><td>Calcium-free diet</td><td>5-40</td></tr>
<tr><td>Low calcium diet (less than 800 mg/d)</td><td>50-150</td></tr>
<tr><td>Average calcium diet (about 800 mg/d)</td><td>100-250</td></tr>
<tr><td>High calcium diet (greater than 800 mg/d)</td><td>> 250</td></tr>
</table>
</td></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
<tr><td>Magnesium, Urine per 24h</td><td>12-199 mg/d</td></tr>
<tr><td>Phosphorus, Urine - per 24h</td><td>400-1300 mg/d</td></tr>
<tr><td>Uric Acid, Urine - per 24h</td><td>250-750 mg/d</td></tr>
<tr><td>Citric Acid, Urine - per 24h</td><td>18 years and older: 320-1240 mg/d</td></tr>
<tr><td>Oxalate, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>0-12 years</td><td>7-31</td><td>7-31</td></tr>
<tr><td>13 years and older</td><td>16-49</td><td>13-40</td></tr>
</table>
</td></tr>
<tr><td>Sodium, Urine - per 24h</td><td>51-286 mmol/d</td></tr>
<tr><td>Potassium, Urine - per 24h</td><td>25-125 mmol/d</td></tr>
<tr><td>Chloride, Urine - per 24h</td><td>140-250 mmol/d</td></tr>
<tr><td>Sulfate, Urine - per 24h</td><td>6-30 mmol/d</td></tr>
</table>

Reported:
1-8 days

Methodology:
Quantitative Spectrophotometry/Quantitative Enzymatic Assay/Quantitative Ion-Selective Electrode

Notes:
Compare to StoneRisk Diagnostic Profile

Interpretive Data:
The values determined for this specimen are placed on the chart to indicate the approximate risk associated with the particular concentrations. Increased risk is to the right of center; decreased risk, to the left. Relative supersaturation calculated for calcium oxalate, calcium hydrogen phosphate (brushite) and uric acid calculi is displayed. Relative risk increases from the middle to the right side of this chart.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2008771

ADMINISTRATIVE

CPT Codes:
82340; 82436; 82507; 84560; 83735; 83945; 84105; 84133; 84300; 84392; 83986

Last Reviewed:
12/1/2023

SURGICAL PATHOLOGY (SQ: PATH EXAM SURG)

SUR

TESTING INFORMATION

Ordering Recommendations:

- Label with patient demographics
- Stone specimen location in body (ex: Kidney, bladder, ureter)
- Date and Time of collection
- Collector's initials.

Collect:

Specimen Type	Collection Container	Volume
Stones	Dry, Sterile Container	

Performed:
Monday - Friday

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

Last Reviewed:
2/9/24

SUSCEPTIBILITY,AFB/MYCOBACTERIA (SQ:AFBSUA)

AFBSU

TESTING INFORMATION

Ordering Recommendations:

Identify susceptibility of clinically significant isolates of M. tuberculosis complex (MTBC), M. kansasii, M. avium-intracellulare complex, M. fortuitum complex, M. abscessus complex, M. chelonae, M. immunogenum, and any isolate from a significant source.

Collect:

Actively growing isolate in pure culture.

Specimen Preparation:

Transport sealed container with pure culture on solid or liquid media. Place each specimen in an individually sealed bag.

Unacceptable Conditions:

Mixed cultures or nonviable organisms. Organisms submitted on an agar plate.

Storage/Transport Temperature:

Room temperature. If culture is suspected of being a microorganism identified on the IATA list as an infectious substance affecting humans, submit specimen according to Infectious Substance, Category A, shipping guidelines.

Stability (from collection to initiation):

Ambient: 2 weeks; Refrigerated: 2 weeks; Frozen: 2 weeks

Performed:

Sun-Sat

Reference Interval:

Test Name	Methodology	Reference Interval/Drugs Tested	CPT Code
Antimicrobial Susceptibility - AFB/Mycobacterium tuberculosis Primary Panel	MGIT960	The interpretation provided is based on results for the following drugs at the stated concentrations: Drugs tested: Ethambutol: 5.0 µg/mL; Isoniazid: 0.1 µg/mL (0.4 µg/mL if resistant to 0.1 µg/mL); Pyrazinamide: 100 µg/mL; Rifampin: 1.0 µg/mL. This procedure screens isolates of M. tuberculosis complex for drug resistance. The procedure does not use serial dilutions to provide quantitative MIC values. Single critical concentrations for each antimycobacterial agent used have been defined by the United States Public Health Service.	87188 x4
Antimicrobial Susceptibility - AFB/Mycobacterium tuberculosis Secondary Panel	Agar proportion and Broth dilution	Effective February 21, 2012 Note: If M. tuberculosis isolate is resistant to rifampin or any two primary drugs, a secondary panel will be performed as a send-out test. The interpretation provided is based on testing for the following drugs at the stated concentrations: Drugs tested: Amikacin: 6 µg/mL; capreomycin: 10 µg/mL; cycloserine: 60 µg/mL; ethionamide: 10 µg/mL; kanamycin: 6 µg/mL; PAS: 8 µg/mL; streptomycin at a low level (2.0 µg/mL) and a high level (4.0 µg/mL). Levofloxacin and moxifloxacin are tested at 2, 4 and 8 µg/mL	87190 x6, 87188 x3
Antimicrobial Susceptibility - AFB/Mycobacteria	Broth Microdilution	See organism-specific panels below.	87186
Mycobacterium avium-intracellularae Complex	Broth Microdilution	Effective April/1/2022 Drugs tested: Amikacin, clarithromycin, linezolid, moxifloxacin. Clarithromycin results predict azithromycin. Because MIC results do not predict clinical response and may be misleading, rifampin, rifabutin, and ethambutol MICs are not tested.	87186
Rapid Growing Mycobacteria	Broth Microdilution	Effective April 1, 2022 Drugs tested: Amikacin, cefoxitin, ciprofloxacin, clarithromycin, doxycycline, imipenem, linezolid, moxifloxacin, tigecycline, tobramycin (M. chelonae only), and trimethoprim/sulfamethoxazole (TMP/SXT). Extended 14-day incubation is performed on isolates initially susceptible to clarithromycin to detect Erm(41)-dependent inducible macrolide resistance except Mycobacterium species with a nonfuctional Erm(41) gene.	87186
Other Slowly-Growing Non-tuberculosis Mycobacteria (NTM)	Broth Microdilution	Effective April 1, 2022 Drugs tested: Amikacin, ciprofloxacin, clarithromycin, doxycycline, linezolid, moxifloxacin, rifabutin, rifampin, streptomycin and trimethoprim/sulfamethoxazole (TMP/SXT). Selective reporting by organism. CLSI recommends that isolates of M. kansasii be tested against rifampin and clarithromycin only. Rifampin-susceptible isolates are also susceptible to rifabutin. If the isolate is rifampin-resistant, the following secondary drugs will also be reported: Amikacin, ciprofloxacin, linezolid, moxifloxacin, rifabutin, streptomycin and trimethoprim-sulfamethoxazole. M. marinum isolates are tested against amikacin, ciprofloxacin, clarithromycin, doxycycline, moxifloxacin, rifabutin, rifampin, and trimethoprim-sulfamethoxazole. Slowly-growing NTM other than M. kansasii and M. marinum are tested against amikacin, ciprofloxacin, clarithromycin, linezolid, moxifloxacin, rifabutin, rifampin, streptomycin, and trimethoprim-sulfamethoxazole.	87186

Reported:

Varies

Methodology:

Broth Macrodilution/Broth Microdilution

Notes:

AFB susceptibility testing is billed at the panel level. Charges will vary based on organism identified. An additional handling fee will be billed for all organisms submitted that are not in pure culture as indicated in the specimen requirements.

If species identification is not provided or if incorrect identification is provided, identification will be performed at ARUP. Additional charges apply.

M. tuberculosis complex isolates mono-resistant to Pyrazinamide (PZA) will be further identified to species by PCR at an additional charge.

An additional charge will be added for drug requests that are not tested at ARUP and require sendout.

Performing Lab:

ARUP

ARUP Test Code:

0060217

ADMINISTRATIVE

CPT Codes:

CPT codes vary based on method

Last Reviewed:

12/1/2023

SYCAMORE (T11), ALLERGEN, (SQ: MAPLES)

SYCA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Purple Top Tube	6.0 mL	4.0 mL

Pediatric Collection:
Minimum Volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP. Collect 0.3mL serum or plasma for one allergen. Collect additional 0.1mL for each additional allergen.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum or plasma at 2-8 degrees C for one allergen. Add 0.1 mL for each additional allergen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Longterm storage

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

SYPHILIS AB BY TP-PA, S (SQ: TPPAA)

TPPA

TESTING INFORMATION

Ordering Recommendations:
CDC-recommended confirmatory test for syphilis. Order if initial screening (eg, RPR, VDRL) is reactive.

Collect:
Serum separator tube or plasma separator tube.

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.4 mL)

Unacceptable Conditions:
CSF or other body fluids.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:
Nonreactive

Reported:
1-4 days

Methodology:
Qualitative Particle Agglutination

Notes:
TP-PA is a helpful diagnostic aid for the patient with a reactive reagin test, but presents with atypical signs of primary, secondary, or late syphilis. TP-PA compares favorably with the FTA test, but appears slightly less sensitive in cases of untreated early primary syphilis. In late syphilis, the agreement with FTA is 99%.

VDRL is the preferred test for cerebrospinal fluid. Treponemal tests (TP-PA or FTA) are not recommended for CSF. FTAs on CSF may be tested, but TP-PA cannot be tested on CSF.

Performing Lab:
ARUP

ARUP Test Code:
0050777

ADMINISTRATIVE

CPT Codes:
86780

Last Reviewed:
12/2/2023

SYPHILIS ANTIBODIES (SQ: SYPHGM)

SYPH

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

For Patients: 7 years of age, see "Notes" for further instructions

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
CSF and other body fluids.

Storage/Transport Temperature:
1 mL (minimum volume 0.5 mL) serum or centrifuged gold top, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Unacceptable	7 days	1 year (avoid repeated freeze/thaw cycles)

Performed:
Monday - Friday - day shift

Reference Interval:

Syphilis IgG	RPR	Treponemal Assay	
Non-Reactive	Not Indicated	Not Indicated	No laboratory evidence of syphilis infection
Reactive	Non-Reactive	Non-Reactive	Inconclusive for syphilis infection; potentially early infection or false positive. If recent exposure, recommend re-screening in 2 to 4 weeks
Reactive	Non-reactive	Reactive	Past or potential early syphilis infection
Reactive	Reactive	Not indicated	Current or past syphilis infection

Methodology:
Multiplex Flow Immunoassay

Notes:

- All reactives will be followed by RPR with Reflex to TPPA.
- Only weakly reactive and reactive results are titered.
- For patients 7 years of age, order ARUP 0050478, Rapid Plasma Reagin (RPR) with reflex to Titer and TP-PA Confirmation;1 ml Serum refrigerated.;Plasma is unacceptable for this ARUP sendout test.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

T. TRANSGLUTAMINASE IGA (SQ: TTGABA)

TTGAP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Contaminated, icteric, lipemic, and hemolyzed or heat inactivated samples may cause erroneous results and should be avoided.

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, transported at refrigerated temperature 2-8°C. Minimum volume 0.5 mL.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 HOURS	7 DAYS	3 MONTHS

Performed:
Variable

Reference Interval:

Anti-tTG IgA and Anti-DGP IgA	
< 15 U/mL	Negative
>= 15 U/mL	Positive

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

T. TRANSGLUTAMINASE IGG (SQ: TTGABG)

TTGGP

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Contaminated, icteric, lipemic, and hemolyzed or heat inactivated samples may cause erroneous results and should be avoided.

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, transported at refrigerated temperature 2-8°C. Minimum volume 0.5 mL.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 Hours	7 Days	3 months

Performed:
Variable

Reference Interval:

Anti-tTG IgG and Anti-DGP IgG	
< 15 U/mL	Negative
>= 15 U/mL	Positive

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

T3 (TRIIODOTHYRONINE), FREE (SQ: FT3)

FRT3

TESTING INFORMATION

Patient Preparation:

Due to possible interferences, patients should refrain, if possible, from taking biotin supplements prior to collection.

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Pediatric Collection:

0.2 mL serum

Specimen Preparation:

Separate serum from cells immediately after collection or within two hours of collection.

Unacceptable Conditions:

Gross hemolysis or contamination.

Storage/Transport Temperature:

1 mL serum/plasma at 2-8°C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

Age	Reference Interval pg/mL
1day-23 months	3.34-5.24
2-12 years	3.31-4.88
13-20 years	2.91-4.53
>=21 years	2.20-4.00

Methodology:

Chemiluminescent Immunoassay Vista

Interpretive Data:

Patients taking biotin supplements or receiving high-dose biotin therapy should be interpreted with caution due to possible interference with this test.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84481

Last Reviewed:

1/24/24

T3 (TRIIODOTHYRONINE), REVERSE, SERUM (SQ:T3RVMA)

RT3

TESTING INFORMATION

Ordering Recommendations:
Generally not recommended for routine evaluation of thyroid disorders, although may be considered in pregnant women.

Collect:
Plain red or serum separator tube. Also acceptable: Lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Allow serum specimen to clot completely at room temperature. Separate serum or plasma from cells ASAP or within two hours of collection. Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Grossly hemolyzed specimens

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 3 months

Performed:
Sun-Sat

Reference Interval:

Age	Reference Interval
0 -17 years	Not established
18 years and older	9.0 - 27.0 ng/dl

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2007918

ADMINISTRATIVE

CPT Codes:
84482

T3, TOTAL (SQ: TT3)

TT3

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

Gross hemolysis, contamination, or samples stored at room temperature for greater than 8 hours.

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum/plasma separated from cells within two hours of collection. (Min: 0.2 mL). Transport at ambient or 2-8 degrees C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	48 hours	3 months

Performed:

Sunday-Saturday

Reference Interval:

Age	Reference Interval (ng/mL)
1-23 months	1.17-2.39
2-12 years	1.05-2.07
13-20 years	0.86-1.92
>20 years	0.60-1.81

Methodology:

Chemiluminescent Immunoassay Centaur

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84480

Last Reviewed:

1/24/24

T3, UPTAKE (SQ:T3UTAA)

T3UAA

TESTING INFORMATION

Ordering Recommendations:
Not recommended for routine thyroid disorder screening; for initial screening, refer to Thyroid Stimulating Hormone (0070145).The preferred alternative to this test is Thyroxine, Free (Free T4) (0070138).

Collect:
Serum Separator Tube (SST). Also acceptable: Lavender (K2EDTA or K3EDTA), pink (K2EDTA), or green (lithium heparin).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Grossly hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation of cells: Ambient: 8 days; Refrigerated: 2 weeks; Frozen: 2 years

Performed:
Sun-Sat

Reference Interval:
0.8-1.3 TBI

Reported:
Within 24 hours

Methodology:
Quantitative Electrochemiluminescent Immunoassay (ECLIA)

Notes:
T uptake is of little clinical value alone; it is used to determine the free thyroxine index.

Interpretive Data:
Thyroxine, Free (Free T4) (0070138) is the preferred test alternative for T Uptake and Free Thyroxine Index tests.

Performing Lab:
ARUP

ARUP Test Code:
3005977

ADMINISTRATIVE

CPT Codes:
84479

Last Reviewed:
12/2/2023

T4 (THYROXINE), TOTAL (SQ: T4)

T4TL

TESTING INFORMATION

Patient Preparation:

Sulfasalzine and Sulfapyirdine can interfere with the chemistry analyzers used at the Methodist and Proctor Laboratories. Due to the assay use of NADH/NADPH, when patients are on these medications, the test can have either false elevation or depression of results. Patient's labs need to be drawn prior to administration of these medications.

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Green Top Tube	6.0 mL	4.0 mL
1 Red Top Tube	6.0 mL	4.0 mL

Specimen Preparation:

Complete clot formation should take place prior to centrifugation. Serum or plasma should be physically separated from cells as soon as possible or within two hours.

Unacceptable Conditions:

Specimens should be free of particulate matter.

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum or plasma at 2-8 degrees C. Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
7 days	7 days	30 days

Performed:

Sunday-Saturday

Reference Interval:

Age From	Age To	Males	Females
1 day	23 months	7.4-14.3	7.4-14.3
2 years	12 years	6.8-12.5	6.8-12.5
13 years	20 years	6.0-11.6	6.0-11.6
21 years	150 years	4.5-12.1	4.8-13.9

Methodology:

Chemiluminescent Immunoassay Vista

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84436

Last Reviewed:

1/24/24

T4, FREE (SQ: T4FRER)

FT4

TESTING INFORMATION

Patient Preparation:

The chance of interference is remote but can potentially alter resuts by 10%. If patient is on Biotin supplementation, be aware of any abnormal results and have patient discontinue supplementation prior to drawing labortory testing

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	0.5 mL serum/plasma
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	0.5 mL serum/plasma
1 Green (Lithium Heparin)Top Tube	6.0 mL	0.5 mL serum/plasma

Specimen Preparation:

Separate serum from cells immediately after collection and within two hours..

Unacceptable Conditions:

Specimens must be free of particulate matter.

Storage/Transport Temperature:

Ambient (room temperature) or 2-8 degrees C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
	14 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

Age From	Age To	Expected Values ng/dL
0 days	23 months	0.88-1.48
2 years	12 years	0.81-1.35
13 years	20 years	0.78-1.33
21 years	999 years	0.80-1.50

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84439

TACROLIMUS BY TANDEM MS (SQ:FK506A)

FK506

TESTING INFORMATION

Ordering Recommendations:
Use to optimize dosing and monitor patient adherence.

Patient Preparation:
Predose (trough) levels should be drawn.

Collect:
Lavender (EDTA) or pink (K2EDTA).

Specimen Preparation:
Transport 1 mL whole blood. (Min: 0.25 mL)

Unacceptable Conditions:
Serum or plasma. Specimens left at room temperature for longer than 24 hours. Clotted specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 2 weeks; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
Effective February 18, 2014

	Therapeutic Range:
Kidney transplant:	0-3 months post-transplant: 7.0-20.0 ng/mL 3 months and older: 5.0-15.0 ng/mL
Heart transplant:	0-3 months post-transplant: 10.0-20.0 ng/mL 3 months and older: 5.0-15.0 ng/mL
Liver transplant:	1-12 months post-transplant: 5-20 ng/mL
Toxic value:	Greater than 25 ng/mL

Reported:
1-2 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Tacrolimus (Prograf) whole blood concentrations can be measured by either chromatographic or immunoassay methodologies. These two methodologies are not directly interchangeable, and the measured tacrolimus whole blood concentration depends on the methodology used. Reference ranges may vary according to the specific immunoassay or HPLC-MS/MS test. Generally, immunoassays have been reported to have a positive bias relative to HPLC-MS/MS assays due to the detection of antibody cross-reactivity with tacrolimus metabolites.

Interpretive Data:
Therapeutic range is based on a whole blood specimen drawn 12 hours postdose or prior to next dose (the trough). The optimal therapeutic range for a given patient may differ from this suggested range based on the indication for therapy, treatment phase (initiation or maintenance), use in combination with other drugs, time of specimen collection relative to prior dose, type of transplanted organ, and/or the therapeutic approach of the transplant center.

Performing Lab:
ARUP

ARUP Test Code:
0090612

ADMINISTRATIVE

CPT Codes:
80197

Last Reviewed:
12/2/2023

TB TESTING BY QUANTIFERON-GOLD TB (SQ:QFT4)

QFT4

COLLECTION DEVICE

Preferred Collection Device:

QuantiFERON-TB Gold Plus (Standard) 4-Tube Collection Kit (ARUP Supply #54012) or QuantiFERON-TB Gold Plus (HIGH ALTITUDE) 4-Tube Collection Kit (ARUP Supply #54010)

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

QuantiFERON-TB Gold Plus (Standard) 4-Tube Collection Kit (ARUP Supply #54012) or QuantiFERON-TB Gold Plus (HIGH ALTITUDE) 4-Tube Collection Kit (ARUP Supply #54010)

Tubes need to remain ambient until after being incubated and spun

Ambient: up to 16 hours after collection before being placed in an incubator

Collection Tip: When the tube is upright, blood must meet the small black mark on the label for each tube. Remember, if you use a butterfly, you need to have a waste tube to get the air out of the butterfly tube to ensure proper fill.

Ordering Recommendations:

Aids in the detection of latent disease among persons at increased risk for tuberculosis (TB). Positive predictive value is decreased in low-risk populations. May be used in persons who have received the bacille Calmette-Guérin (BCG) vaccine.

Collect:

QuantiFERON-TB Gold Plus (Standard) 4-Tube Collection Kit (ARUP Supply #54012) or QuantiFERON-TB Gold Plus (HIGH ALTITUDE) 4-Tube Collection Kit (ARUP Supply #54010) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. Specimens may remain ambient for up to 16 hours after collection before being placed in an incubator. For collection and transport instructions refer to QuantiFERON under Special Handling at https://www.aruplab.com/testing/quantiferon#collection.

Specimen Preparation:

Transport plasma in the original containers. (Min: 0.8 mL per container)

Unacceptable Conditions:

Whole blood

Storage/Transport Temperature:

Transport storage temperature to Methodist Lab: Ambient
Transport storage temperature to referral Lab: Refrigerated
Specimens may remain ambient for up to 16 hours after collection before being placed in an incubator.

Stability (from collection to initiation):

Ambient: 2 hours; Refrigerated: 1 month; Frozen: Unacceptable

Performed:

Sun-Sat

Reference Interval:

Components	Reference Interval
QuantiFERON Mitogen minus NIL	No Reference Interval
QuantiFERON NIL	No Reference Interval
Quantiferon Plus TB1 minus NIL	0.34 IU/mL or less
Quantiferon Plus TB2 minus NIL	0.34 IU/mL or less

Reported:

1-4 days

Methodology:

Semi-Quantitative Chemiluminescent Immunoassay (CLIA)/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)

Interpretive Data:

Interferon gamma release is measured for specimens from each of the four collection tubes. A qualitative result (Negative, Positive, or Indeterminate) is based on interpretation of the four values: NIL, MITOGEN minus NIL (MITOGEN-NIL), TB1 minus NIL (TB1-NIL), and TB2 minus NIL (TB2-NIL). The NIL value represents nonspecific reactivity produced by the patient specimen. The MITOGEN-NIL value serves as the positive control for the patient specimen, demonstrating successful lymphocyte activity. The TB1-NIL tube specifically detects CD4+ lymphocyte reactivity, specifically stimulated by the TB1 antigens. The TB2-NIL tube detects both CD4+ and CD8+ lymphocyte reactivity, stimulated by TB2 antigens. An overall Negative result does not completely rule out TB infection.

A false-positive result in the absence of other clinical evidence of TB infection is not uncommon. Refer to: Updated Guidelines for Using Interferon Gamma Release Assays to Detect Mycobacterium tuberculosis Infection -- United States, 2010 (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5905a1.htm), for more information concerning test performance in low-prevalence populations and use in occupational screening.

Performing Lab:

ARUP Laboratories

ARUP Test Code:

3017562

Testing Region:

Carle West Region Laboratories

Components:

3017623	QuantiFERON Mitogen minus NIL	71774-4
3017624	QuantiFERON NIL	71776-9
3017625	Quantiferon Plus TB1 minus NIL	64084-7
3017626	Quantiferon Plus TB2 minus NIL	88517-8
3017627	Quantiferon TB Gold Plus	71773-6

ADMINISTRATIVE

CPT Codes:

86480

Last Reviewed:

12/2/2023

TESTOSTERONE (SQ: TESTTA)

TESTN

TESTING INFORMATION

Ordering Recommendations:

Patients less than 2 years of age should not be run on this assay.

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Specimen Preparation:

Remove serum from cells ASAP

Unacceptable Conditions:

Gross hemolysis

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum or plasma at room temperature or refrigerated (2-8 degrees C)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 hours	7 days	6 months

Performed:

Sunday-Saturday

Reference Interval:

Age (years)	ng/dL
Males	
2 - 10	<8 - 31
11	<8 - 321
12	<8 - 531
13	<8 - 609
14	23 - 652
15	126 - 792
16 - 17	116 - 779
18 -39	264 - 916
40 - 49	232 - 928
50 - 59	210 - 962
60 - 69	234 - 990
70 - 79	167 - 895
>/ = 80	No reference range established
Females	
2 - 10	<8 - 80
11 - 15	<8 - 49
16 - 21	20 - 56
Pre-menopausal	9 - 53
Post - menopausal	<8 - 48

Tanner Stage	ng/dl
Males	
Tanner Stage 1	<8 - 64
Tanner Stage 2	<8 - 166
Tanner Stage 3	<8 - 609
Tanner Stage 4	43 - 756
Tanner Stage 5	66 - 841
Females	
Tanner Stage 1	<8 - 79
Tanner Stage 2	<8 - 45
Tanner Stage 3	< 8 - 49
Tanner Stage 4	8 - 54
Tanner Stage 5	14 - 71

Methodology:
Chemiluminescent Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84403

TESTOSTERONE TOTAL, BIOAVAILABLE AND FREE (SQ:TESBIO)

TESBI

TESTING INFORMATION

Ordering Recommendations:

Provides a calculated value for bioavailable testosterone concentration using total testosterone measured by immunoassay. Use to evaluate hypogonadism in cisgender males with a total testosterone concentration at the lower limit of normal. May be used to evaluate testosterone status in individuals with protein-binding abnormalities or to monitor testosterone hormone therapies. Not recommended when low testosterone concentrations, such as those found in children and cisgender females, are expected. For these individuals, testing by mass spectrometry is recommended; refer to Testosterone, Bioavailable and Total, Includes Sex Hormone-Binding Globulin (Adult Females, Children, or Individuals on Testosterone-Suppressing Hormone Therapy) (0081057).To compare this test to other testosterone tests, refer to the ARUP Testosterone Tests Comparison table.

Patient Preparation:

Collect specimen between 6-10 a.m.

Collect:

Serum separator tube or green (lithium heparin).

Specimen Preparation:

Transfer 2 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.6 mL)

Unacceptable Conditions:

EDTA plasma.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 48 hours; Refrigerated: 1 week; Frozen: 2 months

Performed:

Sun-Sat

Reference Interval:

Components

Reference Interval

Testosterone, Free Calculation

Age	Male (pg/mL)
14-15 years	3-138
16-17 years	38-173
18 years and older	47-244
Tanner Stage IV	35-169
Tanner Stage V	41-239

Testosterone, Percentage Free

Age	Male (%)
18 years and older	1.6-2.9

Testosterone by Immunoassay

Age	Male (ng/dL)
14-15 years	33-585
16-17 years	185-886
18-39 years	300-1080
40-59 years	300-890
60 years and older	300-720
Tanner Stage IV	165-854
Tanner Stage V	194-783

Testosterone, Bioavailable

Age	Male (ng/dL)
14-15 years	10-337
16-17 years	35-509
18 years and older	131-682
Tanner Stage IV	40-485
Tanner Stage V	124-596

Sex Hormone Binding Globulin

Age	Male (nmol/L)	Female (nmol/L)
1-30 days	13-85	14-60
31-364 days	70-250	60-215
1-3 years	50-180	60-190
4-6 years	45-175	55-170
7-9 years	28-190	35-170
10-12 years	23-160	17-155
13-15 years	13-140	11-120
16-17 years	10-60	19-145
18-49 years	17-56	25-122
50 years and older	19-76	17-125
Tanner Stage I	26-186	30-173
Tanner Stage II	22-169	16-127
Tanner Stage III	13-104	12-98
Tanner Stage IV	11-60	14-151
Tanner Stage V	11-71	23-165

Reported:

Within 24 hours

Methodology:

Quantitative Electrochemiluminescent Immunoassay/Calculation

Notes:

Bioavailable testosterone includes free plus weakly bound (non-SHBG bound) testosterone. Bioavailable testosterone is an assessment of the biologically active testosterone in serum.

The concentrations of free and bioavailable testosterone are derived from mathematical expressions based on constants for the binding of testosterone to albumin and/or sex hormone binding globulin.

Interpretive Data:

Bioavailable testosterone concentration is calculated using total testosterone (measured by immunoassay) and the binding constant of testosterone and sex hormone-binding globulin (SHBG) and/or albumin. Testosterone immunoassays are both imprecise and inaccurate at low testosterone concentrations, such as those found in children and cisgender females. For these individuals, testing by mass spectrometry is recommended; refer to Testosterone, Bioavailable and Total, Includes Sex Hormone-Binding Globulin (Adult Females, Children, or Individuals on Testosterone-Suppressing Hormone Therapy) (ARUP test code 0081057).

For individuals on testosterone hormone therapy, refer to cisgender male reference intervals. No reference intervals have been established for males younger than 14 years or for cisgender females. For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0070102.

Performing Lab:

ARUP

ARUP Test Code:

0070102

ADMINISTRATIVE

CPT Codes:

84402; 84403; 84270

Last Reviewed:

12/2/2023

TESTOSTERONE(TOT,F+SHBG) (SQ: TESFTL)

TESFL

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

Gross hemolysis

Storage/Transport Temperature:

Separate serum or plasma from cells ASAP or within 2 hours of collection.1 mL serum (Min: 0.5 mL) at 2-8oC.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
4 hours	48 hours	1 month

Performed:

Daily

Reference Interval:

Total Testosterone

	Age (years)	ng/dL
Males	2-10	<8-31
	11	<8-321
	12	<8-531
	13	<8-609
	14	23-652
	15	126-792
	16-17	116-779
	18-39	264-916
	40-49	232-928
	50-59	210-962
	60-69	234-990
	70-79	167-895
	80 and above	No established range
Female	2-10	<8-80
	11-15	<8-49
	16-21	20-56
	Pre-menopausal	9-53
	Post-menopausal	<8-48

Total Testosterone, Tanner Stage(ng/dL)

Males	Tanner Stage 1	<8-64
	Tanner Stage 2	<8-166
	Tanner Stage 3	<8-609
	Tanner Stage 4	43-756
	Tanner Stage 5	66-847
Females	Tanner Stage 1	<8-79
	Tanner Stage 2	<8-45
	Tanner Stage 3	<8-49
	Tanner Stage 4	8-54
	Tanner Stage 5	14-71

Free Testosterone:

Adult Males Only	50.0-210.0 pg/mL	1.6-2.9%
Females	1.0-8.5 pg/mL	

Note: No reference range has been established for Free Testosterone for pediatric males and females.

Methodology:

Quantitative Electrochemiluminescent Immunoassay. The concentration of free testosterone is derived from a mathematical expression based on the constant for the binding of testosterone to sex hormone binding globulin.

Notes:

Please refer to individual components for stability of samplefor this test. For testing on children under the age of 2 refer toTestosterone, Free Total, (Includes Sex Hormone BindingGlobulin), Females and Children (0081056).

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

TESTOSTERONE, FREE (SQ: TESTOF)

TESTF

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Specimen Preparation:

Centrifuge specimen to separate serum from cells ASAP or within two hours of collection.

Unacceptable Conditions:

Gross hemolysis or contamination

Storage/Transport Temperature:

Transport 1.0 mL serum/plasma at 2-8 degrees C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	6 days	1 month

Performed:

Daily

Reference Interval:

Adult Males	50-210 pg/mL	1.6-2.9%
Adult Females	1.0-8.5 pg/mL	
Note: No reference range has been established for Free Testosterone on pediatric males and females.		

Methodology:

Chemiluminescent Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

Last Reviewed:

1/24/24

TESTOSTERONE, FREE, TOTAL (CHILDREN) (SQ:TESFA)

TFTF

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

Carle Health Methodist is available for performing the Female Portion - please see the following tests for more information.
TESTOF
TESFTL
TESTTA

Ordering Recommendations:

Provides a calculated value for free testosterone concentration using total testosterone measured by mass spectrometry. May be used to evaluate hyperandrogenism in children and cisgender females, monitor testosterone-suppressing hormone therapies (eg, antiandrogens or estrogens), evaluate testosterone status in individuals with protein-binding abnormalities, or evaluate hypogonadism in cisgender males.To compare this test to other testosterone tests, refer to the ARUP Testosterone Tests Comparison table.

Patient Preparation:

Collect between 6-10 a.m.

Collect:

Serum separator tube or green (sodium or lithium heparin).

Specimen Preparation:

Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.8 mL)

Unacceptable Conditions:

EDTA plasma.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months

Performed:

Sun-Sat

Reference Interval:

Components: Testosterone by Mass Spec

Age	Male (ng/dL)	Female (ng/dL)
Premature (26-28 weeks)	59-125	5-16
Premature (31-35 weeks)	37-198	5-22
Newborn	75-400	20-64
1-5 months	14-363	Less than 20
6-24 months	Less than 37	Less than 9
2-3 years	Less than 15	Less than 20
4-5 years	Less than 19	Less than 30
6-7 years	Less than 13	Less than 7
8-9 years	2-8	1-11
10-11 years	2-165	3-32
12-13 years	3-619	6-50
14-15 years	31-733	6-52
16-17 years	158-826	9-58
18-39 years	300-1080	9-55
40-59 years	300-890	9-55
60 years and older	300-720	5-32
Premenopausal (18 years and older)	Not Applicable	9-55
Postmenopausal	Not Applicable	5-32
Tanner Stage I	2-15	2-17
Tanner Stage II	3-303	5-40
Tanner Stage III	10-851	10-63
Tanner Stage IV-V	162-847	11-62

Testosterone, Free by Mass Spec

Age	Male (pg/mL)	Female (pg/mL)
1-6 years	Less than 0.6	Less than 0.6
7-9 years	0.1-0.9	0.6-1.8
10-11	0.1-6.3	0.1-3.5
12-13	0.5-98.0	0.9-6.8
14-15	3-138.0	1.2-7.5
16-17	38.0-173.0	1.2-9.9
18 years and older	47-244	Not Applicable
18-30	Not Applicable	0.8-7.4
31-40	Not Applicable	1.3-9.2
41-51	Not Applicable	1.1-5.8
Postmenopausal	Not Applicable	0.6-3.8
Tanner Stage I	Less than or equal to 3.7	Less than 2.2
Tanner Stage II	0.3-21	0.4-4.5
Tanner Stage III	1.0-98.0	1.3-7.5
Tanner Stage IV	35.0-169.0	1.1-15.5
Tanner Stage V	41.0-239.0	0.8-9.2

Sex Hormone Binding Globulin

Age	Male (nmol/L)	Female (nmol/L)
1-30 days	13-85	14-60
31-364 days	70-250	60-215
1-3 years	50-180	60-190
4-6 years	45-175	55-170
7-9 years	28-190	35-170
10-12 years	23-160	17-155
13-15 years	13-140	11-120
16-17 years	10-60	19-145
18-49 years	17-56	25-122
50 years and older	19-76	17-125
Tanner Stage I	26-186	30-173
Tanner Stage II	22-169	16-127
Tanner Stage III	13-104	12-98
Tanner Stage IV	11-60	14-151
Tanner Stage V	11-71	23-165

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry/Electrochemiluminescent Immunoassay/Calculation

Notes:
Please refer to individual components for stability of sample for this test.

The concentration of free testosterone is derived from a mathematical expression based on the constant for the binding of testosterone to sex hormone binding globulin.

Interpretive Data:
Free testosterone concentration is calculated using total testosterone (measured by mass spectrometry) and the binding constant of testosterone and sex hormone-binding globulin (SHBG).

For individuals on testosterone-suppressing hormone therapies (e.g., antiandrogens or estrogens), refer to cisgender female reference intervals. For a complete set of all established reference intervals, refer to ltd.aruplab.com/Tests/Pub/0081056.

Performing Lab:
ARUP

ARUP Test Code:
0081056

ADMINISTRATIVE

CPT Codes:
84402; 84403; 84270

TETANUS TOXOID IGG AB, S (SQ:TETABB)

TTIG

TESTING INFORMATION

Ordering Recommendations:
Evaluate the ability of a patient to produce antibody to pure protein vaccine after vaccination to rule out antibody deficiency.

Collect:
Serum separator tube. "Post" specimen should be drawn 30 days after immunization.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL) "Pre" and "post" vaccine specimens can be submitted separately or together for testing; if shipped separately, "post" specimen must be received within 60 days of "pre" specimen. Mark specimens clearly as "Pre-Vaccine" or "Post-Vaccine".

Unacceptable Conditions:
Plasma or other body fluids. Contaminated, hemolyzed, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Antibody concentration of > 0.1 IU/mL is usually considered protective.

Reported:
1-3 days

Methodology:
Quantitative Multiplex Bead Assay

Interpretive Data:
Responder status is determined according to the ratio of a one-month post-vaccination specimen to pre-vaccination concentration of tetanus IgG antibodies as follows:

1. If the post-vaccination concentration is less than 1.0 IU, the patient is considered a nonresponder.
2. If the post-vaccination concentration is greater than or equal to 1.0 IU, a patient with a ratio of less than 1.5 is a nonresponder, a ratio of 1.5 to less than 3.0, a weak responder, and a ratio of 3.0 or greater, a good responder.
3. If the pre-vaccination concentration is greater than 1.0, it may be difficult to assess the response based on a ratio alone. A post-vaccination concentration above 2.5 IU in this case is usually adequate.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0050535

ADMINISTRATIVE

CPT Codes:
86317

Last Reviewed:
12/2/2023

THEOPHYLLINE (SQ: THEO)

THEO

TESTING INFORMATION

Patient Preparation:
Draw 3-7 hours after morning dose or 2 hours after rapid-acting oral dose. Draw trough just before next dose.

Performed:
Sunday-Saturday

Methodology:
Particle Enhanced Turbidimetric Inhibition Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

THIAMIN (VITAMIN B1), WB (SQ:VB1AA)

B1VIT

TESTING INFORMATION

Ordering Recommendations:
Use for nutritional assessment of vitamin B1 (thiamine).

Collect:
Lavender (EDTA), or pink (K2EDTA).

NOTE: Only frozen whole blood samples are acceptable. Do not centrifuge.

Specimen Preparation:
Transfer 3 mL whole blood to an ARUP standard transport tube (Min: 0.6 mL) and freeze within 1 hour of collection.

Unacceptable Conditions:
Any specimen other than whole blood. Plasma separator tubes. Glass tubes. Clotted or nonfrozen specimens.

Stability (from collection to initiation):
Room Temperature: Unacceptable; Refrigerated: Unacceptable; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
70-180 nmol/L

Methodology:
Quantitative High Performance Liquid Chromatography (HPLC)/Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Whole blood is the preferred specimen for thiamine assessment. Approximately 80 percent of thiamine present in whole blood is found in red blood cells.

Interpretive Data:
This assay measures the concentration of thiamine diphosphate (TDP), the primary active form of vitamin B1. Approximately 90 percent of vitamin B1 present in whole blood is TDP. Thiamine and thiamine monophosphate, which comprise the remaining 10 percent, are not measured.

Performing Lab:
ARUP

ARUP Test Code:
0080388

ADMINISTRATIVE

CPT Codes:
84425

THIOPURINE METABOLITES (SQ: THIOPR)

THIOP

TESTING INFORMATION

Collect:

Specimen Type: Whole Blood
Specimen Collection Tube: EDTA/Lavendar Top Tube (5.0 mL - whole blood)

Unacceptable Conditions:

Frozen sample

Storage/Transport Temperature:

Transportation Kit Requirements: Refrigerated preferred, ship with cold pack.
Storage condiitons: Room temperature or refrigerated

Stability (from collection to initiation):

Room temperature 24 hours
Refrigerated: 8 days

Reported:

3 days once received at performing laboratory

Performing Lab:

Prometheus Laboratories

Testing Region:

Carle West Region

THIOPURINE METHYLTRANSFERASE, RBC (SQ:TMTFA)

TPMF

TESTING INFORMATION

Ordering Recommendations:
Use this phenotyping test to assess risk for severe myelosuppression with standard dosing of thiopurine drugs in individuals for whom thiopurine therapy is being considered. This test must be performed prior to the initiation of thiopurine therapy. For thiopurine dosing optimization, refer to Thiopurine Metabolites in Red Blood Cells (3016503). For pharmacogenetic testing (prior to or during treatment), refer to TPMT and NUDT15 (3001535).

Collect:
Lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Transport 5 mL whole blood. (Min: 3 mL)

Unacceptable Conditions:
Gel separator tubes. Specimens collected in sodium fluoride/potassium oxalate (gray). Hemolyzed, frozen, or room temperature specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 3 hours; Refrigerated: 6 days; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Normal TPMT activity: 24.0-44.0 U/mL - Individuals are predicted to be at low risk of bone marrow toxicity (myelosuppression) as a consequence of standard thiopurine therapy; no dose adjustment is recommended.

Intermediate TPMT activity: 17.0-23.9 U/mL - Individuals are predicted to be at intermediate risk of bone marrow toxicity (myelosuppression), as a consequence of standard thiopurine therapy; a dose reduction and therapeutic drug management is recommended.

Low TPMT activity: < 17.0 U/mL - Individuals are predicted to be at high risk of bone marrow toxicity (myelosuppression) as a consequence of standard thiopurine dosing. It is recommended to avoid the use of thiopurine drugs.

High TPMT activity: > 44.0 U/mL - Individuals are not predicted to be at risk for bone marrow toxicity (myelosuppression) as a consequence of standard thiopurine dosing, but may be at risk for therapeutic failure due to excessive inactivation of thiopurine drugs. Individuals may require higher than the normal standard dose. Therapeutic drug management is recommended.

Reported:
3-5 days

Methodology:
Enzymatic Assay/Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
This assay measures only enzyme activity.

Interpretive Data:
The TPMT, RBC assay is used as a screen to detect individuals with low and intermediate TPMT activity who may be at risk for myelosuppression when exposed to standard doses of thiopurines, including azathioprine (Imuran) and 6-mercaptopurine (Purinethol). TPMT is the primary metabolic route for inactivation of thiopurine drugs in the bone marrow. When TPMT activity is low, it is predicted that proportionately more 6-mercaptopurine can be converted into the cytotoxic 6-thioguanine nucleotides that accumulate in the bone marrow causing excessive toxicity. The activity of TPMT is measured by the nanomoles of 6-methylmercaptopurine (inactive metabolite) produced per 1 mL of packed red blood cells, (U/mL).

TPMT phenotype testing does not replace the need for clinical monitoring of patients treated with thiopurine drugs. Genotype for TPMT cannot be inferred from TPMT activity (phenotype). Phenotype testing should not be requested for patients currently treated with thiopurine drugs. Current TPMT phenotype may not reflect future TPMT phenotype, particularly in patients who received blood transfusion within 30-60 days of testing. TPMT enzyme activity can be inhibited by several drugs such as: naproxen (Aleve), ibuprofen (Advil, Motrin), ketoprofen (Orudis), furosemide (Lasix), sulfasalazine (Azulfidine), mesalamine (Asacol), olsalazine (Dipentum), mefenamic acid (Ponstel), thiazide diuretics, and benzoic acid inhibitors. TPMT inhibitors may contribute to falsely low results; patients should abstain from these drugs for at least 48 hours prior to TPMT testing. Falsely low results may also occur as a result of inappropriate specimen handling and hemolysis.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0092066

ADMINISTRATIVE

CPT Codes:
84433

THROAT CULTURE (SQ: VCTHR)

VCTHR

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Throat	eSwab	

Unacceptable Conditions:

Delayed transport to lab

Remarks:

For rapid strep screen testing only, see STRPA - Strep A Molecular Test

Storage/Transport Temperature:

Send eSwab at ambient temperature or refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 hours	48 hours	Unacceptable

Performed:

Sunday - Saturday

Methodology:

Standard reference procedures for culture and identification of Streptococcus pyogenes (Grp A)

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87081

Last Reviewed:

1/19/24

THROMBIN TIME (SQ:TTAA)

TTAA

TESTING INFORMATION

Ordering Recommendations:
Assist in diagnosing dysfibrinogenemia or abnormalities with fibrin polymerization.Screen samples for the presence of heparin or direct thrombin inhibitors.

Collect:
Light Blue (Sodium Citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 2 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Thrombin Time	14.7-19.5 seconds
Thrombin Time, 1:1 Mix	14.7-19.5 seconds

Reported:
1-2 days

Methodology:
Electromagnetic Mechanical Clot Detection

Notes:
If Thrombin Time is elevated, then Thrombin Time 1:1 mix will be added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
0030260

ADMINISTRATIVE

CPT Codes:
85670; if reflexed, add 85670

Last Reviewed:
12/1/2023

THYROGLOBULIN ANTIBODY (SQ: THYAB)

THYRP

TESTING INFORMATION

Collect:
1 mL serum or plasma from gold (SST), green, or redMinimum volume 0.5 mL.

Pediatric Collection:
0.5 ml serum or plasma

Unacceptable Conditions:
Hemolyzed Sample

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		48 hours		7 days

Performed:
Sunday-Saturday

Methodology:
Centaur Chemiluminescent Technology

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

THYROID PEROXIDASE ANTIBODY, IgG (SQ: THYMIC)

THYPP

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green (Lithium Heparin) Top Tube	6.0 mL	3.0 mL

Specimen Preparation:

Centrifuged serum or plasma before storage at 2-8° C.

Unacceptable Conditions:

Severe lipemia, hemolysis or contamination

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Methodology:

Chemiluminescent Technology

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

86376

Last Reviewed:

1/22/24

THYROID STIMULATING IMMUNOGLOB. (TSI), S (SQ: TSIA)

TSIM

TESTING INFORMATION

Ordering Recommendations:
Acceptable test secondary for autoimmune thyroid disease.

Collect:
Serum Separator Tube (SST), Green (Lithium Heparin), or Lavender (K EDTA).

Specimen Preparation:
Allow specimen to clot completely at room temperature. Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

0.54 IU/L or less	Consistent with healthy thyroid function or non-Graves thyroid or autoimmune disease. Those with healthy thyroid function typically have results less than 0.1 IU/L.
0.55 IU/L or greater	Consistent with Graves disease (autoimmune hyperthyroidism).

Reported:
Within 24 hours

Methodology:
Semi-Quantitative Chemiluminescent Immunoassay

Interpretive Data:
This assay specifically detects thyroid stimulating autoantibodies. For diagnostic purposes, the results obtained from this assay should be used in combination with clinical examination, patient medical history, and other findings.

Performing Lab:
ARUP

ARUP Test Code:
3002287

ADMINISTRATIVE

CPT Codes:
84445

Last Reviewed:
12/2/2023

THYROTROPIN RECEPT. AB, S (SQ: TSHRAB)

THYRO

TESTING INFORMATION

Ordering Recommendations:
Acceptable secondary test for autoimmune thyroid disease.

Collect:
Serum separator tube.

Specimen Preparation:
Allow serum separator to sit for 15-20 minutes at room temperature for proper clot formation. Centrifuge and separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Plasma. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Preferred transport temp: Frozen. Also acceptable: Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 6 days; Frozen: 12 months

Performed:
Sun-Sat

Reference Interval:
Less than or equal to 1.75 IU/L

Reported:
1-2 days

Methodology:
Quantitative Electrochemiluminescent Immunoassay (ECLIA)

Performing Lab:
ARUP

ARUP Test Code:
2002734

ADMINISTRATIVE

CPT Codes:
83520

Last Reviewed:
12/2/2023

THYROXINE BIND GLOB (SQ:TBGA)

TBGA

TESTING INFORMATION

Ordering Recommendations:
Not recommended for routine thyroid screening.

Collect:
Serum separator tube.

Specimen Preparation:
Transfer 0.5 mL serum to an ARUP Standard Transport Tube. (Min: 0.4 mL)

Unacceptable Conditions:
Plasma, tissue or urine. Grossly hemolyzed or lipemic specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Mon, Wed, Fri

Reference Interval:
13.0-30.0 µg/mL

Reported:
1-4 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0070410

ADMINISTRATIVE

CPT Codes:
84442

TICKBORNE DISEASE ANTIBODIES PANEL (SQ:TICKSA)

TICKS

TESTING INFORMATION

Ordering Recommendations:
Serum antibody panel for suspected common tickborne diseases: Lyme disease, anaplasmosis, ehrlichiosis, and babesiosis.

Collect:
Serum separator tube (SST) or plain red.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 3 mL serum to an ARUP standard transport tube. (Min: 1.6 mL)

Unacceptable Conditions:
CSF or plasma. Contaminated, heat-inactivated, hemolyzed, icteric, or severely lipemic specimens.

Storage/Transport Temperature:
Preferred transport temp: Refrigerated. Also acceptable: Frozen

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 10 days; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:

Components	Reference Interval
Ehrlichia chaffeensis Antibody, IgG	Less than 1:64
A. Phagocytophilum Antibody, IgG	Less than 1:80
Babesia microti IgG	Less than 1:16
B. burgdorferi VlsE1/pepC10 Abs, ELISA	0.90 IV or less

Reported:
1-5 days

Methodology:
Semi-Quantitative Indirect Fluorescent Antibody (IFA)/Semi-Quantitative Enzyme-Linked Immunosorbent Assay (ELISA)/Qualitative Immunoblot

Notes:
If VlsE1/pepC10 antibodies by ELISA is 0.91 IV or greater, then IgG and IgM by Immunoblot will be added. Additional charges apply.

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
3006367

ADMINISTRATIVE

CPT Codes:
86753; 86666 x2; 86618; if reflexed, add 86617 x2

Last Reviewed:
12/2/2023

TIMOTHY GRASS (PHLEUM PRETENSE) (SQ: TGRASS)

TIMG

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be consideredweakly positive or equivocal.Class 2 and higher should beconsidered positive.Although increasing class ranges (01-06)are reflective or increasing concentrations of allergen specificIgE, this may not correlate with the degree of clinical responsewhen challenged with the specific allergen.The correlationof allergy laboratory results with clinical history isessential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

TISSUE CULTURE (SQ: VCTISC)

VCTIS

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Tissue, biopsy.	sterile, Leak-proof container	

Unacceptable Conditions:

- Non-sterile or leaking container,
- dry specimen,
- formalinized specimen.

Remarks:

Use sterile nonbacteriostatic saline to prevent drying. Do not place tissue in eSwab container.

Storage/Transport Temperature:

Sterile container. Deliver to laboratory promptly at room temperature. If specimen is delayed beyond 2 hours, specimen should be refrigerated.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	24 hours	Not acceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedures for aerobic bacterial culture and identification.

Notes:

Identification and susceptibility tests are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87070

Last Reviewed:

1/19/24

TOBRAMYCIN PEAK (SQ: TOBP)

TOBP

TESTING INFORMATION

Patient Preparation:
Draw 30 minutes following completion of infusion or 60 minutes post IM dose. Separate serum/plasma from cells and refrigerate if prolonged transport. Specify time, route, and amount of dose. Patients on penicillin or its derivative should be frozen if not analyzed within 4 to 6 hours.

Collect:
Plain Red, or Green (lithium heparin) Vacutainer

Unacceptable Conditions:
Citrate or oxalate/fluoride anticoagulants

Performed:
Sunday-Saturday

Methodology:
Immunoassay (PETINIA)

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Gliadian IgA Gliadian IgG Tissue Transglutiminase IgA Tissue Transglutiminase IgG Egg White Fish Gluten Hazelnut Milk Peanut scallop sesame shrimp soybean walnut wheat

TOBRAMYCIN RANDOM (SQ: TOB)

TOBR

TESTING INFORMATION

Collect:
Serum or Plasma collected in Gold (SST) Plain Red, or Green (Lithium Heparin) Vacutainer Preferred Volume: 6.0mL, Miminum Volume Required 2.0mL

Specimen Preparation:
Patients on penicillin or its derivative should be frozen if not analyzed within 4 to 6.

Unacceptable Conditions:
Citrate or oxalate/fluoride anticoagulants

Remarks:
Patients on penicillin or its derivative should be frozen if not analyzed within 4 to 6.

Performed:
Sunday-Saturday

Methodology:
Immunoassay (PETINIA)

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

TOBRAMYCIN TROUGH (SQ: TOBT)

TOBT

TESTING INFORMATION

Collect:
Serum or Plasma collected in Gold (SST) Vacutainer. Plain Red, or Green (Lithium Heparin) VacutainerPreferred Volume: 6.0 mL, Minimun Volume Required 2.0mL

Unacceptable Conditions:
Citrate or oxalate/fluoride anticoagulants

Remarks:
Draw 30 minutes before next infusion or prior to dose. Separate serum/plasma from cells and refrigerate if prolonged transport. Patients on penicillin or its derivative should be frozen if notanalyzed within 4 to 6 hours.

Storage/Transport Temperature:
Surepath;Preservative Fluid with cells are stored at Refrigerated (2-8oC) Stability:temperatures 2-8o C.

Performed:
Sunday-Saturday

Methodology:
Immunoassay (PETINIA)

Interpretive Data:
This test detects high risk genotypes 16, 18, as well as other high risk genotypes (31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68) associated with cervical cancer.Results of this test should only be interpreted in conjunction with information available from clinical evaluation of the patient and patient history.A negative result does not preclude the presence of HPV infection because results depend on adequate specimen collection, absence of inhibitors and sufficient DNA to be detected.Infection with HPV is not an indicator of cytologic HSIL or underlying high-grade CIN, nor does it imply that CIN2-3 cancer will develop. HPV testing should not be used for screening or management of atypical squamous cells of undetermined significance (ASCUS) in women under age 21.The COBAS HPV test is not recommended for evaluation of suspected sexual abuse cases.Performance of this test has not been adequately established for HPV vaccinated individuals.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

TOPIRAMATE, S (SQ:TOPIRA)

TOPI

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (EDTA), pink (K_2EDTA), or green (sodium or lithium heparin).

Specimen Preparation:
Separate serum or plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Serum or plasma separator tubes. Grossly hemolyzed specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 6 days; Refrigerated: 1 week; Frozen: 4 weeks

Performed:
Sun-Sat

Reference Interval:
Effective November 18, 2013

Therapeutic range: 5.0-20.0 µg/mL
Toxic: Not well established

Reported:
Within 24 hours

Methodology:
Quantitative Enzyme Immunoassay

Interpretive Data:
Pharmacokinetics varies widely, particularly with co-medications, age, and/or compromised renal function. Adverse effects may include somnolence, fatigue, and dizziness.

Performing Lab:
ARUP

ARUP Test Code:
0070390

ADMINISTRATIVE

CPT Codes:
80201

Last Reviewed:
12/1/2023

TORC ANTIBODY IGG (SQ: TORIGG)

TORIG

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL
1 K2EDTA Lavender Tube	6.0 mL	4.0 mL

Pediatric Collection:
Collect Neonate microtainer: 0.5 mL serum

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed specimens

Storage/Transport Temperature:
2mL serum or plasma or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Reported:
2-3 days

Notes:
HSV has to be ordered separately.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Toxo-G
Rubella-G
CMV-G

ADMINISTRATIVE

Last Reviewed:
2/1/24

TORCH ANTIBODY IGM (SQ:TORCHM)

TRABM

TESTING INFORMATION

Performing Lab:
ARUP

ARUP Test Code:
0050665

ADMINISTRATIVE

Last Reviewed:
12/2/2023

TOXOPLASMA ANTIBODY IGG/IGM (SQ: TOXO)

TOXO

COLLECTION DEVICE

Preferred Collection Device:
GOLD (SST)

TESTING INFORMATION

Ordering Recommendations:
First-line test for identifying visceral T. gondii infection. CDC suggests equivocal or positive results should be retested using a different assay from another reference laboratory specializing in toxoplasmosis testing (IgG dye test, IgM ELISA reflex to avidity and/or other tests).

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Heparin Tube	6.0 mL	3.0 mL
1 K2EDTA Lavender Tube	6.0 mL	3.0 mL

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum/plasma from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1 mL serum or plasma refrigerated 2-8°C

Stability (from collection to initiation):

ONCE SEPARATED FROM CELLS		
Ambient	Refrigerated	Frozen
Unacceptable	7 days	Unacceptable

Performed:
Variable

Reference Interval:

	TOXO IgM	TOXO IgG
Negative	<= 0.8 AI	<= 9 IU/mL
Equivocal	0.9-1.0 AI	10-11 IU/mL
Positive	>= 1.1 AI	>= 12 IU/mL

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
86777 (IgG)
86778 (IgM)

Last Reviewed:
1/22/24

TOXOPLASMA GONDII, PCR (SQ:PTOXA)

PTOX

TESTING INFORMATION

Ordering Recommendations:
Confirm toxoplasmosis infection in immunocompromised hosts as well as fetuses and newborns. May be used to confirm equivocal antibody testing.

Collect:
Lavender (EDTA), pink (K2EDTA) or serum separator tube. OR Amniotic fluid, CSF, ocular fluid or tissue.

Specimen Preparation:
Separate serum or plasma from cells. Transfer 1 mL serum, plasma, amniotic fluid, CSF or ocular fluid to a sterile container. (Min: 0.5 mL) OR Tissue: Transfer to a sterile container and freeze immediately.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 months
All Others: Ambient: 8 hours; Refrigerated: 5 days; Frozen: 3 months

Performed:
Tue, Fri

Reported:
1-5 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0055591

ADMINISTRATIVE

CPT Codes:
87798

Last Reviewed:
12/2/2023

TPMT ENZYME (SQ: TPMTEN)

TPMTE

TESTING INFORMATION

Ordering Recommendations:

PROMETHEUS® TPMT Enzyme testing provides a quantitative analysis of a patient's thiopurine methyltransferase (TPMT) enzyme activity level. Because each patient metabolizes thiopurines differently, the efficacy and toxicity of thiopurines can vary widely from patient to patient. Knowledge of the TPMT enzyme phenotype may: reduce time to response, allow physicians to individualize dosing, identify patients in whom thiopurine therapy should be avoided and help reduce the risk of leukopenia.

Collect:

Specimen type: Whole Blood
Specimen Collection Tube: EDTA/Lavendar Top Tube (5.0 mL whole blood)

Unacceptable Conditions:

Frozen Samples

Storage/Transport Temperature:

Transportation Kit: Refrigerated perferred, ship with cold pack
Storage Conditions: Room temperature or refrigerated

Stability (from collection to initiation):

Room temperature: 24 hours
Refrigerated: 8 days

Performing Lab:

Prometheus Laboratories

Billing Aids:

Prior Authorization Request

ADMINISTRATIVE

CPT Codes:

82657
82542

Billing Aids:

Prior Authorization Request

Last Reviewed:

12/31/23

TPMT GENETICS (SQ: TPMTGE)

TPMTG

TESTING INFORMATION

Ordering Recommendations:

PROMETHEUS TPMT Genetics classifies patients as one of three genotypes: homozygous normal (wild type), heterozygous or homozygous mutant. Because each patient metabolizes thiopurines differently, the efficacy and toxicity of thiopurines can vary widely from patient to patient. Knowledge of the TPMT genotype may; reduce time to response, allow physicians to individualize dosing, identify patients in whom thiopurine therapy should be avoided and help reduce the risk of leukopenia. PROMETHEUS TPMT Genetics is performed only at Prometheus Laboratories Inc.

Collect:

Specimen type: Whole Blood
Specimen collection tube: EDTA/Lavendar-Top Tube (2.0 mL) whole blood

Unacceptable Conditions:

Frozen samples

Storage/Transport Temperature:

Transportation Kit Requirements: Ambient or cold pack acceptable
Storage Conditions: Room temperature or refrigerated

Stability (from collection to initiation):

Room temp: 10 days
Refrigerated: 30 days

Performing Lab:

Prometheus Laboratories

Testing Region:

Carle West Region

Billing Aids:

Prior Authorization Requst

ADMINISTRATIVE

CPT Codes:

81335

Billing Aids:

Prior Authorization Requst

TRANSFERRIN (SQ: TRANSF)

TRFN

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Unacceptable Conditions:

Severely lipemic, contaminated, or hemolyzed samples.

Storage/Transport Temperature:

1.5 mL serum or plasma (Min: 0.5 mL). Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
	7 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

Age	Reference Range mg/dL
0-8 weeks	97-229
9 weeks - 1 yr	101-339
1-18 years	225-354
>18 years	200-360

Reported:

1-3 days

Methodology:

Nephelometry

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84466

Last Reviewed:

1/22/24

TRANSFUSION REACTION (SQ: TRXN)

TNRXN

TESTING INFORMATION

Collect:
Specimen must be drawn by appropriate lab staff at performing campus, immediately after transfusion reaction called.Pekin Hospital: 1 Pink EDTA, 1 Gold, Urine

Unacceptable Conditions:
Frozen sample

Remarks:
Notify Blood Bank. Stop transfusion. Notify physician DAT is no longer required to be performed on the pre-transfusion sample unless the post transfusion sample is positive. If it is positive, add on PRC3 and PRDG to record the pre-transfusion sample results.

Storage/Transport Temperature:
10 mL aliquot

Performed:
Sunday-Saturday

Methodology:
Hemagglutination/Solid Phase

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2.23.24

TRICHOMONAS VAGINALIS NAA (SQ: TRICPC)

TRICP

TESTING INFORMATION

Patient Preparation:

Prior to urine specimen collection, the patient should not haveurinated for at least 1 hour and should NOT have cleansed thegenital area (female patient) or the tip of the penis (malepatient) Female Patients -a vaginal exam with Vaginalpathogens Profile (LAB2981), includes Candida species, Garderellavaginalis, Trichomonas Vagialis) If a vaginal exam is not possibleor the patient refuses, urine testing is an acceptable form oftesting for Trichomonas Vaginalis, ONLY.Urine testing cannot be ordered in conjunction with VaginalPathogens profile due to duplicate testing for Trichomonas

Collect:

Offsite Facilities: 8 mL first catch voided urine specimens. Using the Trichomonas PCR media (GeneXpert) collection kit, transfer urine into container via the included pipet. Transport device should be filled to the dotted line.

Please Note: Trichomonas PCR media (GeneXpert) tube looks similar to the Cobas CT/NG. Transport media is not interchangeable and will result in rejection if transferred in the wrong media.

Unacceptable Conditions:

Specimens not received in PCR Media or Non-Vacutainer Collection Containers. Specimens transferred into the incorrect media, received in a shared specimen container, volume less than 8mL, or received outside of the specimen stability timeframe.

Stability (from collection to initiation):

Specimen	Ambient	Refrigerated
Female and Male Urine No preservative	4 hours	4 days
Female and Male Urine in Xpert Urine Transport Reagent	14 days	28 days

Performed:

Sunday-Saturday 1st and 2nd shift only

Methodology:

PCR

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

TRIGLYCERIDES (SQ: TRIG)

TRIG3

TESTING INFORMATION

Patient Preparation:

According to the American Association for Clinical Chemistry, caffeine should not be consumed prior to laboratory work, as it may affect results of certain analytes. General Requirements for Fasting include the following: Blood should be drawn as close as possible to the times of 7am and 9am Fasting should last 12 hours with only water during this time. Medication as allowed by the ordering physician. Avoid alcohol for 24 hours prior to lab work. Patients should avoid nicotine products the morning of fasting blood work.

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Remarks:

Venipuncture should occur prior to N-acetyl cysteine or metamizole (Sulpyrine) administration due to the potential for falsely depressed results. In the presence of etamsylate at 2 mg/dL, falsely depressedresutls .10% for triglycerides may be observed.

Storage/Transport Temperature:

Centrifuged gold or 1mL serum or plasma at 2-8 degrees C. (Min: 0.5 mL) Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
	7 days	3 months

Performed:

Sunday-Saturday

Reference Interval:

Normal Fasting	20-150 mg/dL
Borderline High Fasting	150-199 mg/dL
High Fasting	200-499 mg/dL
Very High	>=500 mg/dL

Methodology:

Enzymatic

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84478

TRIGLYCERIDES, BODY FLUID (SQ: FTRIG)

TRGBF

TESTING INFORMATION

Collect:
Pleural or Peritoneal Fluid

Unacceptable Conditions:
Gross Hemolysis or samples to viscous to be aspirated by instrument

Storage/Transport Temperature:
Room Temperature, Minimum volume = 1 mL

Reference Interval:
A reference interval has not been established for this test on the supplied specimen type. This test was developed using enzymatic methodology developed by Siemens and its performance characteristics determined by UnityPoint Health Methodist. It has not been clared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes.

Methodology:
Enzymatic

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84478

TROPONIN, HIGH SENSITIVITY (SQ: TNIH)

TNIHS

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Location	Specimen Type	Requested Volume	Minimum Volume
Methodist	• 1 - Lithium heparin (no gel) tube • or 1 - Lithium heparin mint green (gel) tube	6.0 mL	0.5 mL
Pekin	1 Lithium Heparin (Mint Green)	6.0 mL	0.5 mL
Proctor:	1 Lithium Heparin (Mint Green) Seperate tube for individual test for Proctor Hospital (as of 3/12/24)	0.5 mL	

Specimen Preparation:

Separate plasma from cells ASAP or within 2 hours of collection

Unacceptable Conditions:

- Samples that contain sodium azide
- serum
- Hemolysis

Stability (from collection to initiation):

	ONCE SEPERATED FROM CELLS		
	Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
Methodist & Pekin	8 hours	24 hours	40 days

Performing Lab:

Methodist Hospital
Pekin Hospital
Proctor Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84484

Last Reviewed:

3/20/24

TRYPTASE, S (SQ:TRYPAA)

TRYPT

TESTING INFORMATION

Ordering Recommendations:
Measure total tryptase to confirm mast cell activation in diseases such as mastocytosis, anaphylaxis, urticaria, and asthma. Not generally used acutely except where diagnosis is unclear. Useful in prognosis of systemic mastocytosis.

Collect:
Serum separator tube.

Specimen Preparation:
Allow serum to clot completely at room temperature. Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 72 hours; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
Less than 11.0 µg/L

Reported:
1-2 days

Methodology:
Quantitative Fluorescent Enzyme Immunoassay

Notes:
This test measures total tryptase and does not distinguish between the alpha and beta protein types. Samples should preferably be collected between 15 minutes and three hours after the event suspected to have caused mast cell activation.

Performing Lab:
ARUP

ARUP Test Code:
0099173

ADMINISTRATIVE

CPT Codes:
83520

Last Reviewed:
12/2/2023

TSH (SQ: TSH3G)

TSH

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Remarks:

The chance of interference is remote but can potentially alter results by 10%. If patient is on Biotin supplementation, be aware of any abnormal results and have patient discontinuesupplementation prior to drawing laboratory testing.

Storage/Transport Temperature:

Centrifuged gold or 1 mL serum at 2-8 degrees C . (Min: 0.3 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Methodist: 8 hours Proctor: 24 hours	7 days	Methodist: 6 months Proctor: 1 month

Performed:

Sunday-Saturday

Reference Interval:

Age	uIU/mL
0-5 days	0.700-15.200
6-60days	0.700-11.000
3-11 months	0.700-8.400
1-5years	0.700-6.000
6-10 years	0.600-4.800
11-17 years	0.500-4.300
18-999 years	0358-3.740

Methodology:

Chemiluminescent Immunoassay Vista

Interpretive Data:

An abnormal TSH result should be followed with a Free T4 test,this TSH is a third generation, high sensitivity test that may beabnormal earlier than changes in Free T4, especially inpre-clinical hyperthyroidism.

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84443

Type and Screen (SQ: TYSCGV)

*TS

TESTING INFORMATION

Collect:
One Pink Tope (Min: 6mL) with BBID Sticker attached to the tube Blood Bank ID band required.

Pediatric Collection:
Two lavendar Microtainers acceptable with BBID Sticker attached to the tube Blood Bank ID band required.

Unacceptable Conditions:

- Do no Freeze
- Missing Blood Bank ID Band

Remarks:
New specimen required every 3 days if patient pregnant/transfused in past 3 months.

Storage/Transport Temperature:
Whole blood, pink; Ambient/Room Temperature

Stability (from collection to initiation):
Ambient (room temperature) 24 hours
Refrigerated: 72 hours
Frozen: not acceptable

Performed:
Daily

Reference Interval:
Negative; Panel identification performed on all positive samples

Methodology:
Hemagglutination

Notes:
Type and Screen specimen can be drawn 7 days prior to transfusion UNLESS: Patient has been pregnant or transfused with blood or blood component(s) containing red cells within the preceeding three months, or if transfusion history is unknown/uncertain. In these cases the specimen must be drawn 3 days prior to transfusion.

Performing Lab:
Methodist, Proctor and Pekin Labs

ADMINISTRATIVE

CPT Codes:
86900 ABO
86901 RH Tyoe
86850 Antibody Screen

Last Reviewed:
12/2/23

U1RNP (SQ: RNPA)

RNPP

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL

Specimen Preparation:
Separate serum from cells as soon as possible, or within two hours of collection.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top tube, refrigerated at 2-8°C

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

UA MICROSCOPIC (SQ: UMICRO)

UMCRO

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

UREA NITROGEN, RANDOM URINE (SQ: UUREA)

RUNU

TESTING INFORMATION

Collect:
Collect a random urine sample in a clean container with secure lid. Sample must be Refrigerated (2-8 degrees C) during collection.

Unacceptable Conditions:
Urine collected in acid and samples at 20-25 degrees C. Urine containing fecal matter.

Performed:
Monday - Saturdau

Methodology:
Spectrophotometric

Performing Lab:
Methodist and Pekin Hospital

Testing Region:
Carle West region

UREA NITROGEN, URINE (24HR) (SQ: UUN24)

UNU24

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

UREAPLASMA AND MYCOPLASMA SPECIES PCR (SQ:UMPCRA)

URRMP

TESTING INFORMATION

Ordering Recommendations:
Use to detect and speciate Ureaplasma parvum, U. urealyticum, Mycoplasma hominis, and M. genitalium. May be considered for cases of nongonococcal urethritis.

Collect:
Genital swab, rectal swab, or urine. Also acceptable: upper respiratory swabs, bronchoalveolar lavage, sputum, and tracheal aspirates.

Specimen Preparation:
Transfer genital swab, rectal swab, respiratory swab, or 1 mL urine to viral transport media (ARUP supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.
BAL, sputum, or tracheal aspirate: Transfer 1 mL to an empty sterile container. (Min: 0.5 mL)

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 10 days; Frozen: 14 days

Performed:
Mon - Fri

Reported:
2-5 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Notes:
This test detects and speciates Ureaplasma parvum, Ureaplasma urealyticum, Mycoplasma hominis, and Mycoplasma genitalium.

Interpretive Data:
A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection by this test.

Performing Lab:
ARUP

ARUP Test Code:
2011172

ADMINISTRATIVE

CPT Codes:
87798 x3; 87563

Last Reviewed:
12/1/2023

URIC ACID (SQ: URIC)

URA

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Specimen Preparation:

Venipuncture should occur prior to Metamizole (Sulpyrine) administration due to the potential for falsely depressed results

Storage/Transport Temperature:

Centrifuged gold top or 1 mL plasma (green, heparin) or serum, at 2-8 degrees C. (Min: 0.2 mL) Separate serum or plasma from cells ASAP or within 2 hours of collection.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	5 days	6 months

Reference Interval:

Age	Female (mg/dL)	Male (mg/dL)
0-14 days	2.2-11.0	2.2-11.0
15 d - 1 year	1.2-5.4	1.2-5.4
1-11 years	1.4-4.1	1.4-4.1
12-18 years	2.1-5.0	2.1-6.5
>18 years	2.6-6.0	3.5-7.2

Reported:

Sunday-Saturday

Methodology:

Spectrophotometric Vista

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

84550

URIC ACID, RANDOM URINE (SQ: UURC)

RUAU

TESTING INFORMATION

Collect:
Random urine in clean, dry container with secure lid.

Unacceptable Conditions:
Urine Containing fecal matter

Storage/Transport Temperature:
Random urine promptly at ambient or refrigerated transport at 2-8°C.

Performed:
Sunday-Saturday

Reference Interval:
Reference intervals have not been established for this specimen type.

Methodology:
Spectrophotometric

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
84560

URIC ACID, URINE (24 HR) (SQ: UURC24)

UAU24

TESTING INFORMATION

Collect:
Collect the 24 hour urine in a clean container with secure lid. Sample must be collected at an alkaline pH and Refrigerated (2-8 degrees C) Stability:during collection. For 24-hour collection, add 10 mL of 5% NaOH to container prior to collection.

Unacceptable Conditions:
Samples with pH less than 8.0, frozen samples, urine collected in acid. Urine containing fecal matter.

Performed:
Sunday-Saturday

Methodology:
Spectophotometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

URINALYSIS MACRO AUTO (SQ: UMACRO)

UMARO

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

URINALYSIS WITH MICROSCOPIC (SQ: UA)

UAMIC

TESTING INFORMATION

Collect:

First morning voided specimen collected in a BD non-additive (pale yellow top) vacutainer tube from BD Vacutainer Urine Collection Kit. Exceptions: Behavioral Health and pedi-bags;Non-Vacutainer specimens accepted with priority label within 2 hours

Specimen Type	Collection Container	Volume
Random Urine	Urine Vacutainer	8 ml
Random Urine	Urine cup	8 ml

Unacceptable Conditions:

- Non-Vacutainer collections containers
- Improperly or mislabeled specimens,
- Insufficient volume;
- Improperly stored specimens (frozen or over 1 hour at room temperature),
- Contaminated (preservatives or fecal),
- Inappropriate container (glass, medication bottles)
- storage exceeded
- Frozen sample
- Leaking containers
- Samples not meeting timed requirements
- contaminated with Iris Lamina regent

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
1 hour	24 hours	NA

Performed:

Sunday-Saturday

Methodology:

Dip Stick Biochemical &Microscopic Elements

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West Region

Components:

- Glucose
- Protein
- bilirubin
- urobilinogen
- pH
- blood
- ketones
- specifc gravity
- nitrites

Microscopic Evaluation:

- WBC
- Blood
- Epithelials
- Casts
- Bacteria

URINALYSIS WITH REFLEX MICROSCOPIC (SQ: UMACRS)

UAMCR

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
random urine	urine vacutainer no preservative	
random urine	urine specimen container	

Pediatric Collection:

pedi bag

Unacceptable Conditions:

- Mislabel/unlabeled specimens
- Insufficient volume
- Improper storage
- Stability exceeded
- Frozen
- specimen in preservatives
- centrifuged specimens
- Fecal contamination
- Specimens in glass jar/pill botles
- leaking containers
- sample not meeting timed requirements
- contaminated iwth Iris Lamina Reagent

Storage/Transport Temperature:

8 mL aliquote from a well-mixed random collection - refrigerated

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
1 hour	24 hours	NA

Performed:

Sunday-Saturday

Methodology:

Dip Stick

Notes:

Reflex to Microscopic if positve for:

- Blood
- Leuk Est
- Nitrite
- Protein >trace
- high Specific Gravity over <1.028

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West Region

Components:

- Glucose
- Protein
- Bilirubin
- Urobilinogen
- pH
- Blood
- Ketones
- Nitrites
- Specific Gravity

ADMINISTRATIVE

CPT Codes:
81003

Last Reviewed:
2/21/24

URINE CLINITEK 10 (POC) (SQ: YPOCUA)

CTK10

TESTING INFORMATION

Methodology:
Capillary

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

URINE CULTURE (SQ: VCURC)

VCURC

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Midstream urine, catheter or suprapubic urines,	Gray Boric Acid C &S urine preservative tube	

Specimen Preparation:

Indicate if specimen was collected by invasive method, source of Specimen required.

Unacceptable Conditions:

- Urine transported in any container other than a boric acid preservative tube.
- Multiple specimens (more than one in 24 hours),
- 24-hour or pooled specimen.

Remarks:

Small volume urines are acceptable in a sterile, non-leaking container

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Sterile container: 2 hours Boric Acid Tube; 48 hours	Sterile Container: 24 hours Boric Acid: 48 hours	

Performed:

Sunday-Saturday

Methodology:

Standard reference procedures for bacterial culture and identification.

Notes:

Identification and susceptibility tests are billed separately from culture.

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87086

Last Reviewed:

1/19/24

URINE EOS (SQ: UREO)

UEOS

TESTING INFORMATION

Collect:
Random urine

Unacceptable Conditions:
Contaminated with Fecal Matter;24 hrs old, Contains Preservatives;Improper Storage, not properly labeled

Storage/Transport Temperature:
10 mL aliquot from a well-mixed random collection;transport at 2-8oC. (Min: 5 mL)

Performed:
Sunday-Saturday

Methodology:
Wright Stained Slide Microscopy

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87025

URINE GLUCOSE (SQ: UGLU)

OUGLU

TESTING INFORMATION

Collect:
First morning voided specimen most desirable.

Storage/Transport Temperature:
2-10 mL urine.

Methodology:
Photometric

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
81003

URINE MICROSCOPIC ONLY (SQ: UMICON)

UMICO

TESTING INFORMATION

Collect:
Random Urine. First morning voided specimen collected in a BD non-additive (pale yellow top) vacutainer tube from BD Vacutainer Urine Collection Kit. Exceptons: Behavioral Health and pedi-bags: Non-Vacutainer Specimens accepted with priority label within 2 hours.

Unacceptable Conditions:
Non -Vacutainer collection containers

Storage/Transport Temperature:
8 mL aliquot from a well-mixed random collection at 2-8oC. If testing for trichomonas transport immediately at room temperature.

Performed:
Sunday-Saturday

Methodology:
Bright light microscopy

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
81015

URINE PH (SQ: UPH)

OUPH

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

URINE REFLEX, MICROSCOPIC (SQ: UMICRS)

UMCRS

TESTING INFORMATION

Storage/Transport Temperature:
If specimen cannot be received into the laboratory within 20 minutes, place the sample on ice and transport whole blood.

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

VAGINITIS MOLECULAR PANEL

AVAGMO

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

This test can be performed with GeneXpert Swabs collected by a clinician or self-collected by the patient in a clinical setting. Testing is only acceptable for vaginally collected specimens.

Ordering Recommendations:

Less than 18 years, testing has not been validated and results should be correlated with clinical symptoms.

Collect:

Collection notes:

1. Only use the Cepheid Xpert Swab Collection Kit
2. Any other swab (Eswab, etc) is not acceptable and will be rejected and require recollection.
3. Do not package together with Pap smear.
4. Both clinician-collect and patient self collect in a clinical setting are acceptable.
5. Testing is only accepted for Vaginally collected specimens.

Collection Procedure (Clinic Collected Vaginal Swab Specimen):

1. Open the Cepheid Xpert Swab Collection Kit. There will be two packages inside
2. Open the internal kit that contains the pink capped tube and smaller swab for collection.
3. Set the pink capped tube aside before beginning to collect the sample.
4. Discard the package with the LARGE swab into regular trash.
5. Open the collection swab wrapper by peeling open the top of the wrapper.
6. Remove the swab, taking care not to touch the tip or lay it down. If the soft tip is touched, the swab is laid down, or swab is dropped, use a new collection kit.
7. Hold the swab in your hand, placing the thumb and forefinger in the middle of the swab shaft, across the score line
8. Carefully insert the swab into the vagina about 5cm (two inches) inside the opening of the vagina.
9. Gently rotate swab for 10-30 seconds. Ensure the swab touches the walls of the vagina so the moisture is absorbed by the swab.
10. Withdraw the swab and continue to hold in your hand.
11. While holding the swab, unscrew the cap from the pink Xpert Swab Transport Reagent tube. Do not spill the contents of the tube. If the contents of the tube are spilled, use a new collection kit. Immediately place swab into the transport tube.
12. Identify the scoreline of the collection swab shaft, carefully break the swab shaft against the side of the tube at the scoreline. If needed, gently rotate the swab shaft to complete the breakage. Discard the top portion of the swab shaft.
13. Re-cap the swab transport reagent tube and tighten the cap securely, ensuring the threading is aligned correctly.
14. Invert or gently shake the tube 3-4 times to elute material from the swab. AVOID FOAMING.
15. Label the transport tube with sample identification information, including the patients legal first and last name, Date of Birth, and date and time of collection, as required.
16. Send specimen to the laboratory as soon as possible.

Storage/Transport Temperature:

Transport at room temperature.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
42 days		42 days		Unacceptable

Reference Interval:

Bacterial Vaginosis (BV): Negative
Candida group: NOT DETECTED
Candida glab-krus: NOT DETECTED
Trichoman vaginalis (TV): NOT DETECTED

Methodology:

The XPert Xpress MVP test is a new, FDA cleared ,on-demand PCR test to aid in the diagnosis of vaginal infections in symptomatic women. This test introduces a BV flora specific algorithm for identification of:

1. Bacterial vaginosis
2. Candida species (Candida group and Candida glabrata/krusei)
3. Trichomonas vaginalis

Performing Lab:

Carle Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:
0352U

VALPROIC ACID (SQ: VALP)

VALPR

TESTING INFORMATION

Collect:

Gold (SST),Red,or Green (LithiumHeparin)top tube. Preferred volume: 6mLMinimum required volume: 0.5 mL serum/plasmaSeparate serum or plasma from cells ASAP or within 2 hours of collection.

Specimen Preparation:

Trough: Draw before next dose. Separate serum from cells

Storage/Transport Temperature:

1 mL serum or plasma at Ambient (room temperature) orrefrigeratedtemperature. (Min: 0.5 mL)

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
2 hours		8 hours		2 months

Performed:

Sunday-Saturday

Methodology:

Immunoassay (PETINIA)

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

VANCOMYCIN PEAK (SQ: VANCP)

VANP

TESTING INFORMATION

Collect:
Gold (SST), Red,Green (Lithium Heparin) top tube. Preferred volume: 6mL Minimum required volume: 0.5mL serum/plasma Separate serum or plasma from cells ASAP or within 2 hours of collection.

Specimen Preparation:
Draw 1 hour (60 minutes) following completion of infusion. If Gold (SST) Gel tube is used for collection, serum must be analyzed within 24 hours or removed from gel tube for storage

Performed:
Sunday-Saturday

Methodology:
Immunoassay (PETINIA)

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

VANCOMYCIN RANDOM (SQ: VANCO)

VANR

TESTING INFORMATION

Collect:
Gold, Red, or Green top tube. Preferred volume: 6mL Minimum required volume: 0.5mL serum/plasma. Separate serum or plasma from cells ASAP or within 2 hours of collection.

Unacceptable Conditions:
SST or gel tubes.

Remarks:
If Gold SST Gel tube is used for collection, serum must be analyzed within 24 hours or removed from gel tube for storage.

Storage/Transport Temperature:
Entire collection or 5 mL aliquot from a well-mixed random collection at 2-8øC.

Performed:
Sunday-Saturday

Methodology:
Immunoassay (PETINIA)

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West region

VANCOMYCIN TROUGH (SQ: VANCT)

VANT

TESTING INFORMATION

Patient Preparation:

Draw just prior to dose or up to 60 minutes before next infusion

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	0.5 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	0.5 mL
1 Green Top Tube	6.0 mL	0.5 mL

Specimen Preparation:

Separate serum or plasma from cells ASAP or within 2 hours of collection.

Remarks:

Draw just prior to dose or up to 60 minutes before next infusion. If Gold SST Gel Tube is used for collection, serum must be analyzed within 24 hours or removed from gel tube for storage.

Storage/Transport Temperature:

0.5 mL plasma/serum, Refrigerated

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
Methodist - 4 hours Proctor and Pekin - 8 hours	Methodist - 1 day Proctor & Pekin - 48 hours	1 week

Performed:

Sunday-Saturday

Reference Interval:

	Methodist	Pekin	Proctor
Therapeutic	10-20 ug/mL*	10-20 ug/mL*	5- 10 ug/mL*
Critical	30 ug/mL		

*ug/mL report as mcg/mL in LIS and EPIC

Methodology:

Immunoassay (PETINIA)

Performing Lab:

Methodist, Proctor and Pekin Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

80202

Last Reviewed:

12/2/23

VARICELLA(VZV) IGG AB (SQ: VZVGAB)

VZG

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Purple Top Tube	4.0 mL	2.0 mL
1 Green Top Tube	6.0 mL	4.0 mL

Pediatric Collection:

Minimum Volume: 0.5 mL serum or plasma

Specimen Preparation:

Remove serum or plasma from cells ASAP

Unacceptable Conditions:

Hemolyzed Sample

Storage/Transport Temperature:

1 ml Serum/Plasma (min. 0.5 mL)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
8 hours	7 days	6 months

Performed:

Variable

Reference Interval:

Antibody Index (AI)	Status	Interpretation
Less than 0.9 AI	Negative	No IgG antibodies specific to VZV detected. Patient is presumed not to have had a previous exposure to VZV through infection or vaccination.
0.9-1.0 AI	Equivocal	Obtain additional sample for retesting.
Greater than 1.0 AI	Positive	IgG antibodies to VZV detected. This may indicate the patient was exposed to VZV through infection or vaccination.

Methodology:

Multiplex Flow Immunoassay

Performing Lab:

Methodist Hospital

Testing Region:

Carle West region

ADMINISTRATIVE

CPT Codes:

86787

VARICELLA-ZOSTER AB, IGM, S (SQ:VZIGMA)

VZABM

TESTING INFORMATION

Ordering Recommendations:
Panel that combines varicella-zoster virus IgG and IgM antibodies is preferred (0050162).

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.1 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon-Fri

Reference Interval:
0.90 ISR or less: Negative - No significant level of detectable varicella-zoster virus IgM antibody.
0.91-1.09 ISR: Equivocal - Repeat testing in 10-14 days may be helpful.
1.10 ISR or greater: Positive - Significant level of detectable varicella-zoster virus IgM antibody. Indicative of current or recent infection. However, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization.

Reported:
1-5 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Performing Lab:
ARUP

ARUP Test Code:
0099314

ADMINISTRATIVE

CPT Codes:
86787

VARICELLA-ZOSTER VIRUS PCR (SQ:VZPCRA)

LCVZV

TESTING INFORMATION

Ordering Recommendations:
Detect varicella-zoster virus in blood, CSF, ocular fluid, tissue, or vesicle fluid.

Collect:
Lavender (EDTA), pink (K_2EDTA) or serum separator tube. OR CSF, ocular fluid, tissue or vesicle fluid.

Specimen Preparation:
Transfer 1 mL serum, plasma, CSF or ocular fluid to a sterile container. (Min: 0.5 mL)
Tissue: Transfer to a sterile container and freeze immediately.
Vesicle Fluid: Transfer to viral transport media (ARUP supply #12884). Available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at (800) 522-2787.

Unacceptable Conditions:
Heparinized specimens, tissues in optimal cutting temperature compound.

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Tissue: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 3 months
All others: Ambient: 24 hours; Refrigerated: 5 days; Frozen: 3 months

Performed:
Sun-Sat

Reported:
1-3 days

Methodology:
Qualitative Polymerase Chain Reaction

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0060042

ADMINISTRATIVE

CPT Codes:
87798

Last Reviewed:
12/1/2023

VASCULAR ENDOTHELIAL GROWTH FACTOR (SQ: VEGFA)

VEGFA

TESTING INFORMATION

Collect:
Lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate plasma from cells ASAP or within 2 hours of collection. Transfer 1 mL plasma to an ARUP Standard Transport Tube. (Min: 0.3 mL)

Unacceptable Conditions:
Hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Additional specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: 4 hours; Refrigerated: 6 hours; Frozen: 6 months

Performed:
Tue

Reference Interval:
9-86 pg/mL

Reported:
1-8 days

Methodology:
Quantitative Chemiluminescent Immunoassay

Interpretive Data:
This assay is performed using the QuantiGlo® Chemiluminescent EIA kit. Values obtained with different assay methods or kits cannot be used interchangeably.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0092660

ADMINISTRATIVE

CPT Codes:
83520

Last Reviewed:
12/2/2023

VASCULITIS PANEL (SQ: VASPAN)

VASPA

TESTING INFORMATION

Collect:
One 6 ml gold top or plain red. Separate serum from cellsASAP.

Pediatric Collection:
0.5 mL serum

Specimen Preparation:
Separate serum or plasma from cells ASAP.

Unacceptable Conditions:
Hemolyzed Sample

Storage/Transport Temperature:
1mL serum or centrifuged gold top, refrigerated at 2-8 degrees C.

Stability (from collection to initiation):

Ambient		Refrigerated		Frozen
8 hours		7 days		1 month

Performed:
Variable

Methodology:
Multiplex Flow Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

VASOACTIVE INTESTINAL POLYPEPTIDE (VIP), P (SQ:VIPPA)

VIPP

TESTING INFORMATION

Special Notes for Testing Performed at other Labs:

Testing available until June 30th. The single source kit manufacturer has informed us they cannot resolve an issue with the kit they supply. No referral available.

Performing Lab:

ARUP

VDRL CONFIRMATORY (SQ:TPALTA)

TPLTA

TESTING INFORMATION

Performing Lab:

IN HOUSE M/P/P

VDRL, CSF (SQ:TPCSFA)

VDSF

TESTING INFORMATION

Ordering Recommendations:
Preferred diagnostic assay for CSF specimens in suspected neurosyphilis.

Collect:
CSF.

Specimen Preparation:
Transfer 0.5 mL CSF to an ARUP standard transport tube. (Min: 0.4 mL)

Unacceptable Conditions:
Other body fluids. Contaminated, hemolyzed, xanthochromic, or severely lipemic specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun-Sat

Reference Interval:
Nonreactive

Reported:
1-4 days

Methodology:
Semi-Quantitative Flocculation

Notes:
If VDRL is weakly reactive or reactive, then a titer will be added. Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
0050206

ADMINISTRATIVE

CPT Codes:
86592; if reflexed, add 86593

VEDOLIZUMAB QUANTITATION WITH ANTIBODIES, SERUM (SQ:VEDOZA)

VEDOZ

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate response failure to vedolizumab therapy. Use to adjust dosage.

Patient Preparation:
12 hours prior to specimen collection discontinue multivitamins or dietary supplements containing biotin (vitamin B7), commonly found in hair, skin, and nail supplements. Nivolumab (Opdivo) must be discontinued at least 4 weeks prior to testing.

Collect:
Plain red. Also acceptable: Serum separator tube (SST). Collect immediately before next scheduled dose (trough specimen).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1.5 mL serum to an ARUP standard transport tube. (Min: 0.75 mL)
Test is not performed at ARUP; separate specimens must be submitted when multiple tests are ordered.

Storage/Transport Temperature:
Refrigerated. Also acceptable: Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 28 days; Frozen: 28 days

Performed:
Varies

Reference Interval:
By Report

Reported:
8-14 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry /Electrochemiluminescent Immunoassay (ECLIA)

Performing Lab:
ARUP

ARUP Test Code:
3003676

ADMINISTRATIVE

CPT Codes:
80280; 82397

Last Reviewed:
12/1/2023

VENOUS BLOOD GAS, POCT (SQ: VBGQ)

PVBGQ

TESTING INFORMATION

Performing Lab:
IN HOUSE M/P/P

Testing Region:
Carle West region

VENOUS BLOOD GAS, POCT (SQ: VVBG)

PVBG

COLLECTION DEVICE

Preferred Collection Device:
Lithium Heparin non-gel Green Top

TESTING INFORMATION

Collect:
Collect sample one of the following:

- **Heparinized Syringe**
- **Lithium heparin green top non-gel tube.**

Specimen Preparation:
Syringe collection: Remove needle according to safety guidelines and cap immediately
Lithium Heparin Green Top (non-gel) tube: send whole blood. Do not remove top or centrifuge sample.
Minimum volume: 65 uL

Stability (from collection to initiation):
Capped Syringe: Stable 30 minutes at Room Temperature.

Performed:
Daily

Reference Interval:

Test	Reference Range	Critical Values	Units
pH	7.31-7.41	< 7.2 and > 7.6	
pCO2	41-51	<20 and >70	mmHg
pO2	30-40		mmHg
HCO3	23-29	<10 or > 50	mmol/L
BE	-3 to +3	Not applicable	

Methodology:
Indirect Potentiometric, amperometry

Performing Lab:
Methodist, Pekin, Proctor

Testing Region:
Carle West region

Components:
pH
pCO2
pO2
HCO3
BE

ADMINISTRATIVE

Last Reviewed:
2/1/24

VIRAL CULTURE, NON-RESPIRATORY (SQ: VCNRA)

VCNR

TESTING INFORMATION

Ordering Recommendations:

Use to detect the following viruses that can be isolated by culture: adenovirus, cytomegalovirus, enteroviruses, herpes simplex virus (HSV) types 1 and 2, and varicella zoster virus (VZV). This is not a preferred standalone test; virus-specific testing (eg, antigen detection or molecular testing) should be performed in conjunction with culture. This test cannot be used for the clinical identification of orthopoxviruses, including monkeypox virus. Refer to aruplab.com/monkeypox-virus-testing for more information.

Collect:

Eye swab, lesion, stool, tissue (brain, colon, kidney, liver, etc.), or urine.

Specimen Preparation:

Fluid: Transfer 3 mL specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.
Stool: Transfer 1 mL stool to an unpreserved stool transport vial (ARUP supply #40910) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787. (Min: 0.5 mL)
Swab or Tissue: Place in 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.

Unacceptable Conditions:

Calcium alginate, eSwab, dry, or wood swabs.

Remarks:

Specimen source preferred.

Storage/Transport Temperature:

Refrigerated.

Stability (from collection to initiation):

Ambient: 2 hours; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:

Sun-Sat

Reference Interval:

Negative.

Reported:

3-14 days

Methodology:

Cell Culture

Notes:

Identification is billed separately from culture. Viruses that can be isolated by culture include adenovirus, cytomegalovirus, enterovirus, herpes simplex virus, and varicella-zoster virus. However, virus-specific tests are recommended and are listed below.

The following test is standard-of-care for diagnosing adenovirus infection in tissue specimens:
Adenovirus by Qualitative PCR (ARUP test code 2007473)

The following tests are standard-of-care for diagnosing viral infection in CSF specimens:
Cytomegalovirus by Qualitative PCR (ARUP test code 0060040)
Enterovirus by PCR (ARUP test code 0050249)
Epstein-Barr Virus by Qualitative PCR (ARUP test code 0050246)
Herpes Simplex Virus (HSV-1/HSV-2) Subtype by PCR (ARUP test code 2010095)
Varicella-Zoster Virus by PCR (ARUP test code 0060042)

The following tests are recommended for detecting a specific virus in specimens other than CSF. If a specific virus is suspected, please indicate the virus on the test request.

Cytomegalovirus. Refer to Cytomegalovirus Rapid Culture (ARUP test code 0065004)
Human metapneumovirus (hMPV). hMPV can be detected by DFA staining or nucleic acid testing. Refer to Human Metapneumovirus by DFA (ARUP test code 0060779) and Respiratory Viruses DFA (ARUP test code 0060289), or Human Metapneumovirus by PCR (ARUP test code 0060784)
Mumps virus. Refer to Mumps Virus by PCR (ARUP test code 3000523).
Respiratory syncytial virus (RSV). Refer to Respiratory Syncytial Virus DFA (ARUP test code 0060288)
Respiratory viruses. Refer to Respiratory Viruses DFA (ARUP test code 0060289); Viral Culture, Respiratory (ARUP test code 2006499); or Respiratory Viruses DFA with Reflex to Viral Culture, Respiratory (ARUP test code 0060281)
Varicella-zoster virus. Refer to Varicella-Zoster Virus DFA with Reflex to Varicella-Zoster Virus Culture (ARUP test code 0060282)
Enteric adenovirus 40-41 and rotavirus in stool. Refer to Gastrointestinal Pathogens Panel by PCR (ARUP test code 3003279)

Performing Lab:
ARUP

ARUP Test Code:
2006498

ADMINISTRATIVE

CPT Codes:
87252; if definitive identification required, add 87253

Last Reviewed:
12/2/2023

VIRAL RESP CULT (LAB ONLY) (SQ:VCRA)

VCRA

TESTING INFORMATION

Ordering Recommendations:
Use to detect the following viruses that can be isolated by culture: adenovirus; cytomegalovirus; enteroviruses; herpes simplex virus (HSV) types 1 and 2; influenza A and B; parainfluenza types 1, 2, and 3; respiratory syncytial virus (RSV); and varicella zoster virus (VZV). Molecular testing methods may be more sensitive than this test. For faster turnaround time, consider Respiratory Viruses Rapid Culture (2001504).

Collect:
Bronchoalveolar lavage (BAL), nasopharyngeal aspirate, swab, or washing, or tracheal aspirate, sputum, throat, tissue (lung, etc.).

Specimen Preparation:
Fluid: Transfer 3 mL specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.
Swab or Tissue: Place in 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.

Unacceptable Conditions:
Calcium alginate, eSwab, dry, or wood swabs.

Remarks:
Specimen source preferred.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Negative.

Reported:
3-14 days

Methodology:
Cell Culture

Notes:
Identification is billed separately from culture. Viruses that can be isolated by culture include adenovirus; cytomegalovirus; enterovirus; herpes simplex virus; influenza A and B; parainfluenza types 1, 2, 3; RSV; and varicella-zoster virus. However, virus-specific tests are recommended and are listed below.

The following test is standard-of-care for diagnosing Adenovirus infection in tissue specimens:
Adenovirus by Qualitative PCR (ARUP test code 2007473)

The following tests are recommended for detecting a specific virus in specimens other than CSF. If a specific virus is suspected, please indicate the virus on the test request.

Cytomegalovirus. Refer to Cytomegalovirus Rapid Culture (ARUP test code 0065004)
Human metapneumovirus (hMPV). hMPV can be detected by DFA staining or nucleic acid testing. Refer to Human Metapneumovirus by DFA (ARUP test code 0060779) and Respiratory Viruses DFA (ARUP test code 0060289), or Human Metapneumovirus by PCR (ARUP test code 0060784)
Mumps virus. Refer to Mumps Virus by PCR (ARUP test code 3000523).
Respiratory syncytial virus (RSV). Refer to Respiratory Syncytial Virus DFA (ARUP test code 0060288)
Varicella-zoster virus. Refer to Varicella-Zoster Virus DFA with Reflex to Varicella-Zoster Virus Culture (ARUP test code 0060282)

Interpretive Data:
Refer to report.

Performing Lab:
ARUP

ARUP Test Code:
2006499

ADMINISTRATIVE

CPT Codes:
87252; if definitive identification performed, add 87253

VIRAL RESP CULT (SQ: VCRAS)

VCRAS

TESTING INFORMATION

Ordering Recommendations:
Use to detect the following viruses that can be isolated by culture: adenovirus; cytomegalovirus; enteroviruses; herpes simplex virus (HSV) types 1 and 2; influenza A and B; parainfluenza types 1, 2, and 3; respiratory syncytial virus (RSV); and varicella zoster virus (VZV). Molecular testing methods may be more sensitive than this test. For faster turnaround time, consider Respiratory Viruses Rapid Culture (2001504).

Collect:
Bronchoalveolar lavage (BAL), nasopharyngeal aspirate, swab, or washing, or tracheal aspirate, sputum, throat, tissue (lung, etc.).

Specimen Preparation:
Fluid: Transfer 3 mL specimen to a sterile container. (Min: 0.5 mL) Also acceptable: Transfer to 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.
Swab or Tissue: Place in 3 mL viral transport media (ARUP Supply #12884) available online through eSupply using ARUP Connect(TM) or contact ARUP Client Services at 800-522-2787.

Unacceptable Conditions:
Calcium alginate, eSwab, dry, or wood swabs.

Remarks:
Specimen source preferred.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: 2 hours; Refrigerated: 72 hours; Frozen: Unacceptable

Performed:
Sun-Sat

Reference Interval:
Negative.

Reported:
3-14 days

Methodology:
Cell Culture

Notes:
Identification is billed separately from culture. Viruses that can be isolated by culture include adenovirus; cytomegalovirus; enterovirus; herpes simplex virus; influenza A and B; parainfluenza types 1, 2, 3; RSV; and varicella-zoster virus. However, virus-specific tests are recommended and are listed below.

The following test is standard-of-care for diagnosing Adenovirus infection in tissue specimens:
Adenovirus by Qualitative PCR (ARUP test code 2007473)

The following tests are recommended for detecting a specific virus in specimens other than CSF. If a specific virus is suspected, please indicate the virus on the test request.

Cytomegalovirus. Refer to Cytomegalovirus Rapid Culture (ARUP test code 0065004)
Human metapneumovirus (hMPV). hMPV can be detected by DFA staining or nucleic acid testing. Refer to Human Metapneumovirus by DFA (ARUP test code 0060779) and Respiratory Viruses DFA (ARUP test code 0060289), or Human Metapneumovirus by PCR (ARUP test code 0060784)
Mumps virus. Refer to Mumps Virus by PCR (ARUP test code 3000523).
Respiratory syncytial virus (RSV). Refer to Respiratory Syncytial Virus DFA (ARUP test code 0060288)
Varicella-zoster virus. Refer to Varicella-Zoster Virus DFA with Reflex to Varicella-Zoster Virus Culture (ARUP test code 0060282)

Interpretive Data:
Refer to report.

Performing Lab:
ARUP Laboratories

ARUP Test Code:
2006499

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
87252; if definitive identification performed, add 87253

Last Reviewed:
12/4/23

VISCOSITY, S (SQ:VISCMA)

VISCS

TESTING INFORMATION

Ordering Recommendations:
Use to evaluate hyperviscosity syndrome associated with disorders such as polycythemia, macroglobulinemia, multiple myeloma, and leukemia.

Collect:
Serum separator or plain red tube.

Specimen Preparation:
Transfer 1 mL serum to an ARUP standard transport tube. (Min: 0.5 mL)

Unacceptable Conditions:
Clotted specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 7 days; Frozen: 1 month

Performed:
Sun, Tue, Thu, Fri

Reference Interval:

Components	Reference Interval
Viscosity, Serum	<1.51 cP

Reported:
1-4 days

Methodology:
Quantitative Viscometry

Interpretive Data:
Increased viscosity is associated with disorders such as monoclonal gammopathy, macroglobulinemia, and multiple myeloma. Significantly elevated viscosity (>3.0 cP) is associated with clinical symptoms of hyperviscosity syndrome.

Performing Lab:
ARUP

ARUP Test Code:
0020056

ADMINISTRATIVE

CPT Codes:
85810

Last Reviewed:
12/2/2023

VITAMIN A, S (SQ:VITAA)

VITMA

TESTING INFORMATION

Ordering Recommendations:
Use for nutritional assessment of vitamin A (retinol and retinyl palmitate) in serum or plasma.

Patient Preparation:
Patient should fast for 12 hours and abstain from alcohol for 24 hours prior to collection.

Collect:
Green (sodium or lithium heparin), plasma separator tube, or serum separator tube. Also acceptable: Lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate serum or plasma within 1 hour of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube immediately. (Min: 0.2 mL) Avoid hemolysis.

Unacceptable Conditions:
Whole blood or body fluids other than serum or plasma.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 3 hours; Refrigerated: 1 month; Frozen: 1 year

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval	
Vitamin A (Retinol)	**Age**	**Reference Interval**
	0-1 month	0.18-0.50 mg/L
	2 months-12 years	0.20-0.50 mg/L
	13-17 years	0.26-0.70 mg/L
	18 years and older	0.30-1.20 mg/L
Vitamin A (Retinyl Palmitate)	0-150 years: 0-0.10 mg/L	

Reported:
1-4 days

Methodology:
Quantitative High Performance Liquid Chromatography (HPLC)

Notes:
Serum retinol is typically maintained until hepatic stores are almost depleted. Values greater than 0.30 mg/L represent adequate liver stores, whereas values less than 0.10 mg/L indicate deficiency. Samples that come in contact with plastic tubing or have been exposed to excessive light may show low results.

Vitamin A toxicity occurs when retinol concentration exceeds the capacity of retinol binding protein (RBP). Individuals with compromised renal function can retain RBP and may, therefore, have moderate retinol elevations. Drugs which interfere with vitamin A analysis include probucol (Lorelco).

This assay does not measure other vitamin A metabolites such as retinaldehyde and retinoic acid.

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0080525

ADMINISTRATIVE

CPT Codes:
84590

Last Reviewed:
12/2/2023

VITAMIN B12 (SQ: VITB12)

B12

TESTING INFORMATION

Ordering Recommendations:
not eligible for ADD-ON testing

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	1.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	1.0 mL	3.0 mL
1 Green Top Tube	1.0 mL	3.0 mL

Specimen Preparation:
PROTECT FROM LIGHT
Avoid hemolysis.

Unacceptable Conditions:

- Hemolyzed samples.
- Samples stored at room temperature for 8 hours or more

Remarks:
Protect from light. Avoid hemolysis.

Storage/Transport Temperature:
1 mL serum refrigerated. (Min: 0.5 mL)

Stability (from collection to initiation):

PROTECT FROM LIGHT		
Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
8 hours	48 hours	3 months

Performed:
Sunday-Saturday

Reference Interval:
211-911 pg/ml

Methodology:
Chemiluminescent Immunoassay

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
82607

Last Reviewed:
12/2/23

VITAMIN B3 (NIACIN AND METABOLITES) S/P (SQ:VITB3A)

VB3NM

TESTING INFORMATION

Collect:
Plain red, lavender (EDTA), or pink (K2EDTA).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP standard transport tube. (Min: 0.4 mL)
Test is not performed at ARUP; separate specimens must be submitted when multiple tests are ordered.

Unacceptable Conditions:
Separator tubes.

Storage/Transport Temperature:
Frozen. Also acceptable: Refrigerated.

Stability (from collection to initiation):
Ambient: 24 hours; Refrigerated: 1 week; Frozen: 1 month

Performed:
Varies

Reported:
3-9 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Performing Lab:
ARUP

ARUP Test Code:
3016752

ADMINISTRATIVE

CPT Codes:
84591

Last Reviewed:
12/1/2023

VITAMIN B6 PROFILE (PLP AND PA), P (SQ:VITB6A)

B6P5P

TESTING INFORMATION

Ordering Recommendations:
Use for nutritional assessment of vitamin B6.

Patient Preparation:
Collect specimen after an overnight fast.

Collect:
Green (Sodium or Lithium Heparin), Lavender (EDTA), Pink (K2 EDTA), Plasma Separator Tube (PST), Serum Separator Tube (SST), or Plain Red.

Specimen Preparation:
Separate plasma or serum from cells, protect from light and transfer 1 mL plasma or serum to an ARUP Amber Transport Tube within 1 hour of collection. (Min: 0.5 mL) Separate light-protected specimens must be submitted when multiple tests are ordered.

Unacceptable Conditions:
Whole blood. Specimens not protected from light. Icteric specimens.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
After separation from cells: Ambient: 3 Hours; Refrigerated: 1 week; Frozen: 2 months

Performed:
Sun-Sat

Reference Interval:
20-125 nmol/L

Reported:
1-5 days

Methodology:
Quantitative Liquid Chromatography-Tandem Mass Spectrometry

Notes:
This test measures pyridoxal 5-phosphate, the biologically active form of vitamin B6.

Interpretive Data:
Pyridoxal 5'-phosphate measured in a specimen collected following an 8 hour or overnight fast accurately indicates vitamin B_6 nutritional status. Non-fasting specimen concentration reflects recent vitamin intake.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0080111

ADMINISTRATIVE

CPT Codes:
84207

Last Reviewed:
12/2/2023

VITAMIN C (SQ:VITCA)

VITCA

TESTING INFORMATION

Ordering Recommendations:
Use for nutritional assessment of vitamin C.

Collect:
Green (sodium or lithium heparin). Place specimen in ice bath immediately. Also acceptable: Plasma separator tube.

Specimen Preparation:
Protect from light, centrifuge, transfer plasma, and freeze within 1 hour of collection. Transfer 0.5 mL plasma to an ARUP amber transport tube. (Min: 0.3 mL)

Unacceptable Conditions:
EDTA plasma, whole blood, or body fluids. Grossly hemolyzed specimens.

Remarks:
Thawing and refreezing of the specimen and exposure to light will result in decreased vitamin C concentration.

Storage/Transport Temperature:
CRITICAL FROZEN AND LIGHT PROTECTED. Separate specimens must be submitted when multiple tests are ordered

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 1 month

Performed:
Sun-Sat

Reference Interval:
23-114 µmol/L

Reported:
1-6 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Fasting specimen preferred. Thawing and refreezing of the specimen and exposure to light will result in decreased vitamin C concentration.

Interpretive Data:
Vitamin C concentrations lower than 11 umol/L indicate deficiency. Concentrations between 11 and 23 umol/L are consistent with a moderate risk of deficiency due to inadequate tissue stores.

Vitamin C concentration is reported as micromoles per liter (umol/L). To convert concentration to milligrams per deciliter (mg/dL), multiply the result by 0.0176.

Performing Lab:
ARUP

ARUP Test Code:
0080380

ADMINISTRATIVE

CPT Codes:
82180

Last Reviewed:
12/2/2023

VITAMIN D (25-OH D2, D3) (SQ:VD25A)

VD25A

TESTING INFORMATION

Ordering Recommendations:
May be useful for individuals with vitamin D insufficiency/deficiency who are not responding to supplementation. Not the test of choice for initial evaluation of vitamin D insufficiency; Vitamin D, 25-hydroxy (0080379) is preferred.

Collect:
Plain red or serum separator tube. Also acceptable: Green (sodium heparin), lavender (EDTA), or pink (K_2EDTA).

Specimen Preparation:
Transfer 0.5 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.15 mL)

Unacceptable Conditions:
Room temperature specimens older than 24 hours.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 24 hours; Refrigerated: 1 week; Frozen: 6 months

Performed:
Sun-Sat

Reference Interval:
Effective May 16, 2011

1-17 years	
Deficiency	Less than 20 ng/mL
Optimum level	Greater than or equal to 20 ng/mL*
***(Wagner CL et al. Pediatrics 2008; 122: 1142-52.)**	

18 years and older	
Deficiency	Less than 20 ng/mL
Insufficiency	20-29 ng/mL
Optimum Level	30-80 ng/mL
Possible Toxicity	Greater than 150 ng/mL
(Holick MF et al. JCEM 2011; 96:1911-30)	

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
ARUP is unable to provide reliable results for specimens from infants (less than one year of age), since highly specialized test methodology is required. ARUP will refer all infant specimens to a laboratory that is able to perform this methodology.
U.S. Patent No. 8,349,613

Interpretive Data:
Total Concentrations of 25-hydroxyvitamin D2 and 25-hydroxyvitamin D3:
Deficiency: Less than 20 ng/mL
Insufficiency: 20-29 ng/mL
Optimal Level: 30-80 ng/mL
Possible Toxicity: Greater than 150 ng/mL

Separate values for Vitamin D2 and D3 are reported in addition to the total.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
2002348

ADMINISTRATIVE

CPT Codes:
82306

VITAMIN D, 25-HYDROXY (SQ: 25VITD)

VD25

TESTING INFORMATION

Collect:
0.50 mL Gold, Red Tubes

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Serum Separator Tube (Gold)	6.0 mL	3.0 mL
STAT:			

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	3.0 mL
1 Green Top Tube	6.0 mL	3.0 mL

Unacceptable Conditions:

- Hemolyzed Sample
- Stored at Room Temperature more than 24 hours

Storage/Transport Temperature:

- Ambient.
- If more than 24 hours upon receipt Transport refrigerated

Stability (from collection to initiation):

Ambient (room temperature)	Refrigerated (2-8°C)	Frozen (-20 ° C)
24 hours	7 days	3 months

Performed:
Sunday-Saturday

Methodology:
Chemiluminescence

Performing Lab:
Methodist Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
82306

Last Reviewed:
3/27/24

VITAMIN E, S (SQ:VITEA)

VITME

TESTING INFORMATION

Ordering Recommendations:
Use for nutritional assessment of vitamin E (alpha- and gamma-tocopherols).

Patient Preparation:
Patient should fast for 12 hours and abstain from alcohol for 24 hours prior to collection.

Collect:
Green (sodium or lithium heparin) or serum separator tube. Also acceptable: Lavender (EDTA) or pink (K_2EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 1 hour of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.2 mL) Avoid hemolysis.

Unacceptable Conditions:
Whole blood or body fluids other than serum or plasma.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 month; Frozen at -20°C: 1 year

Performed:
Sun-Sat

Reference Interval:

Components	Reference Interval
Vitamin E (Alpha-Tocopherol)	**Age** / **Reference Interval** 0-1 month: 1.0-3.5 mg/L 2-5 months: 2.0-6.0 mg/L 6 months-1 year: 3.5-8.0 mg/L 2-12 years: 5.5-9.0 mg/L 13 years and older: 5.5-18.0 mg/L
Vitamin E (Gamma-Tocopherol)	0-6.0 mg/L

Reported:
1-4 days

Methodology:
Quantitative High Performance Liquid Chromatography (HPLC)

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0080521

ADMINISTRATIVE

CPT Codes:
84446

VITAMIN K1, S (SQ:VITK1A)

VITK

TESTING INFORMATION

Ordering Recommendations:
Use for nutritional assessment of vitamin K1.

Patient Preparation:
Patient should fast overnight for 12 hours and should not consume alcohol for 24 hours prior to blood draw.

Collect:
Plain red or serum separator tube. Also acceptable: Lavender (EDTA) or pink (K2EDTA).

Specimen Preparation:
Protect from light during collection, storage, and shipment. Separate serum or plasma from cells within 1 hour of collection. Transfer 1 mL serum or plasma to an ARUP Amber Transport Tube. (Min: 0.6 mL)

Unacceptable Conditions:
Any specimen other than serum or EDTA plasma. Hemolyzed specimens.

Storage/Transport Temperature:
Frozen. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
After separation from cells: Ambient: Unacceptable; Refrigerated: 1 month; Frozen: 6 months

Performed:
Sun-Fri

Reference Interval:
0.22-4.88 nmol/L

Reported:
2-5 days

Methodology:
Quantitative High Performance Liquid Chromatography (HPLC)

Interpretive Data:
Vitamin K concentration is reported as nanomoles per liter (nmol/L). To convert concentration to nanograms per milliliter (ng/mL), multiply the result by 0.45.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0099225

ADMINISTRATIVE

CPT Codes:
84597

VMA 24 HR UR (SQ:VMAUR)

VMAUR

TESTING INFORMATION

Ordering Recommendations:
Initial test for the diagnosis and monitoring of neuroblastoma. Should be ordered concurrently with Homovanillic Acid (HVA), Urine (0080422).

Patient Preparation:
Abstain from medications for 72 hours prior to collection.

Collect:
24-hour or random urine. Refrigerate 24-hour specimens during collection.

Specimen Preparation:
Transfer 4 mL aliquot from a well-mixed 24-hour or random collection to an ARUP Standard Transport Tube. (Min: 1 mL) Record total volume and collection time interval on transport tube and test request form.

Unacceptable Conditions:
Specimen types other than urine.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 1 week; Frozen: 2 weeks

Performed:
Sun, Tue, Wed, Thu, Fri, Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Creatinine, Urine - per 24h</td><td>
<table>
<tr><th>Age</th><th>Male (mg/d)</th><th>Female (mg/d)</th></tr>
<tr><td>3-8 years</td><td>140-700</td><td>140-700</td></tr>
<tr><td>9-12 years</td><td>300-1300</td><td>300-1300</td></tr>
<tr><td>13-17 years</td><td>500-2300</td><td>400-1600</td></tr>
<tr><td>18-50 years</td><td>1000-2500</td><td>700-1600</td></tr>
<tr><td>51-80 years</td><td>800-2100</td><td>500-1400</td></tr>
<tr><td>81 years and older</td><td>600-2000</td><td>400-1300</td></tr>
</table>
</td></tr>
<tr><td>Vanillylmandelic Acid - per 24h</td><td>18 years and older: 0.0-7.0 mg/d</td></tr>
<tr><td>Vanillylmandelic Acid - ratio to CRT</td><td>
<table>
<tr><th>Age</th><th>mg/g CRT</th></tr>
<tr><td>0-2 years</td><td>0-27</td></tr>
<tr><td>3-5 years</td><td>0-13</td></tr>
<tr><td>6-17 years</td><td>0-9</td></tr>
<tr><td>18 years and older</td><td>0-6</td></tr>
</table>
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</table>

Reported:
1-5 days

Methodology:
Quantitative High Performance Liquid Chromatography-Tandem Mass Spectrometry

Notes:
Moderately elevated VMA (vanillylmandelic acid) can be caused by a variety of factors such as essential hypertension, intense anxiety, intense physical exercise, and numerous drug interactions (including some over-the-counter medications and herbal products).

Medications that may interfere with catecholamines and their metabolites include amphetamines and amphetamine-like compounds, appetite suppressants, bromocriptine, buspirone, caffeine, chlorpromazine, clonidine, disulfiram, diuretics (in doses sufficient to deplete sodium), epinephrine, glucagon, guanethidine, histamine, hydrazine derivatives, imipramine, levodopa (L-dopa, Sinemet®), lithium, MAO inhibitors, melatonin, methyldopa (Aldomet®), morphine, nitroglycerin, nose drops, propafenone (Rythmol), radiographic agents, rauwolfia alkaloids (Reserpine), tricyclic antidepressants, and vasodilators. The effects of some drugs on catecholamine metabolite results may not be predictable.

Interpretive Data:

Vanillylmandelic acid (VMA) results are expressed as a ratio to creatinine excretion (mg/g CRT). No reference interval is available for results reported in units of mg/L. Slight or moderate increases in catecholamine metabolites may be due to extreme anxiety, essential hypertension, intense physical exercise, or drug interactions. Significant increase of one or more catecholamine metabolites (several times the upper reference limit) is associated with an increased probability of a secreting neuroendocrine tumor.

Per 24h calculations are provided to aid interpretation for collections with a duration of 24 hours and an average daily urine volume. For specimens with notable deviations in collection time or volume, ratios of analytes to a corresponding urine creatinine concentration may assist in result interpretation.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:

ARUP

ARUP Test Code:

0080421

ADMINISTRATIVE

CPT Codes:

84585

Last Reviewed:

12/1/2023

VOLATILES BLOOD (SQ: VOLT)

VOLT

TESTING INFORMATION

Patient Preparation:
The specimen must be collected using non-alcohol disinfectant for cleaning the skin.

Collect:
One 4 ml grey top is specimen of choice. Green,lavendar (EDTA) or red are also acceptable. Minimum 3 ml. DO NOT remove the stopper from the tube prior to analysis.

Unacceptable Conditions:
Opened tubes.

Remarks:
Do not uncap. Avoid use of serum separator tubes and gels

Storage/Transport Temperature:
Whole blood (lavender, EDTA) at Ambient (room temperature) temperature. (Min: 0.5 mL)

Methodology:
Gas Chromatography

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

VOLTAGE-GATED CALCIUM CHANNEL AB (SQ: VGCCA)

VGCCA

TESTING INFORMATION

Ordering Recommendations:
Detect antibodies for P/Q type voltage-gated calcium channels. Aid in the evaluation of muscle weakness in the context neuromuscular junction disorder with or without cancer, or the diagnosis of paraneoplastic neurological syndromes.

Collect:
Plain Red or Serum Separator Tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.2 mL)

Unacceptable Conditions:
Plasma. CSF.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 month

Performed:
Tue

Reference Interval:

Components	Reference Interval
P/Q-Type Calcium Channel Antibody	24.5 pmol/L or less

Reported:
1-8 days

Methodology:
Quantitative Radioimmunoassay

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
P/Q-Type Calcium Channel Antibody	0.0 to 24.5 pmol/L: Negative 24.6 to 45.6 pmol/L: Indeterminate 45.7 pmol/L or greater: Positive

Performing Lab:
ARUP

ARUP Test Code:
0092628

ADMINISTRATIVE

CPT Codes:
86596

Last Reviewed:
12/2/2023

VOLTAGE-GATED POTASSIUM CHANNEL AB (SQ: VGKCA)

VGKCA

TESTING INFORMATION

Ordering Recommendations:
Screening test for voltage-gated potassium channel (VGKC) antibody receptor complex-associated autoantibodies. Assay does not identify contactin associated protein 2 (CASPR2) antibody or leucine-rich glioma inactivated 1 protein (LGI1) antibodies. Use to manage antibody-positive (VGKC, LGI1, or CASPR2) individual following immunotherapy and/or plasmapheresis.

Collect:
Plain red or serum separator tube.

Specimen Preparation:
Separate serum from cells within 1 hour. Transfer 4 mL serum to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Plasma. Grossly lipemic or icteric specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 72 hours; Refrigerated: 2 weeks; Frozen: 1 month (avoid repeated freeze/thaw cycles)

Performed:
Tue

Reference Interval:

Components	Reference Interval
Voltage-Gated Potassium Channel Ab, Ser	31 pmol/L or less

Reported:
1-8 days

Methodology:
Quantitative Radioimmunoassay

Interpretive Data:
Voltage-Gated Potassium Channel (VGKC) antibodies are associated with neuromuscular weakness as found in neuromyotonia (also known as Issacs syndrome) and Morvan syndrome. VGKC antibodies are also associated with paraneoplastic neurological syndromes and limbic encephalitis; however, VGKC antibody-associated limbic encephalitis may be associated with antibodies to leucine-rich, glioma-inactivated 1 protein (LGI1) or contactin-associated protein-2 (CASPR2) instead of potassium channel antigens. A substantial number of VGKC-antibody positive cases are negative for LGI1 and CASPR2 IgG autoantibodies, not all VGKC complex antigens are known. The clinical significance of this test can only be determined in conjunction with the patient's clinical history and related laboratory testing.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component	Interpretation
Voltage-Gated Potassium Channel Ab, Ser	31 pmol/L or less: Negative 32-87 pmol/L: Indeterminate 88pmol/L or greater: Positive

Performing Lab:
ARUP

ARUP Test Code:
2004890

ADMINISTRATIVE

CPT Codes:
83519

Last Reviewed:
12/2/2023

VON WILLEBRAND FACTOR ACTIVITY, P (SQ:RISTO)

VWFX

TESTING INFORMATION

Ordering Recommendations:
Order in conjunction with von Willebrand Factor Antigen (0030285) and Factor VIII, Activity (0030095) as part of initial workup for suspected von Willebrand disease (VWD). Also useful for monitoring treatment in patients with VWD.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen: at -20°C: 3 months; Frozen at -70°C: 6 months

Performed:
Mon-Sat

Reference Interval:

Age	Reference Interval
0-6 years	51-215%
7-9 years	52-176%
10-11 years	60-195%
12-13 years	50-184%
14-15 years	50-203%
16-17 years	49-204%
18 years and older	51-215%

Reported:
1-3 days

Methodology:
Platelet Agglutination

Performing Lab:
ARUP

ARUP Test Code:
0030250

ADMINISTRATIVE

CPT Codes:
85245

Last Reviewed:
12/1/2023

VON WILLEBRAND FACTOR AG, P (SQ:VWAGA)

VWAG

TESTING INFORMATION

Ordering Recommendations:
Order in conjunction with von Willebrand Factor Activity (Ristocetin Cofactor) (0030250) and Factor VIII, Activity (0030095) as part of initial workup for suspected von Willebrand disease.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months; Frozen at -70°C: 6 months

Performed:
Mon-Sat

Reference Interval:

Age	Reference Interval
0-6 years	52-214%
7-9 years	62-180%
10-11 years	63-189%
12-13 years	60-189%
14-15 years	57-199%
16-17 years	50-205%
18 years and older	52-214%

Reported:
1-3 days

Methodology:
Microlatex Particle-Mediated Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0030285

ADMINISTRATIVE

CPT Codes:
85246

Last Reviewed:
12/2/2023

VON WILLEBRAND FACTOR COLLAGEN BINDING ASSAY (SQ:VWFCBA)

VWFCA

TESTING INFORMATION

Collect:
Light blue (sodium citrate).

Specimen Preparation:
Transfer 0.5 mL citrated plasma to an ARUP standard transport tube. (Min: 0.5 mL)
Test is not performed at ARUP; separate specimens must be submitted when multiple tests are ordered.

Storage/Transport Temperature:
CRITICAL FROZEN.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: Unacceptable; Frozen: 2 weeks

Performed:
Varies

Reference Interval:
By report

Reported:
7-10 days

Methodology:
Enzyme-Linked Immunosorbent Assay

Performing Lab:
ARUP

ARUP Test Code:
3016858

ADMINISTRATIVE

CPT Codes:
0279U

Last Reviewed:
12/2/2023

VON WILLEBRAND FACTOR MULTIMERS (SQ:VWFM2A)

VWFM2

TESTING INFORMATION

Ordering Recommendations:
Order to assist with diagnosis and subclassification of inherited or acquired von Willebrand disease.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Serum. EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -70°C: 6 months; Frozen at -20°C: 3 months

Performed:
Mon-Fri

Reference Interval:
By report

Reported:
4-11 days

Methodology:
Qualitative Electrophoresis

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0092281

ADMINISTRATIVE

CPT Codes:
85247

Last Reviewed:
12/1/2023

VON WILLEBRAND MULTIMERIC (SQ:VWMUPA)

VWMUP

TESTING INFORMATION

Ordering Recommendations:

Not recommended except in suspected cases of acquired von Willebrand disease (VWD) or high suspicion of VWD. Preferred initial test is von Willebrand Panel with Reflex to von Willebrand Multimeric Analysis (2003387).

Collect:

Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:

Transfer 3 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1.5 mL)

Unacceptable Conditions:

Serum, EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:

CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):

Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months; Frozen at -70°C: 6 months

Performed:

Mon-Sat

Reference Interval:

<table>
<tr><th>Components</th><th>Reference Interval</th></tr>
<tr><td>Factor VIII, Activity</td><td>
<table>
<tr><th>Age</th><th>Reference Interval (%)</th></tr>
<tr><td>0-6 years</td><td>56-191</td></tr>
<tr><td>7-9 years</td><td>76-199</td></tr>
<tr><td>10-11 years</td><td>80-209</td></tr>
<tr><td>12-13 years</td><td>72-198</td></tr>
<tr><td>14-15 years</td><td>69-237</td></tr>
<tr><td>16-17 years</td><td>63-221</td></tr>
<tr><td>18 years and older</td><td>56-191</td></tr>
</table>
</td></tr>
<tr><td>von Willebrand Factor, Antigen</td><td>
<table>
<tr><th>Age</th><th>Reference Interval (%)</th></tr>
<tr><td>0-6 years</td><td>52-214</td></tr>
<tr><td>7-9 years</td><td>62-180</td></tr>
<tr><td>10-11 years</td><td>63-189</td></tr>
<tr><td>12-13 years</td><td>60-189</td></tr>
<tr><td>14-15 years</td><td>57-199</td></tr>
<tr><td>16-17 years</td><td>50-205</td></tr>
<tr><td>18 years and older</td><td>52-214</td></tr>
</table>
</td></tr>
<tr><td>von Willebrand Factor, Activity (RCF)</td><td>
<table>
<tr><th>Age</th><th>Reference Interval (%)</th></tr>
<tr><td>0-6 years</td><td>51-215</td></tr>
<tr><td>7-9 years</td><td>52-176</td></tr>
<tr><td>10-11 years</td><td>60-195</td></tr>
<tr><td>12-13 years</td><td>50-184</td></tr>
<tr><td>14-15 years</td><td>50-203</td></tr>
<tr><td>16-17 years</td><td>49-204</td></tr>
<tr><td>18 years and older</td><td>51-215</td></tr>
</table>
</td></tr>
<tr><td>von Willebrand Multimeric</td><td>Normal</td></tr>
</table>

Reported:

1-11 days

Methodology:
Electrophoresis/Clotting/Microlatex Particle-Mediated Immunoassay/Platelet Agglutination

Interpretive Data:
This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0030002

ADMINISTRATIVE

CPT Codes:
85247; 85240; 85246; 85245

Last Reviewed:
12/2/2023

VON WILLEBRAND PNL (SQ:VWMPA)

VWMPA

TESTING INFORMATION

Ordering Recommendations:
Order in conjunction with Factor VIII, Activity (0030095) for the workup of suspected von Willebrand disease.

Collect:
Lt. blue (sodium citrate). Refer to Specimen Handling at aruplab.com for hemostasis/thrombosis specimen handling guidelines.

Specimen Preparation:
Transfer 1.5 mL platelet-poor plasma to an ARUP Standard Transport Tube. (Min: 1 mL)

Unacceptable Conditions:
Serum, EDTA plasma, clotted or hemolyzed specimens.

Storage/Transport Temperature:
CRITICAL FROZEN. Separate specimens must be submitted when multiple tests are ordered.

Stability (from collection to initiation):
Ambient: 4 hours; Refrigerated: Unacceptable; Frozen at -20°C: 3 months; Frozen at -70°C: 6 months

Performed:
Mon-Sat

Reference Interval:

Components	Reference Interval
von Willebrand Factor, Antigen	**Age** / **Reference Interval (%)** 0-6 years: 52-214 7-9 years: 62-180 10-11 years: 63-189 12-13 years: 60-189 14-15 years: 57-199 16-17 years: 50-205 18 years and older: 52-214
von Willebrand Factor, Activity (RCF)	**Age** / **Reference Interval (%)** 0-6 years: 51-215 7-9 years: 52-176 10-11 years: 60-195 12-13 years: 50-184 14-15 years: 50-203 16-17 years: 49-204 18 years and older: 51-215

Reported:
1-3 days

Methodology:
Platelet Agglutination/Microlatex Particle-Mediated Immunoassay

Performing Lab:
ARUP

ARUP Test Code:
0030284

ADMINISTRATIVE

CPT Codes:
85245; 85246

VRE CULTURE (SQ: VCVRE)

VCVRE

TESTING INFORMATION

Collect:

Specimen Type	Collection Container	Volume
Any site or fluid	• eSwab • Sterile Leak-proof container	

Unacceptable Conditions:

- Non Sterile container
- Leaking container

Remarks:

All enterococci isolates from clinically significant sites are screened for Vancomycin susceptibility

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
48 hours	48 hours	Not acceptable

Performed:

Sunday-Saturday

Methodology:

Standard reference procedure for Aerobic Bacterial culture and identification.

Notes:

Identification and Susceptibility Tests are billed seperately from culture

Performing Lab:

Methodist Hospital

Testing Region:

Carle West Region

ADMINISTRATIVE

CPT Codes:

87081

Last Reviewed:

1/19/24

WALNUT (JUGLANS CALIFORNICA) (SQ: WALNT)

WLNUT

COLLECTION DEVICE

Preferred Collection Device:
gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

WALNUT COMPONENTS IGE (SQ: WALCOM)

WALCM

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
2.0 mL serum or plasma at 2-8°C for one allergen. Add 0.1 mL for each additional allergen. (Minimum volume: 1.0mL serum/plasma)

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	1 month

Performed:
Variable

Reference Interval:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

Components:
Jug r 1
Jug r 3

ADMINISTRATIVE

Last Reviewed:
2/1/24

WALNUT, IGE (SQ: WALNUT)

WLNT

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal. Class 2 and higher should be considered positive. Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen. The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

WBC COUNT ONLY (SQ: WBCCNT)

WBCCN

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Priority	Specimen Type	Requested Volume	Minimum Volume
Routine:	1 Lavendar (EDTA) Top tube	4.0 mL	1.0 mL

Pediatric Collection:
K2EDTA Lavender Microtainer, Minimum volume 250uL

Unacceptable Conditions:
Improper anticoagulant, Insufficient volume, Clotted or evidence of fibrin strands, hemolyzed, contaminated with IV fluid, incompletely labeled or mislabeled, stability exceeded, frozen.

Storage/Transport Temperature:
K2EDTA whole blood, refrigerated 2-8 degrees C.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
24 hours	48 hours	Unacceptable

Performed:
Daily

Reference Interval:

WBC Count

Age	Male	Female	Combined	Units
0-14 Days	8.00-15.40	8.20-14.60		x10^3/uL
15-34 Days	7.80-15.90	8.40-14.40		
35-55 Days	8.10-15.00	7.10-14.70		
56 Days-6 months	6.50-13.30	6.00-13.30		
6 Months-2 years	6.00-13.50	6.50-13.00		
2-3 years	5.10-13.40	4.90-13.20		
3-6 years			4.40-12.90	
6-18 years			3.80-10.40	
>= 18 years			3.87-9.10	

Methodology:
Flow Cytometry

Performing Lab:
Methodist, Proctor and Pekin Hospital

Testing Region:
Carle West Region

ADMINISTRATIVE

CPT Codes:
85048

Last Reviewed:
1/18/24

WEST NILE VIRUS AB, IGG AND IGM, CSF (SQ:WNGMC)

WNVGM

TESTING INFORMATION

Ordering Recommendations:
Preferred test is West Nile Virus Antibody, IgM by ELISA, CSF (0050239).

Collect:
CSF.

Specimen Preparation:
Transfer 2 mL CSF to an ARUP Standard Transport Tube. (Min: 0.3 mL)
New York State Clients: 2 mL (Min: 0.7 mL)

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, or xanthochromic specimens.

Storage/Transport Temperature:
Refrigerated.
New York State Clients: Frozen

Stability (from collection to initiation):
Ambient: 8 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)
New York State Clients: Ambient: 4 days; Refrigerated: 1 week; Frozen: 1 month

Performed:
Sun, Tue, Fri

Reference Interval:

Components	Reference Interval
West Nile Virus Antibody IgG CSF	1.29 IV or less
West Nile Virus Antibody IgM CSF	0.89 IV or less

Reported:
1-6 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
This test is intended to be used as a semi-quantitative means of detecting West Nile virus-specific IgG and IgM in CSF specimens in which there is a clinical suspicion of West Nile virus infection. This test should not be used solely for quantitative purposes, nor should the results be used without correlation to clinical history or other data. Because other members of the Flaviviridae family, such as St. Louis encephalitis virus, show extensive cross-reactivity with West Nile virus, serologic testing specific for these species should be considered.

The detection of antibodies to West Nile virus in cerebrospinal fluid may indicate central nervous system infection. However, consideration must be given to possible contamination by blood or transfer of serum antibodies across the blood-brain barrier.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Component Result	Interpretation
West Nile Virus Antibody, IgG by ELISA, CSF	1.29 IV or less: Negative - No significant level of West Nile virus IgG antibody detected. 1.30-1.49 IV: Equivocal - Questionable presence of West Nile virus IgG antibody detected. Repeat testing in 10-14 days may be helpful 1.50 IV or greater: Positive - Presence of IgG antibody to West Nile virus detected, suggestive of current or past infection.
West Nile Virus Antibody, IgM by ELISA, CSF	0.89 IV or less: Negative - No significant level of West Nile virus IgM antibody detected. 0.90-1.10 IV: Equivocal - Questionable presence of West Nile virus IgM antibody detected. Repeat testing in 10-14 days may be helpful. 1.11 IV or greater: Positive - Presence of IgM antibody to West Nile virus detected, suggestive of current or recent infection.

Performing Lab:
ARUP

ARUP Test Code:
0050228

ADMINISTRATIVE

CPT Codes:
86789; 86788

WEST NILE VIRUS AB, IGG AND IGM, S (SQ:WNGMS)

WNVAB

TESTING INFORMATION

Ordering Recommendations:
Detect presence of IgG and IgM antibodies in individuals with a clinical suspicion of West Nile Virus.

Collect:
Serum separator tube.

Specimen Preparation:
Separate serum from cells ASAP or within 2 hours of collection. Transfer 1 mL serum to an ARUP Standard Transport Tube. (Min: 0.15 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimens plainly as "acute" or "convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Sun, Tue, Fri

Reference Interval:

Components	Reference Interval
West Nile Virus Ab, IgG, Ser	1.29 IV or less
West Nile Virus Ab, IgM, Ser	0.89 IV or less

Reported:
1-6 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:

Component Result	Interpretation
West Nile Virus Antibody, IgG by ELISA, Serum	1.29 IV or less: Negative - No significant level of West Nile virus IgG antibody detected. 1.30-1.49 IV: Equivocal - Questionable presence of West Nile virus IgG antibody detected. Repeat testing in 10-14 days may be helpful. 1.50 IV or greater: Positive - Presence of IgG antibody to West Nile virus detected, suggestive of current or past infection.
West Nile Virus Antibody, IgM by ELISA, Serum	0.89 IV or less: Negative - No significant level of West Nile virus IgM antibody detected. 0.90-1.10 IV: Equivocal - Questionable presence of West Nile virus IgM antibody detected. Repeat testing in 10-14 days may be helpful. 1.11 IV or greater: Positive - Presence of IgM antibody to West Nile virus detected, suggestive of current or recent infection.

Performing Lab:
ARUP

ARUP Test Code:
0050226

ADMINISTRATIVE

CPT Codes:
86789; 86788

Last Reviewed:
12/2/2023

WHEAT, IGE (SQ: WHEAT)

WHET

COLLECTION DEVICE

Preferred Collection Device:
Gold SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Lavender K2EDTA Tube	4.0 mL	4.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP or within two hours of collection

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum at 2-8°C for one allergen. Add 0.1 mL for each additional allergen

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

Last Reviewed:
2/1/24

WHITE ASH (FRAXINUS AMERICANA) (SQ: WASHT)

WHAS

COLLECTION DEVICE

Preferred Collection Device:
GOLD SST

TESTING INFORMATION

Collect:

Preferred Specimen Collection:

Specimen Type	Requested Volume	Minimum Volume
1 Serum Separator Tube (Gold)	6.0 mL	4.0 mL

Other Acceptable Specimen Type (s)

Specimen Type	Requested Volume	Minimum Volume
1 Plain Red Tube	6.0 mL	4.0 mL
1 Purple Top Tube	4.0 mL	2.0 mL

Pediatric Collection:
Minimum volume: 0.3mL serum or plasma

Specimen Preparation:
Separate serum or plasma from cells ASAP.
Collect 0.3mL serum or plasma for one allergen. Collect additional 0.1mL for each additional allergen.

Unacceptable Conditions:
Hemolyzed, icteric, or lipemic samples

Storage/Transport Temperature:
0.3 mL serum or plasma at 2-8 degrees C for one allergen. Add 0.1 mL for each additional allergen.

Stability (from collection to initiation):

Ambient	Refrigerated	Frozen
2 days	7 days	Long Term Storage

Performed:
Variable

Reference Interval:
Negative/Undetected

Methodology:
ImmunoCAP/Fluoroenzymeimmunoassay

Notes:
Reference Ranges for Evaluation of Specific IgE

kUa/L	Clinical Implications
<0.10	Absent or Undetectable
0.10-0.70	Low level of allergy
0.71-3.50	Moderate level of allergy
3.51-17.50	High level of allergy
17.51-50.00	Very high level of allergy
50.01-100.00	Very high level of allergy
>100.00	Very high level of allerge

Interpretive Data:
Results with allergens scoring in Class 1 should be considered weakly positive or equivocal.Class 2 and higher should be considered positive.Although increasing class ranges (01-06) are reflective or increasing concentrations of allergen specific IgE, this may not correlate with the degree of clinical response when challenged with the specific allergen.The correlation of allergy laboratory results with clinical history is essential.

Performing Lab:
Methodist Hospital

Testing Region:
Carle West region

ADMINISTRATIVE

CPT Codes:
86003

Last Reviewed:
2/1/24

ZIKA VIRUS TESTING, BLOOD (SQ: ZIPCRB)

ZIPCR

TESTING INFORMATION

Ordering Recommendations:
Testing should only be performed on individuals meeting Centers for Disease Control and Prevention (CDC) clinical criteria for Zika virus (eg, clinical signs and symptoms associated with Zika virus infection) and/or CDC epidemiological criteria for Zika virus (eg, history of residence in or travel to a geographic region with active Zika transmission at the time of travel, or other epidemiological criteria for which Zika virus testing may be indicated).

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate from cells. Transfer 2 mL serum to a sterile container. (Min: 1 mL)

Unacceptable Conditions:
Urine (refer to Zika Virus by PCR, Urine, ARUP test code 2014069).

Remarks:
Specimen source required.

Storage/Transport Temperature:
Frozen.

Stability (from collection to initiation):
Ambient: Unacceptable; Refrigerated: 5 days; Frozen: 6 weeks

Performed:
Mon, Wed, Fri

Reported:
1-4 days

Methodology:
Qualitative Polymerase Chain Reaction (PCR)

Interpretive Data:
Zika Virus by PCR is a real-time RT-PCR test intended for the qualitative detection of Zika virus RNA from individuals meeting CDC Zika virus clinical criteria (e.g., clinical signs and symptoms associated with Zika virus infection) and/or CDC Zika virus epidemiological criteria (e.g., history of residence in or travel to a geographic region with active Zika transmission at the time of travel, or other epidemiologic criteria for which Zika virus testing may be indicated).

Diagnostic testing for Zika virus infection should be performed as outlined by current CDC guidance.

If serologic testing is needed as a follow-up to PCR, contact ARUP client services to order Zika Virus IgM Antibody Capture (MAC), by ELISA (ARUP test code 2013942). Additional charges apply.

Performing Lab:
ARUP

ARUP Test Code:
2014065

ADMINISTRATIVE

CPT Codes:
87662

Last Reviewed:
12/2/2023

ZIKA VIRUS TESTING, URINE (SQ: ZIPCRU)

ZIPCU

TESTING INFORMATION

Ordering Recommendations:

Testing should only be performed on individuals meeting Centers for Disease Control and Prevention (CDC) clinical criteria for Zika virus (eg, clinical signs and symptoms associated with Zika virus infection) and/or CDC epidemiological criteria for Zika virus (eg, history of residence in or travel to a geographic region with active Zika transmission at the time of travel, or other epidemiological criteria for which Zika virus testing may be indicated).

Collect:

Urine and patient-matched serum separator tube (SST).

Specimen Preparation:

Urine: Transfer 1 mL urine to a sterile container. (Min: 0.5 mL)
Serum: Collect and retain 2 mL of patient-matched serum at the client site in the event that serological follow-up testing is needed. (Min: 1 mL)

Unacceptable Conditions:

Serum (refer to Zika Virus by PCR, Blood, ARUP test code 2014065).

Remarks:

Specimen source required.

Storage/Transport Temperature:

Frozen.

Stability (from collection to initiation):

Ambient: Unacceptable; Refrigerated: 5 days; Frozen: 6 weeks

Performed:

Mon, Wed, Fri

Reported:

1-4 days

Methodology:

Qualitative Polymerase Chain Reaction (PCR)

Interpretive Data:

Zika Virus by PCR is a real-time RT-PCR test intended for the qualitative detection of Zika virus RNA from individuals meeting CDC Zika virus clinical criteria (e.g., clinical signs and symptoms associated with Zika virus infection) and/or CDC Zika virus epidemiological criteria (e.g., history of residence in or travel to a geographic region with active Zika transmission at the time of travel, or other epidemiologic criteria for which Zika virus testing may be indicated).

Diagnostic testing for Zika virus infection should be performed as outlined by current CDC guidance.

If serologic testing is needed as a follow-up to PCR, contact ARUP client services to order Zika Virus IgM Antibody Capture (MAC), by ELISA (ARUP test code 2013942). Additional charges apply.

Performing Lab:

ARUP

ARUP Test Code:

2014069

ADMINISTRATIVE

CPT Codes:

87662

Last Reviewed:

12/2/2023

ZIKA VIRUS, IGM (SQ: ZIIGMC)

ZIIGM

TESTING INFORMATION

Ordering Recommendations:
Use for patients whose symptoms began, or whose documented exposure occurred, >=14 days prior to testing. Use as follow-up for patients with negative serum and urine results from molecular testing performed <14 days after symptom onset.

Collect:
Serum separator tube (SST).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection. Transfer 2 mL serum to an ARUP standard transport tube. (Min: 1.0 mL) Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of the acute specimens. Mark specimen plainly as "acute or convalescent."

Unacceptable Conditions:
Bacterially contaminated, heat-inactivated, hemolyzed, icteric, lipemic, or turbid specimens.

Remarks:
Submit patient history.

Storage/Transport Temperature:
Refrigerated.

Stability (from collection to initiation):
After separation from cells: Ambient: 48 hours; Refrigerated: 2 weeks; Frozen: 1 year (avoid repeated freeze/thaw cycles)

Performed:
Mon, Fri

Reference Interval:
Negative

Reported:
1-6 days

Methodology:
Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Interpretive Data:
The possibility of false-positive or false-negative results must be considered. RT-PCR testing on both a serum and urine specimen is recommended by the Centers for Disease Control and Prevention (CDC) to rule out false-negative IgM results in patients experiencing symptoms for less than 2 weeks. Specimens collected for IgM testing greater than or equal to 2 weeks after symptom onset do not require any additional testing. For more information, please review the current clinical guidelines for Zika virus testing at: www.cdc.gov/zika/.

Performing Lab:
ARUP

ARUP Test Code:
2013942

ADMINISTRATIVE

CPT Codes:
86794

Last Reviewed:
12/2/2023

ZINC, S (SQ: ZNA)

ZNS

TESTING INFORMATION

Ordering Recommendations:
May be useful as an indicator of acute deficiency. For acute toxicity, Zinc, Urine (0020462) may be a more reliable indicator of exposure.

Patient Preparation:
Diet, medication, and nutritional supplements may introduce interfering substances. Upon the advice of their physician, patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and nonessential over-the-counter medications for one week prior to sample draw.

Collect:
Royal blue (No Additive), Royal blue (K2EDTA), or Royal blue (NaHep).

Specimen Preparation:
Separate from cells ASAP or within 2 hours of collection Transfer 2 mL serum or plasma to an ARUP Trace Element-Free Transport Tube (ARUP supply #43116) available online through eSupply using ARUP Connect or contact ARUP Client Services at (800) 522-2787. (Min: 0.5 mL)

Unacceptable Conditions:
Specimens that are not separated from the red cells or clot within 2 hours. Specimens collected in containers other than specified. Specimens transported in containers other than specified. Hemolyzed specimens.

Storage/Transport Temperature:
Room temperature. Also acceptable: Refrigerated or frozen.

Stability (from collection to initiation):
Ambient: Indefinitely; Refrigerated: Indefinitely; Frozen: Indefinitely

Performed:
Sun-Sat

Reference Interval:
60.0-120.0 µg/dL

Reported:
1-3 days

Methodology:
Quantitative Inductively Coupled Plasma-Mass Spectrometry

Interpretive Data:
Elevated results may be due to skin or collection-related contamination, including the use of a noncertified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of serum/plasma zinc, confirmation with a second specimen collected in a certified metal-free tube is recommended.

Circulating zinc concentrations are dependent on albumin status and are depressed with malnutrition. Zinc may also be lowered with infection, inflammation, stress, oral contraceptives, and pregnancy. Zinc may be elevated with zinc supplementation or fasting. Elevated zinc concentrations may interfere with copper absorption.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Performing Lab:
ARUP

ARUP Test Code:
0020097

ADMINISTRATIVE

CPT Codes:
84630

Last Reviewed:
12/2/2023

ZONISAMIDE, S (SQ:ZONAA)

ZON

TESTING INFORMATION

Ordering Recommendations:
Optimize drug therapy and monitor patient adherence.

Patient Preparation:
Timing of specimen collection: Pre-dose (trough) draw - At steady state concentration.

Collect:
Plain red. Also acceptable: Lavender (K_2 or K_3EDTA) or pink (K_2 EDTA).

Specimen Preparation:
Separate serum or plasma from cells within 2 hours of collection. Transfer 1 mL serum or plasma to an ARUP Standard Transport Tube. (Min: 0.5 mL)

Unacceptable Conditions:
Whole blood. Gel separator tubes, light blue (citrate), or yellow (SPS or ACD solution).

Storage/Transport Temperature:
Refrigerated

Stability (from collection to initiation):
After separation from cells: Ambient: 1 week; Refrigerated: 1 week; Frozen: 6 weeks

Performed:
Sun-Sat

Reference Interval:
Effective February 19, 2013

Therapeutic Range	Not well established
Toxic Level	Greater than 80 µg/mL

Reported:
1-4 days

Methodology:
Quantitative Enzyme Multiplied Immunoassay Technique

Interpretive Data:
The proposed therapeutic range for seizure control is 10-40 µg/mL. Toxic concentrations may cause coma, seizures and cardiac abnormalities. Pharmacokinetics varies widely, particularly with co-medications and/or compromised renal function.

Performing Lab:
ARUP

ARUP Test Code:
0097908

ADMINISTRATIVE

CPT Codes:
80203

Last Reviewed:
12/1/2023