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CORE LABORATORY REFERENCE RANGES

Medical Laboratory, Sorrento Mesa
9535 Waples Street, Ste. 150 San Diego, CA 92121
CLIA# 05D1071362 CLIA Director: Michael M. Quigley, MD

CHEMISTRY TESTS

Calculations

Basic Metabolic Panel (BMP) – Na, K, Cl, CO2, Ca, ECREA, Glucose, BUN, (Calculated - GFR, Osmolality)
Comprehensive Metabolic Panel (CMPN) – BMP plus ALPI, TBIL, AST, ALTI, Total Protein, (Calculated - GFR, Anion Gap, Osmolality)
Hepatic Function Panel/Liver Function Tests (HPF/LFT) – Albumin, ALPI, TBIL, DBIL, AST, ALTI, Total Protein
Lipid Panel (LPC) – Chol, Trig, HDL, LDL (calculated). LDL Direct performed when requested.
Renal Function Panel (RFP) – BMP plus Albumin, Phosphorous (Calculated - GFR, Osmolality)
+ During downtime, calculate using the Excel spreadsheet available on https://www.testmenu.com/scripps under Downtime Resources or scan the QR code

Analyte, Blood	**Reference range (Expected Values)** **For Pediatric values, see Caliper studies**
A1-Antitrypsin α1AT	0 to unspecified years 90 - 200 mg/dL
ALT	>19 yrs: 5 - 55 U/L
AST	>19 yrs: 5 - 34 U/L
Albumin	19yrs to 60yrs: 3.5 to 5.0 g/dL > 60 years: 3.4 to 4.8 g/dL
Alkaline Phosphatase	Male: >19yrs: 40-150 U/L Female: >19yrs: 40-150 U/L
Amylase	Male & Female: (U/L) 0 -15days: 4-10 15d –13wks: 4-22 13wks - 1yr: 4-50 1yr -19yr: 25-101 >19- 70: 25 to 125 U/L > 70 years: 20 to 160 U/L
Ammonia	0 to 29 days: 18 – 72 µmol/L >29 days: 18 – 72 µmol/L
Anion Gap, Calculated	6-14 mmol/L
Apolipoprotein B	**0-1yr** Male: 16 - 124 mg/dL Female: 17 - 120 mg/dL **1yr-12yrs** Male: 48 - 125 mg/dL Female: 51 - 126 mg/dL **> 12 to 60 years** Male: 49 – 173 mg/dL Female: 53 – 182 mg/dL **> 60 years** Male: 54 – 163 mg/dL Female: 64 – 182 mg/dL
ASO Streptolysin-O	50 - 200 IU/mL
β2-Microglobulin	1.0 – 2.3 mg/L
Bilirubin, Direct	Adult > 19 years 0.1 to 0.5 mg/dL
Bilirubin, Total	0 day to 15 days: 0.2-15.0 15 days to 28 days: 0.1-0.7 28 days to 1 year: 0.1-0.7 1 year to 9 years: 0.1-0.4 9 years to 12 years: 0.1-0.6 12 yrs to 15 yrs: 0.1-0.7 15 yrs to 19 yrs: 0.1-0.8 Adult >19 years: 0.2 to 1.2 mg/dL
Blood Urea Nitrogen (BUN)	Adult, Male 19- 50 years 9 to 21 >50 years 8 to 26 Adult, Female 19- 50 years 7 to 19 > 50 years 10 to 20
Calcium	Newborn, 0 to 10 days 7.6 to 10.4 mg/dl Newborn, 10 to 20 days 9.0 to 11.0 mg/dL

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Analyte, Blood	**Reference range (Expected Values)** **For Pediatric values, see Caliper studies**
	20 days to 12 years 8.8 to 10.8 mg/dL Adult 12 yrs and older 8.3 to 10.3 mg/dL
Carbamazepine	4 to 12 ug/mL
Carbon Dioxide	Adult 19 to 60 years: 22 to 29 mmol/L Adult > 60 years: 23 to 31 mmol/L
Cholesterol	Child: 0-12 yrs: 7-170 mg/dL Desirable <180 mg/dl Borderline 170-199 mg/dl High >=200 mg/dl Adult >12 yrs: 7-200 Desirable <200 mg/dl Borderline 200-239 mg/dl High >=240 mg/dl
Chloride	0-30 days: 98 to 113 mmol/L 30 days to 90 years: 98 to 107 mmol/L >90 years 98 to 111 mmol/L
Complement C3	M/F 0-15days: 50-121 M/F 15d – 1yr: 51-160 1 to 14 years Male: 80 to 170 mg/dL Female: 82 to 173 mg/dL > 14 to 80 years Male: 82 to 185 mg/dL Female: 83 to 193 mg/dL
Complement C4	M/F 0-1yr: 7-30 1 to 14 years Male: 14 to 44 mg/dL Female: 13 to 46 mg/dL > 14 to 80 years Male: 15 to 53 mg/dL Female: 15 to 57 mg/dL
Creatine Kinase	Male: 30 to 200 U/L Female: 29 to 168 U/L
Creatinine (Enzymatic)	>19 year Male: 0.73 to 1.18 mg/dL >19 year Female: 0.55 to 1.02 mg/dL
C-reactive protein CRP	0.4 – 5.0 mg/L
C-reactive protein CRP, high sensitivity	0.2 – 5.0 mg/L
Ceruloplasmin	0-2 months Male: 7.3-23.6 0-2 months Female: 7.4-23.7 M/F 2mos-6mos: 13.5-32.9 M/F 6mos- 1yr: 13.7-38.9 M/F 1-8yr: 21.7-43.3 M/F 8-14yr: 20.5-40.2 14-19yrs Male: 17-34.8 14-19yrs Female: 20.8-43.2 M/F >19yrs: 20- 60 mg/dL
Cyclosporine	Patient assessment required. Methodology: Chemiluminescent microparticle immunoassay (CMIA) performed on the Abbott Architect i1000sr/i2000sr
Digoxin	<1.0 ng/mL (therapeutic range)
Gamma-Glutamyl Transferase (GGT)	M/F 0-15days: 23-219 M/F 15d- 1yr: 8-127 M/F 1yr -11 yr: 6-16 M/F 11-19yr: 7-21 Male 12 to 64 U/L Female 9 to 36 U/L
Gentamicin, Random	Reference range not established
Gentamicin, Peak	3.0 -30.0 mcg/mL
Gentamicin, Trough	0.0 – 1.9 mcg/mL
Glucose	ADA decision limits for fasting glucose: Normal 70-99 mg/dL

Analyte, Blood	Reference range (Expected Values) For Pediatric values, see Caliper studies
	Impaired 100-125 mg/dL Diabetes >125 mg/dL 0-29 days: 40-90mg/dL >29 days: 70-125
Glucose Screen, Pregnancy, 50gms 1hr-Gestational	50-139 mg/dl
Glucose-3hr-Tolerance Test, 100-gm (Gestational)	Fasting: 70-94 mg/dl 1 hour: 70-179 mg/dl 2 hour: 70-154 mg/dl 3 hour: 70-139 mg/dl
Glucose, 2-hour (Non-Gestational) 75-gm	70-139 mg/dl
Haptoglobin	Units (mg/dL) **0 to 1 year** Male 0 to 300 Female 0 to 235 **> 1 to 12 years** Male 3 to 270 Female 11 to 220 **> 12 to 60 years** Male 14 to 258 Female 35 to 250 **> 60 years** Male 40 to 268 Female 63 to 273
Hemoglobin A1c (Glycosylated hemoglobin)	Normal: < 5.7% Increased risk for diabetes: 5.7-6.4% Diabetes: >6.4%
High Density Lipoprotein (HDL), Ultra	Male 30-70 mg/dL Female 30-85 mg/dL
Immunoglobulin A (IgA)	Units (mg/dL) **0 to 3 months** Male 5 to 34 Female 5 to 34 **> 3 months to 1 year** Male 8 to 91 Female 8 to 91 **> 1 to 12 years** Male 21 to 291 Female 21 to 282 **> 12 to 60 years** Male 63 to 484 Female 65 to 421 **> 60 years** Male 101 to 645 Female 69 to 517
Immunoglobulin G (IgG)	Units (mg/dL) **0 to 1 month** Male 397 to 1765 Female 391 to 1737 **> 1 month to 1 year** Male 205 to 948 Female 203 to 934 **> 1 to 2 years** Male 475 to 1210 Female 483 to 1226 **> 2 to 80 years** Male 540 to 1822 Female 552 to 1631
Immunoglobulin M (IgM)	Units (mg/dL) **Newborn 0-28 days** Male 6 to 21 Female 6 to 21 **28 days to 1 year** Male 17 to 143 Female 17 to 150 > 1 to 12 years

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<table>
<tr><th>Analyte, Blood</th><th>Reference range (Expected Values)
For Pediatric values, see Caliper studies</th></tr>
<tr><td></td><td>Male 41 to 183
Female 47 to 240
> 12 years
Male 22 to 240
Female 33 to 293</td></tr>
<tr><td>Immunoglobulin E (IgE), specific</td><td>
<table>
<tr><th colspan="3">Specific IgE traditional classification</th></tr>
<tr><th>kU/L</th><th>Class</th><th>Interpretation</th></tr>
<tr><td><0.10</td><td>0</td><td>None detected</td></tr>
<tr><td>0.10 – 0.34</td><td>0/1</td><td>Low</td></tr>
<tr><td>0.35 – 0.69</td><td>1</td><td>Low</td></tr>
<tr><td>0.70 -3.49</td><td>2</td><td>Moderate</td></tr>
<tr><td>3.50 – 17.49</td><td>3</td><td>High</td></tr>
<tr><td>17.5 – 49.9</td><td>4</td><td>Very High</td></tr>
<tr><td>50.0 – 99.9</td><td>5</td><td>Very High</td></tr>
<tr><td>>100</td><td>6</td><td>Very High</td></tr>
</table>
</td></tr>
<tr><td>Immunoglobulin E (IgE), Total</td><td>
<table>
<tr><th>Age Range</th><th>Reference range (kU/L)</th></tr>
<tr><td>0-3 months</td><td><9</td></tr>
<tr><td>3-6 mos.</td><td><17</td></tr>
<tr><td>6-9 mos</td><td><30</td></tr>
<tr><td>9mos- 1yr</td><td><39</td></tr>
<tr><td>1 yr - 2 yr</td><td><53</td></tr>
<tr><td>2yr - 3yr</td><td><93</td></tr>
<tr><td>3yr - 4yr</td><td><128</td></tr>
<tr><td>4yr - 5yr</td><td><160</td></tr>
<tr><td>5yr -6 yr</td><td><192</td></tr>
<tr><td>6yr - 7yr</td><td><224</td></tr>
<tr><td>7yr - 8yr</td><td><248</td></tr>
<tr><td>8yr - 9yr</td><td><280</td></tr>
<tr><td>9yr - 10yr</td><td><304</td></tr>
<tr><td>> 10yr - < 18 yrs</td><td>* <114
After the peak at the age of 10 years, serum total IgE levels decline to adult values</td></tr>
<tr><td>Adult</td><td><114</td></tr>
</table>
</td></tr>
<tr><td>Iron</td><td>0-14yrs Male & Female: 16-128
14-19yrs Male: 31-168
Female: 20-162
>19yrs Male: 65 to 175 mcg/dL
>19yrs Female: 50 to 170 mcg/dL</td></tr>
<tr><td>Iron Binding Capacity (TIBC)</td><td>250 – 450 mcg/dl</td></tr>
<tr><td>Iron Saturation%</td><td>20 - 50 %</td></tr>
<tr><td>Lactate Dehydrogenase (LDH)</td><td>Adult >19 years: 125 to 220 U/L</td></tr>
<tr><td>Lactic Acid</td><td>Venous 0.50 to 2.20 mmol/L</td></tr>
<tr><td>Lipase</td><td>0-19 yrs Male & Female: 4-39 U/L
>19 years: Male & Female: 4-60 U/L</td></tr>
<tr><td>Lipoprotein (a)</td><td>3.1 - 30 mg/dL</td></tr>
<tr><td>Lithium</td><td>12 hr post dose (trough) concentration
1.0 to 1.2 mmol/L</td></tr>
<tr><td>Low Density Lipoprotein (LDL), Calculated</td><td><130 mg/dl</td></tr>
<tr><td>Low Density Lipoprotein (LDL), Direct</td><td>1 – 100 mg/dL
Optimal <100 mg/dl
Near or above optimal 100-129 mg/dl
Borderline high 130-159 mg/dl
High 160-189 mg/dl
Very High >= 190 mg/dl</td></tr>
<tr><td>Magnesium</td><td>0 day to 5 months 1.5 to 2.2 mg/dL
5 months to 6 years: 1.7 to 2.3 mg/dL
6 to 12 years: 1.7 to 2.1 mg/dL</td></tr>
</table>

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Analyte, Blood	Reference range (Expected Values) For Pediatric values, see Caliper studies
	12 to 18 years: 1.7 to 2.2 mg/dL Adult >18 years: 1.6 to 2.6 mg/dL NOTE: Higher values can be expected in females during menses
Osmolality, calculated	280-305 mOsm/Kg H_20
PBNP	<75 yr </= 125 pg/mL =/>75 yr </= 450 pg/mL
Phenytoin	10 to 20 mcg/mL
Phosphorus	M/F 0day to 15days: 5.6-10.5 M/F 15d – 1yr: 4.8-8.4 M/F 1-5yr: 4.3-6.8 M/F 5-13yrs: 4.1-5.9 13-16yrs Male: 3.5-6.2 13-16yrs Female: 3.2-5.5 M/F 13y – 19yrs: 2.9-5.0 M/F >19yrs: 2.3 to 4.7 mg/dL
Potassium (K^+)	Newborn 0- 7 days: 3.7 to 5.9 Newborn 7-28 days: 3.7 to 5.9 Infant 28 d -2 years: 4.1 to 5.3 Child 2 yrs -12 yrs: 3.4 to 4.7 Adult >12 years: 3.5 to 5.1
Prealbumin	0 to 1 year Male 7-25 mg/dL Female 8 -25 mg/dL > 1 to 12 years Male 11-34 mg/dL Female 12-30 mg/dL > 12 to 60 years Male 18-45 mg/dL Female 16-38 mg/dL > 60 years Male 16-42 mg/dL Female 14-37 mg/dL
Protein, Total (Plasma)	Adult >19 years: 6.4 to 8.3
Rheumatoid Factor	0 yr to Unspecified: <30 IU/mL
SARS COV-2 IgG Nucleocapsid	Negative
SARS COV-2 IgG Spike Antibody	Negative
Sodium (Na)	Newborn 0-28days 133 - 146 mmol/L 28 days to 2 years: 139 – 146 mmol/L 2 to 12 years: 138 – 145 mmol/L 12 to 90 years: 136 – 145 mmol/L >90 years: 132 – 146 mmol/L
Theophylline	8 to 20 mcg/mL
Tobramycin, Random	Reference range not established
Tobramycin, Peak	3.0 -30.0 mg/dl
Tobramycin, Trough	0.0 – 1.9 mg/dl
Transferrin	M/F 0 day to 9wks: 104-224 M/F 9 wks to 1yr: 107-324 **1 to 14 years** Male 186 to 388 Female 180 to 391 **14 to 60 years** Male 174 to 364 Female 180 to 382 **60 to 80 years** Male 163 to 344 Female 173 to 360 **>80 years:** "The reference range for transferrin was not specifically verified in patients over 80 years of age"
Triglyceride	Normal < 150 mg/dL Borderline High 150 to 199 High 200 to 499 Very High ≥ 500

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Analyte, Blood	Reference range (Expected Values) For Pediatric values, see Caliper studies
Troponin	< 0.034 pg/mL
Tryptase	< 8.4 ug/L In patients with systemic mastocytosis levels of tryptase are, in general, persistently elevated above 20 µg/l
Uric Acid	Alinity Reference Ranges in mg/dL M/F 0-15days: 2.8-12.7 M/F 15d-1yr: 1.6-6.3 M/F 1yr-12yrs: 1.8-4.9 Male 12-19yrs: 2.6-7.6 Female 12-19yrs: 2.6-5.9 >19yrs Male 3.5 to 7.2 >19yrs Female 2.6 to 6.0
Valproic Acid	50-100 mcg/mL
Vancomycin, Random	Reference range not established
Vancomycin, Peak	25.0-40.0 mcg/mL
Vancomycin, Trough	0 to ≤ 29 days 5.0 – 10.0 mcg/ml 29 days & older 5.0 – 20.0 mcg/mL

Analyte, Body Fluid	Reference range (Expected Values)
Body Fluid Albumin	Not established
Body Fluid Amylase	Not established
Body Fluid Creatinine	Not established
Body Fluid Cholesterol	Not established
Body Fluid Glucose	Not established
Body Fluid Lactate Dehydrogenase	Not established
Body Fluid Total Protein	Not established
Body Fluid Triglycerides	Not established
Synovial Fluid Total Protein	Not established

Analyte, Urine	Urine Chemistry Reference Ranges
Urine Amylase	Random: No established range Timed: No established range (IU/hour)
Urine Calcium	Random: No established range Timed: 0-300 mg/24hr
Urine Chloride	Random: No established range Timed: (mmol/day) 0-30 days: 2-10 30d – 60 years: 110-250 > 60 years: 95 to 195
Urine Creatinine	Random Adult Male: 58 to 161 mg/dL Adult Female: 45 to 106mg/dL Timed: Adult Male: 0.87 – 2.41 g/day Adult Female: 0.67-1.59 g/day Uncorrected & Corrected Creatinine Clearance: Adult Male: 61 to 147 mL/min/1.73 m2 BSA Adult Female: 59 to 151 mL/min/1.73 m2 BSA
Urine Glucose	Random 1 to 15 mg/dL Timed: < 0.5 g/24hr
Urine Potassium	Random: No established range Timed: Range (mmol/day) 0 day-6yrs: Not established 6 to 10 years Male: 17 to 54

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Analyte, Urine	Urine Chemistry Reference Ranges
	Female: 8 to 37 10 to 14 years Male: 22 to 57 Female: 18 to 58 >14 years: 25 to 125
Urine Magnesium	Random: No established reference range Timed: No established reference range
Urine Sodium	Random: Not established Timed: Range (mmol/day) 0 day – 6 years: Not established 6 to 10 years Male 41 to 115 Female 20 to 69 10 to 14 years Male 63 to 177 Female 48 to 168 Adult >14 years Male 40 to 220 Female 27 to 287
Urine Phosphorus	Random: No established for reference range Timed: 0.4 to 1.3 g/24hr
Urine Urea Nitrogen	Random: Not established Timed: Not established
Urine Protein	Random: 7-14 mg/dL Timed: <300 mg/24hr (see comment append to 24hr urine Microalbumin Protein/Creatinine ratio, random: <200 mg/g Protein/Creatinine ratio, timed: <200 mg/g
Urine Microalbumin	Random: Microalbumin Quant: 5-20 mg/L Microalbumin/Creatinine Ratio: 0-30 mg/g Timed: Microalbumin Quant: 5-20 mg/24hr The following comment appends to Urine Microalbumin result: "Exercise within 24 hours, infection, fever, congestive heart failure, marked hyperglycemia, and marked hypertension may elevate urinary albumin excretion over baseline values."

+ During downtime, calculate using the 24 hour/timed urine value Excel spreadsheet available on https://www.testmenu.com/scripps under Downtime Resources

Scan the QR code:

Calculations

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IMMUNOASSAYS AND ENDOCRINOLOGY

Analyte	Reference Range	Comments
AFP	2.0 - 8.78 ng/mL	This result was obtained using Abbott Alinity Chemiluminescent microparticle immunoassay (CMIA). Values obtained with different assay methods cannot be used interchangeably.
Anti-CCP	<5.0 U/mL	Alinity i Anti-CCP results should not be used interchangeably with other manufacturers' methods for anti-CCP determinations.
Anti-TPO	<5.61 IU/mL	
B-hCG, quantitative	0 - 5 mIU/mL	The Alinity i Total β-hCG assay is cleared for use in the early detection of pregnancy only. It is not approved for any other uses such as tumor marker screening, tumor marker monitoring, etc. and it should not be performed for any other uses.
B-hCG, qualitative, serum pregnancy screen	No established reference range	
B-hCG, qualitative, urine pregnancy screen	No established reference range	
CA 125 II	0 - 35 U/mL	This result was obtained using Abbott Alinity Chemiluminescent microparticle immunoassay (CMIA). Values obtained with different assay methods cannot be used interchangeably.
CA 19-9	0 - 37 U/mL	This result was obtained using Abbott Alinity Chemiluminescent microparticle immunoassay (CMIA). Values obtained with different assay methods cannot be used interchangeably.
CA 27.29 (BR Assay)	< 38.6 U/mL	This result was obtained using Siemens direct chemiluminometric technology. Values obtained with different assay methods cannot be used interchangeably.
CEA	0 - 5 ng/mL	This result was obtained using Abbott Alinity Chemiluminescent microparticle immunoassay (CMIA). Values obtained with different assay methods cannot be used interchangeably.
CK-MB	Male: 0 - 7.2 ng/mL Female: 0 - 3.4 ng/mL	
C-Peptide	0.78 - 5.19 ng/mL	
Cortisol, Random	2.9 - 19.4 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone (which is converted to prednisolone in vivo) may show artificially elevated cortisol values due to cross-reactivity.
Cortisol AM	3.7 - 19.4 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone (which is converted to prednisolone in vivo) may show artificially elevated cortisol values due to cross-reactivity.
Cortisol PM	2.9 - 17.3 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone (which is converted to prednisolone in vivo) may show artificially elevated cortisol values due to cross-reactivity.
Cortisol Baseline	2.9 - 19.4 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone may show artificially elevated cortisol values due to cross-reactivity.
Cortisol 30 min post cortrosyn	>14.0 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone may show artificially elevated cortisol values due to cross-reactivity.
Cortisol 45 min post cortrosyn	>14.0 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone may show artificially elevated cortisol values due to cross-reactivity.

Analyte	Reference Range	Comments
Cortisol 60 min post cortrosyn	>14.0 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone may show artificially elevated cortisol values due to cross-reactivity.
Cortisol Post Dexamethasone	<5.0 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone may show artificially elevated cortisol values due to cross-reactivity.
Cortisol Post Stimulation	>14.0 mcg/dL	Patients receiving fludrocortisone, prednisolone or prednisone may show artificially elevated cortisol values due to cross-reactivity.
DHEA-S	FEMALES: Age in years: Units: mcg/dL 0-11 Not established 11-15 8.6-169.8 15-20 61.2-493.6 20-25 134.2-407.4 25-35 95.8-511.7 35-45 74.8-410.2 45-55 56.2-282.9 55-65 29.7-182.2 65-70 33.6-78.9 70 and older Not established MALES: Age: Units: mcg/dL 0-11 Not established 11-15 16.6-242.7 15-20 45.1-385.0 20-25 238.4-539.3 25-35 167.9-591.9 35-45 139.7-484.4 45-55 136.2-447.6 55-65 48.6-361.8 65-70 228.5-283.6 70 and older Not established	
Estradiol	Category/Phase: Units: pg/mL Normal menstruating Females: Follicular 21-251 Midcycle 38-649 Luteal 21-312 Post-menopausal Females: Not on HRT <10-28 On HRT <10-144 Males: 24-44	
Ferritin	Males: 21.81 – 274.66 ng/mL Females: 4.63 – 204.00 ng/mL	
Fetal Fibronectin	Negative	
Folate	7.0 - 31.4 ng/mL	
FSH	Category/Phase: Units: mIU/mL Normal menstruating Females: Follicular 3.03-8.08 Midcycle 2.55-16.69 Luteal 1.38-5.47 Post-menopausal Females: 26.72-133.41 Males: 0.95-11.95	
Homocysteine (HCY)	M: 5.46 - 16.20 mcmol/L F: 4.44 - 13.56 mcmol/L	The following drugs may elevate levels of homocysteine: methotrexate, carbamazepine, phenytoin, nitrous oxide, anticonvulsants and 6-azauridine triacetate. S-adenosyl-methionine is an antidepressant may interfere with the Alinity i Homocysteine assay

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Analyte	Reference Range	Comments
Insulin	2 – 28.0 mcgU/mL	
LH	Category/Phase: Units: mIU/mL Normal menstruating Females: Follicular 1.80-11.78 Midcycle 7.59-89.08 Luteal 0.56-14.0 Post-menopausal Females: Without HRT 5.16-61.99 Males: 0.57-12.07	
Occult Blood, fecal (FOB)	Negative	
Parathyroid hormone, intact (iPTH)	22.4-88.2 pg/mL	
Progesterone	Category/Phase: Units: ng/mL Normal menstruating Females: Follicular <0.1-0.3 Luteal 1.2-15.9 Post-menopausal Females: <0.1-0.2 Pregnant Females: First trimester 2.8-147.3 Second trimester 22.5-95.3 Third trimester 27.9-242.5 Males: <0.1-0.2	
Prolactin	Males: 3.46 - 19.40 ng/mL Females: 5.18 – 26.53 ng/mL	
PSA, Total (Abbott Alinity)	< 4.0 ng/mL	This result was obtained using Abbott Alinity Chemiluminescent microparticle immunoassay (CMIA). Values obtained with different assay methods cannot be used interchangeably. The Abbott Alinity i Total PSA assay was used. The Abbott assay is approved as an aid in the detection of prostate cancer when used in conjunction with digital rectal exam (DRE) in men 50 years or older, or as an adjunctive test to aid in the management of prostate cancer patients. Elevated PSA concentrations can only suggest the presence of prostate cancer. Prostatic biopsy is required for diagnosis of cancer. Elevated concentrations of PSA may be observed in the serum of patients with benign prostatic hyperplasia or other nonmalignant disorders. Low PSA concentrations are not always indicative of the absence of cancer. Hormonal therapy may affect PSA expression.
PSA, Total (Advia Centaur)	Males: 0 - 49 yrs 0.0 – 2.5 ng/mL 50 – 59 yrs 0.0 – 3.5 ng/mL 60 – 69 yrs 0.0 – 4.5 ng/mL >70 yrs 0.0 – 6.5 ng/mL Females: < 4.0 ng/mL	Patients under treatment with anti-androgens, LHRH agonists, and 5α-reductase inhibitors (finasteride and others) may exhibit markedly reduced levels of PSA. Specimens obtained from patients undergoing prostate manipulation, especially needle biopsy and transurethral resection, may show erroneously high results. Care should be taken that PSA samples are drawn before these procedures are performed. To see full Limitations of PSA, please refer to SML menu at https://www.testmenu.com/scripps/Tests/329306 This result was obtained using Siemens direct chemiluminometric technology. Values obtained with different assay methods cannot be used interchangeably.
Rubella, IgG	≤5.0 IU/mL Negative for IgG antibodies to Rubella virus ≥ 5.0 IU/mL and ≤9.9 Equivocal ≥10.0 IU/mL Positive for IgG antibodies to Rubella virus	This result was obtained using the Bayer ADVIA Centaur Rubella G assay, an IgG antibody capture microparticle direct chemiluminometric immunoassay. Values obtained with different assay methods cannot be used interchangeably.
SHBG	M: 11.2 - 78.1 nmol/L F: 11.7 - 137.2 nmol/L	

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Analyte	Reference Range	Comments
Sirolimus	See comment	Patient assessment required. Therapeutic range dependent upon the type of transplant, time the dose was administered, and other drugs administered to the patient. Methodology: Chemiluminescent microparticle immunoassay (CMIA). Platform: Abbott Alinity
Tacrolimus	See comment	Patient assessment required. Therapeutic range dependent upon the type of transplant, time the dose was administered, and other drugs administered to the patient. Methodology: Chemiluminescent microparticle immunoassay (CMIA). Platform: Abbott Alinity
Testosterone	Males (21-49 yrs): 240.24 – 870.66 Males (≥50 yrs): 220.91 – 715.81 Females (21-49 yrs): 13.84 – 53.35 Females (≥50 yrs): 12.40 – 35.76	A strong interaction with D-(-) Norgestrel (1000 ng/mL), 19-nortestosterone (Nandrolone), Ethisterone, 11b-Hydroxytestosterone, and 11-Ketotestosterone may interfere with the Abbott Alinity testosterone assay. Do not use samples from patients receiving these compounds.
T3, Free	1.58 - 3.91 pg/mL	
T3, Total	0.35 - 1.93 ng/mL	
T4, Free	0.70 - 1.48 ng/dL	
T4, Total	4.87 - 11.72 mcg/mL	
TSH	0.35 to 4.94 mcIU/mL	
Vitamin B12	213 - 816 pg/mL	
Vit D 25OH	0-18 years: 20-80 ng/mL 18 years and older: 30-90 ng/mL	0-18 years old: Deficiency < 20 ng/mL Optimal level ≥ 20 ng/mL Potential toxicity > 100ng/mL Wagner CL et al. Pediatrics 2008; 122: 1142-52 18 years and older: Deficiency < 20 ng/mL Insufficiency 20-29 ng/mL Optimal level ≥ 30 ng/mL Potential toxicity > 100ng/mL Patients whose predominant form of vitamin D is D2, such as those receiving vitamin D2 supplementation, results that are subtherapeutic should be confirmed with another method, such as LC-MS/MS.

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CORE LABORATORY REFERENCE RANGES

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INFECTIOUS DISEASE:

Assay	Reference Range	Comments	Resulting S/CO – Interpretation
Hepatitis A IgG	Non-Reactive		< 1.0 **Non-Reactive** ≥ 1.0 **Reactive**
Hepatitis A IgM	Non-Reactive	Non-Reactive: A negative test result does not exclude the possibility of exposure to hepatitis A virus. Levels of IgM anti-HAV may be below the cutoff in early infection and late acute infection. Equivocal: Patients exhibiting equivocal results should be closely monitored by redrawing and retesting at approximately one-week intervals. *Reactive: The positive anti-HAV IgM test is consistent with recent or current Hepatitis A infection. A reactive IgM anti-HAV result does not necessarily rule out other hepatitis infections.	< 0.80 **Non-Reactive** 0.80 – 1.20 **Equivocal** ≥ 1.21 **Reactive***
Hepatitis B core Total	Non-Reactive	A nonreactive test result does not exclude the possibility of exposure to or infection with HBV.	< 0.80 **Non-Reactive** 0.80 – 1.20 **Equivocal** **Retest sample in duplicate** 2 of 3 Result: <0.80 Non-Reactive 0.80-1.20 Equivocal ≥ 1.21 Reactive ≥ 1.21 **Reactive** **Retest sample in duplicate** 2 of 3 Result: <0.80 Non-Reactive 0.80-1.20 Equivocal ≥ 1.21 Reactive **(Reflexes to Hep B core IGM)**
Hepatitis B core IgM	Non-Reactive	Non-Reactive: A nonreactive test result does not exclude the possibility of exposure to or infection with HBV. Equivocal: Patients exhibiting equivocal results should be closely monitored by redrawing and retesting at approximately one-week intervals.	< 0.80 **Non-Reactive** 0.80 – 1.20 **Equivocal** ≥ 1.21 **Reactive***

Assay	Reference Range	Comments	Resulting S/CO – Interpretation
Hepatitis C Ab	Non-Reactive	Non-Reactive: A nonreactive test result does notexclude the possibility of exposure to or infection with HCV. Immunocompromised patients who have HCV may produce levels of antibody below the sensitivity of this assay and may not be detected as positive. Equivocal for Hep C Ab: Supplemental testing is recommended for Equivocal result. Options include: retest in 2-4 weeks or PCR Hepatitis C testing (requires new sample). Equivocal for Hep C Ab with reflex to RNA quant PCR: For Equivocal result, supplemental testing is recommended. A reflex PCR test is being performed.For Reactive for Hep C Ab: A reactive result may indicate current HCV infection, past resolved HCV infection, or a false positive result. HCV RNA testing is recommended. Reactive for Hep C Ab with reflex to RNA quant PCR: A reactive result may indicate current HCV infection, past resolved HCV infection, or a false positive result. A reflex PCR test is being performed. See separate report.	0.0 – 0.79 **Non-Reactive** 0.80 – 0.99 **Equivocal** **Retest sample in duplicate** 2 of 3 Result: 0.0 – 0.79 Non-Reactive 0.80 – 0.99 Equivocal ≥ 1.0 Reactive ≥ 1.0 **Reactive***
Hepatitis B surface Ab		Equivocal: The immune status of the individual should be further assessed by considering other factors, such as clinical status, follow-up testing, associated risk factors, and the use of additional diagnostic information.	**< 8.0 Non-Immune to HBV** **≥ 8.0 – 11.99 Equivocal** **Retest sample in duplicate** 2 of 3 Result: < 8.0 Non-Immune to HBV ≥ 8.0 – 11.99 Equivocal ≥ 12.0 Immune to HBV **≥ 12.0 Immune to HBV**
Hepatitis B surface Ag	Non-Reactive		**< 1.0 Non-Reactive** **≥ 1.0 Reactive** **Retest sample in duplicate** 2 of 3 Result: < 1.0 Non-Reactive ≥ 1.0 Reactive **(Reflexes to Hep B surface Ag Confirmatory)**

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Assay	Reference Range	Comments	Resulting S/CO – Interpretation
Hepatitis B surface Ag, Confirmatory	Negative	Positive results will be reported to the San Diego Department of Health Services as required by Title 17, California Code of regulations, Section 2505.	* See table below

*** Hep B surface Ag Confirmatory Resulting Table**

DILUTION	HBsAg Qu C2 S/CO	% Neutralization	FINAL INTERPRETATION
NEAT (UNDILUTED)	< 0.70	Not applicable	Not confirmed/Negative
	< 10.0	< 50 %	Not confirmed/Negative
	≥ 0.70	≥ 50 %	Confirmed Positive
	≥ 10.0	< 50 %	Repeat test using a 1:500 dilution
1:500	< 0.70	Not applicable	Not confirmed/Negative
	≥ 0.70	≥ 50 %	Confirmed Positive
	≥ 0.70	< 50 %	Repeat test using a 1:20 000 dilution
1:20,000	< 0.70	Not applicable	Not confirmed/Negative
	≥ 0.70	≥ 50 %	Confirmed Positive
	≥ 0.70	< 50 %	Not confirmed/Negative

HIV Ag/Ab Combo	Non-Reactive		**< 1.0 Non-Reactive** **≥ 1.0 Reactive*** **Retest sample in duplicate** 2 of 3 Result: < 1.0 Non-Reactive ≥ 1.0 Reactive **(Reflexes to HIVMS)**
Syphilis	Non-Reactive		**< 1.0 Non-Reactive** **≥ 1.0 Reactive***

*Reactive or positive results will be reported to the San Diego Department of Health Services as required by Title 17, California Code of regulations, Section 2505.

CORE LABORATORY REFERENCE RANGES

PEDIATRIC REFERENCE RANGES (CALIPER STUDY)

AFP (ng/mL)

AGE	FEMALE/ MALE
0 - 1 month	>2000
1 - 6 months	10 - 1359
6 months – 1 year	0 - 103
1 - 19 years	2 - 35

FERRITIN (ng/mL)

AGE	FEMALE	AGE	MALE
0 – 14 days	99.6 – 717	0 – 14 days	99.6 – 717
15 days – 6 months	14 – 647.2	15 days – 6 months	14 – 647.2
6 months – 1 year	8.4 – 181.9	6 months – 1 year	8.4 – 181.9
1 – 5 years	5.3 – 99.9	1 – 5 years	5.3 – 99.9
5 – 14 years	13.7 – 78.8	5 – 14 years	13.7 – 78.8
14 – 19 years	5.5 – 67.4	14 – 16 years	12.7 – 82.8
		16 – 19 years	11.1 – 171.9

FREE T3 (pg/mL)

AGE	FEMALE	MALE
0 – 1 year	2.32 – 4.87	2.32 – 4.87
1 – 12 years	2.79 – 4.42	2.79 – 4.42
12 – 15 years	2.5 – 3.95	2.89 – 4.33
15 – 19 years	2.31 – 3.71	2.25 – 3.85

FSH (mIU/mL)

AGE	FEMALE	AGE	MALE
0 - 30 days	Not established	0-30 days	Not established
30 days – 1 year	0.4 - 10.4	30 days – 1 year	0.11 – 2.4
1 – 9 years	0.4 – 5.5	1 – 5 years	≤ 0.9
9 – 11 years	0.4 – 4.2	5 – 10 years	≤ 1.6
11 – 19 years	0.3 – 7.8	10 – 13 years	0.4 – 3.9
		13 – 19 years	0.8 - 5.1

LH (mIU/mL)

AGE	FEMALE	MALE
0 – 4 days	Not established	Not established
4 days – 3 months	≤ 2.4	0.2 – 3.8
3 months – 1 year	≤ 1.2	≤ 2.9
1 – 10 years	≤ 0.3	≤ 0.3
10 – 13 years	≤ 4.3	≤ 4.3
13 – 15 years	0.4 – 6.5	≤ 4.1
15 – 17 years	≤ 13.1	0.8 – 4.8
17 – 19 years	≤ 8.4	0.9 – 7.1

PROGESTERONE (ng/mL)

AGE	FEMALE	MALE
0 – 4 days	Not established	Not established
4 days - 1 year	≤ 1.32	≤ 0.66
1 - 10 years	≤ 0.35	≤ 0.35
10 – 15 years	0.5 - 0.85	0.5 - 0.85
15 - <19 years	0.5 - 10.26	0.5 - 0.57

TOTAL T3 (ng/mL)

AGE	FEMALE	MALE
0 – 4 days	Not established	Not established
4 days - 1 year	0.85 - 2.34	0.85 - 2.34
1 - 12 years	1.13 - 1.89	1.13 - 1.89

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AGE	FEMALE	MALE
12 – 15 years	0.98 - 1.76	0.98 - 1.76
15 - 17 years	0.92 - 1.42	0.94 - 1.56
17 - 19 years	0.90 - 1.68	0.90 - 1.68

TOTAL T4 (mcg/dL)

AGE	FEMALE	MALE	COMMENT
0 – 7 days	Not established	Not established	Reference range not established for this Abbott Alinity assay for 0- 7 days of age. The reference range for 7d-1yr is: 5.9-13.7 mcg/dL
7 days – 1 year	5.9 – 13.7	5.9 – 13.7	
1 – 9 years	6.2 – 10.3	6.2 – 10.3	
9 – 12 years	5.5 – 9.3	5.5 – 9.3	
12 – 14 years	5.1 – 8.3	5.0 – 8.3	
14 – 19 years	5.5 – 13.0	4.7 – 8.6	

TESTOSTERONE (ng/dL)

AGE	FEMALE	AGE	MALE
0 – 4 days	Not established	0 – 4 days	Not established
4 days - 9 years	4.33 – 62.0	4 days - 6 months	4.33 – 299
9 - 13 years	≤ 28.2	6 months - 9 years	≤ 36
13 – 15 years	10.4 – 44.4	9 – 11 years	≤ 23
15 - 19 years	14.1 - 49.0	11 - 14 years	≤ 444
		14 – 16 years	36 - 632
		16 - 19 years	148 - 794

TSH (mcIU/mL)

AGE	FEMALE/ MALE	COMMENT
0 – 4 days	Not established	Reference range not established for the Abbott Alinity assay for 0- 4 days of age. The reference range for 4 days to < 6 months is: 0.73-4.77 mcIU/mL
4 days – 28 days	0.73 – 4.77	
28 days – 6 months	0.73 – 4.77	
6 months – 14 years	0.7 – 4.17	
14 – 19 years	0.47 – 3.41	

VITAMIN B12 (pg/mL)

AGE	FEMALE/ MALE
0 – 1 year	259 – 1576
1 – 9 years	283 – 1613
9 – 14 years	252 – 1125
14 – 17 years	244 – 888
17 – 19 years	203 – 811

COMMENTS APPENDED TO RESULTS FROM PEDIATRIC PATIENTS:

A. Pediatric reference ranges not validated *for this Alinity assay*. For discussion of pediatric reference ranges, see Critical reviews in clinical laboratory science (2017), 54:6,358-413, https://doi.org/10.1080/10408363.2017.1379945

- CA125
- CA 19-9
- CEA
- FOLATE
- INSULIN
- Intact PTH
- Cortisol, Random
- ATPO

B. Pediatric reference ranges not validated for this Alinity assay. For discussion of pediatric reference ranges, see:

1. Critical reviews in clinical laboratory science (2017), 54:6,358-413, https://doi.org/10.1080/10408363.2017.1379945
2. Clin Chem Lab Med (2021), 59(10):1680-87, https://doi.org/10.1515/cclm-2021-0337

- FREE T4
- PROLACTIN

C. Pediatric reference ranges not well-established for the Abbott Alinity assay. See references (1,2).

1. Critical reviews in clinical laboratory science (2017), 54:6,358-413, https://doi.org/10.1080/10408363.2017.1379945
2. Clin Chem Lab Med (2021), 59(10):1680-87, https://doi.org/10.1515/cclm-2021-0337

- HOMOCYSTEINE
- SHBG

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IMMUNOLOGY TESTS

TEST	REFERENCE RANGE
Borrelia burgdorferi (Lyme), IgG/IgM **LYM**	=/<0.90 OD Ratio Negative 0.91 to 1.09 OD Ratio Equivocal =/>1.10 OD Ratio Positive Note: Positive results will reflex to Western Blot supplemental assay and are reported to SDPH as required by Title 17, CCR Sec.2505
Anticardiolipin antibodies, IgG and IgM **ACLP**	Cardiolipin IgM <20 MPL Negative 20-29 MPL Low Positive 30-79 MPL Moderate Positive >79 MPL High Positive Cardiolipin IgG <20 GPL Negative 20-29 GPL Low Positive 30-79 GPL Moderate Positive >79 GPL High Positive
Cytomegalovirus, IgG **CMVG**	=/<0.90 OD Ratio Negative 0.91 to 1.09 OD Ratio Equivocal =/>1.10 OD Ratio Positive
Cytomegalovirus, IgM **CMVM**	=/<0.90 OD Ratio Negative 0.91 to 1.09 OD Ratio Equivocal =/>1.10 OD Ratio Positive
Epstein-Barr Virus Ab Panel without Early Antigen **EBVPL** Includes: Viral Capsid Antigen IgG Viral Capsid Antigen IgM Nuclear Ag Antibodies	No detectable antibody to EBV IgG, EBV IgM, EBV EBNA IgG Index Value (IV) =/<0.90 IV Negative 0.91 to 1.09 IV Equivocal =/>1.10 IV Positive
HerpeSelect1 ELISA IgG by Focus Technologies **HSV1GG**	Index Value (IV) =/<0.90 IV Negative No IgG antibodies to HSV-1 0.91 to 1.09 IV Equivocal =/>1.10 IV Positive Presumptive for the presence of IgG antibodies to HSV-1
HerpeSelect2 ELISA IgG by Focus Technologies **HSV2GG**	Index Value (IV) =/<0.90 IV Negative No IgG antibodies to HSV-2 0.91 to 1.09 IV Equivocal =/>1.10 IV Positive Presumptive for the presence of IgG antibodies to HSV-2
Measles (Rubeola) IgG **RUBO**	=/<0.90 OD Ratio Negative 0.91 to 1.09 OD Ratio Equivocal =/>1.10 OD Ratio Positive
Mumps IgG **MUMPSG**	=/<0.90 OD Ratio Negative 0.91 to 1.09 OD Ratio Equivocal =/>1.10 OD Ratio Positive Indicates past or current infection with Mumps Virus or prior vaccination against Mumps Virus.

CORE LABORATORY REFERENCE RANGES

TEST	REFERENCE RANGE
Varicella-Zoster Virus IgG **VRCZ**	=/<0.90 OD Ratio Negative for IgG antibodies to VZV. Indicates no current or previous infection with VZV. Non-Immune 0.91-1.09 OD Ratio Equivocal. Should be retested. =/>1.10 OD Ratio Positive for IgG antibodies to VZV. Indicates past or current VZV infection. Immune.
QuantiFERON (QTB)	Interpretation <0.35 IU/ml Negative = >0.35 IU/ml Positive CD4 Lymphocyte Reactivity (TB1-NIL) 0.0 to 0.34 IU/ml CD4 and CD8 Lymphocyte Reactivity (TB2-NIL) 0.0 to 0.34 IU/ml Positive results are reported to San Diego Public Health Department as required by Title 17, CCR Sec.2505
Rapid Plasma Reagin **RPR/ RPRT /RPRM**	Non-Reactive Interpretative comments will be printed on report. Reactive RPR results are reported to San Diego Public Health Department as required by Title 17, CCR Sec.2505
Free light chain/ratio Kappa Quantitative Free Light Chain Lambda Quantitative Free Light Chain Kappa/Lambda Free Light Chain Ratio (calculated)+	 3.30 – 19.40 mg/L 5.71 – 26.30 mg/L 0.26 – 1.65
Cold agglutinin Titer at 4°C, 22°C, 37°C	Normal = titer of 1:32 or less Elevated = 1:64 or greater
Cryoglobulin	Negative
Infectious Mononucleosis (Mono test)	Negative
HIV GEENIUS Supplemental Assay HIV1-Ab HIV2-Ab	 Non-Reactive Non-Reactive Note: Reactive results are reported to SDPH as required by Title 17, CCR Sec.2505
ANA Ab by EIA Antinuclear Antibodies Note: If positive, will reflex to ANA titer and pattern by Immunofluorescent antibody method (ANAH)	 Negative
SMRNP Ab If positive, Smith Antibody will be repeated.	Negative

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TEST	REFERENCE RANGE
RNP antibody will be sent out to ARUP (see RNPAB)	
Smith Ab	Negative
Sjogren's Ab (SSA Ab/SSB Ab)	Negative
Scleroderma Ab SCL-70	Negative
ANA Hep2 Cell, Quant **Pattern**	Negative at 1:40 Pattern not present
DNA Ab **Liver Kidney Microsomal Ab (LKMA)** **Antimitochondrial Ab (AMITA)** **Anti-smooth muscle Ab (ASMA)** **Anti-parietal cell Ab (APARC)**	Negative at 1:10 Negative at 1:20 Negative at 1:20 Negative at 1:20 Negative at 1:20
Protein Electrophoresis, Serum (Abnormal scan will reflex to Immunofixation)	Total Protein 6.3 - 8.2 g/dL Albumin 3.3 - 4.4 g/dL Alpha 1 0.1 - 0.3 g/dL Alpha 2 0.4 - 1.0 g/dL Beta 0.8 - 1.3 g/dL Gamma 0.8 - 1.7 g/dL See pathologist interpretation
Protein Electrophoresis, Urine (Abnormal scan will reflex to Immunofixation)	See pathologist interpretation

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HEMATOLOGY

COMPLETE BLOOD COUNT - Adult Reference Ranges

For reference ranges for other age groups or gender not specified, go to https://www.testmenu.com/scripps and click on Downtime Resources or scan the QR Code for CBC Ranges

To obtain absolute cell count, multiply the WBC count by the % of differentiated cell (ex. Absolute Neutrophil count = WBC count x % neutrophil), or access the downtime calculation spreadsheet for Calculations.

CBC PARAMETER	UNIT	MALE	FEMALE
WBC	10^3 /ul	3.40 -11.0	3.40 -11.0
RBC	10^6 /ul	4.46 – 5.85	3.98 -5.25
HGB	g/dl	13.0 – 17.1	11.9 – 15.3
HCT	%	39.8 – 51.5	37.3 - 46.7
MCV	fl	81.0 -100.0	
MCH	pg	26.0 -33.0	
MCHC	g/dl	31.0 -36.0	
RDW-CV	%	11.7 – 14.9	
Platelets	10^3 /ul	150 - 425	
MPV	10^3 /ul	9.0 – 12.8	
% Neutrophils	%	38 - 74	
% Lymphocytes	%	16 - 48	
% Monocytes	%	4.9 - 12.5	
% Eosinophils	%	0.4 – 9.5	
% Basophils	%	0.2 – 1.6	
% Band	%	0 - 6	
% Immature Granulocytes (IG)	%	0.0 – 1.2	
NRBC	%	0.0	
Reticulocyte %	%	0.9 – 2.4	
Reticulocyte	10^6 /ul	0.044 – 0.115	
Immature Retic Fraction (IRF) %	%	2.7 - 13.5	
Ret-He	pg	30.1 – 37.3	
Immature Platelet Fraction (IPF) %	%	0.9 – 9.7	
IPF	10^3 /ul	2.8 – 19. 5	
Absolute Neutrophil Count*	10^3 /ul	1.5 – 7.4	
Absolute Lymphocyte Count*	10^3 /ul	0.9 – 3.1	
Absolute Monocytes Count*	10^3 /ul	0.26 – 0.87	
Absolute Eosinophils Count*	10^3 /ul	0.03 - 0.51	
Absolute Basophils Count*	10^3 /ul	0.01 – 0.09	
Absolute Band Count*	10^3 /ul	0.0 - 6.0	
Absolute IG Count*	10^3 /ul	0.00 – 0.10	

HEMATOLOGY MANUAL TESTS

TEST	REFERENCE RANGE	TEST	REFERENCE RANGE
ERYTHROCYTE SED RATE (ESR)	AGE MALE FEMALE ≤ 13 0-10 0-10 mm/hr 14-50 0-15 0-20 mm/hr >50Y 0-20 0-30 mm/hr	**Viscosity, Serum (ratio)**	1.4-1.8
Urine Eosinophil	NONE SEEN	**WBC Smear (MICXS), stool FECAL LEUKOCYTES**	NONE SEEN

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ROUTINE AND SPECIAL COAGULATION

TEST	REFERENCE RANGE	TEST	REFERENCE RANGE
PROTHROMBIN TIME (Seconds)	10.0-13.1 (>= 18Yr) 8.8-12.5 (6 mos to < 18 yr) 8.8-14.7 (0-6 mos)	**Activated Protein C (FV Leiden)**	Greater than 2.2 ratio
INR	Therapeutic: 2.0 – 3.0 conventional anticoagulation 2.5-3.5 intensive anticoagulation	**Anti-thrombin**	83 – 128%
ACTIVATED PTT (Seconds)	26-38 (>= 18Yr) 25-39 (<18yr) Therapeutic: 53-87 seconds	**Protein C Activity**	70 – 140%
FIBRINOGEN (mg/dl)	187-416 mg / dL (>= 18Yr) 150-400 mg/dL (<18yr)	**Factor II Activity**	79 – 131%
INHIBITOR SCREEN (PT or PTT mixing studies)	PT or PTT – same ranges as above See pathologist interpretation on separate report	**Factor V Activity**	62 – 139%
D-DIMER (DDQ)	**< 500 ng/mL FEU** (>= 18Yr) **<= 570 ng/mL FEU** (<18Yr) Manufacturer studies indicate a D-Dimer value <500 ng/mL FEU has a high negative predictive value for DVT or PE in clinically low risk ambulatory patients. A value ≥500 ng/mL FEU warrants further studies to exclude DVT or PE.	**Factor VII Activity**	50 – 129%
PLATELET FUNCTION ASSAY (PFA)	**EPI:** 73-190 seconds EPI result >170 second will reflex to ADP	**Factor VIII Activity**	50 – 150%
	ADP: 65-118 seconds	**Factor IX Activity**	65 – 150%
	See pathologist interpretation	**Factor X Activity**	77 – 131%
		Factor XI Activity	65 – 150 %
		Factor XII Activity	50 – 150%
		Factor XII Activity	50 – 150%
		Factor XIII Screen	Stable

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URINE TESTS

URINALYSIS	REFERENCE RANGE
Clarity	Clear
Color	Yellow
Glucose	Negative (mg/dL)
Ketones	Negative (mg/dL)
Blood	Negative
Protein	Negative
Nitrite	Negative
Specific Gravity	1.005 – 1.030
pH	5.0 – 8.5
Urobilinogen	<2.0 mg/dL
Leukocyte Esterase	Negative
WBC	0 – 2 / HPF
RBC	0 – 2 / HPF
EPITHELIAL CELLS	None/LPF
CASTS	None/LPF
MUCUS	None/LPF
BACTERIA	None/HPF
CRYSTALS	None/LPF

URINE TOXICOLOGY DRUGS OF ABUSE SCREEN	Reference Range	Negative Threshold (cutoff concentration)
AMPHETAMINE	Negative	500 ng/ml
BARBITURATE	Negative	200 ng/ml
BENZODIAZEPINE	Negative	150 ng/ml
COCAINE	Negative	150 ng/ml
METHADONE	Negative	200 ng/ml
METHAMPHETAMINE	Negative	500 ng/ml
OPIATE	Negative	100 ng/ml
OXYCODONE	Negative	100 ng/ml
PCP	Negative	25 ng/ml
TCA	Negative	300 ng/ml
THC	Negative	50 ng/ml

Result comments:
This method provides screening results for medical purposes only. A more specific alternate chemical method must be used for a confirmed analytical result. Clinical considerations and professional judgment should be applied to any drug of abuse result, particularly when screening positive results are used.

Contact laboratory to order confirmatory testing.
*Positive results will not automatically reflex. The provider must order confirmatory test for positive result, if desired. Call the laboratory Customer Services at (858) 554-9552 to add the test.

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BODY FLUID / MANUAL TESTS

SEMEN ANALYSIS	Reference Range	SYNOVIAL FLUID ANALYSIS	Reference Range
*Days of abstinence	2 - 7	**Color**	Yellow, light yellow, straw, colorless
*Volume	> 1.4 ml	**Appearance**	Clear
*Appearance	2 - 3 turbidity, no unusual color	**Volume**	mls
*Liquefaction	Liquefaction < or = 30 min	**Nucleated Cell Count**	0-200/mcl
*1 hr progressive motility %	> 31%	**RBC Count**	<15000/mcl
*Motility	Motility > 4.7 mil/mL	**Glucose**	None established
*Motile sperm/ejaculate	> 7.1 million /ml	**Protein**	None established
*pH	7.2-8.0	**Segmented Cells (% Neutrophils)**	0-25 %
*Viscosity	Pours drop by drop	**Lymphocytes %**	None established
*Agglutination	NONE	**Mononuclear Cells %**	None established
WHO Normal Morphology % Normal	3.9 %	**Crystals**	No crystals
Abnormal head (ABHEAD) Other forms (SMNOTH) Immature forms (IMFORM)	No reference range established	* Semen analysis Part I performing labs	
Germ Cells	< 4.00 million / mL	SML Jefferson #05D0691203 2205 Vista Way Oceanside, CA 92054 CLIA Director: Keith E. Thompson, MD	
Leukocytes	0 - 5 / HPF	SML Rancho Bernardo #05D0571647 15004 Innovation Drive San Diego, CA 92128 CLIA Director: Beth Palla, MD	
Sperm Count	>14.9 million /ml	SML Torrey Pines #05D0665463 10666 N. Torrey Pines Road La Jolla, CA 92037 CLIA Director: Emma Z. Du, MD	
Sperm Count, Post Vasectomy	No sperm seen on wet mount. The presence of sperm may be below the limit of detection. A concentrating technique was not performed.		