

SPECIMEN COLLECTION AND HANDLING

HANDLING AND PROCESSING OF BLOOD SPECIMENS

Laboratory test results are dependent on the quality of the specimen submitted. The pre-analytical factors contributing to erroneous laboratory test results are as follows:

- Failure to draw a patient at correct time (fasting, post or pre medication)
- Failure to process blood in a timely manner
- Hemolysis of blood as a result of venipuncture or specimen mishandling
- Incorrect transport and storage temperature
- Using improper vacutainer containing inappropriate additive

LABELING SPECIMENS

All specimens must be properly labeled with the following information:

- Patient Name
- Medical Record Number
- Collection Date and Time
- Collector's name or initials

BLOOD COLLECTION

Most laboratory tests are performed on serum, anticoagulated whole blood, or plasma. Please refer to individual test directory section for specific information.

Plasma: Draw a sufficient amount of blood with the indicated anticoagulant to yield the necessary plasma volume. Gently mix the blood collection tube by inverting 8-10 times immediately after collection. If required, separate plasma from cells by centrifugation within 30 minutes.

Serum: Draw a sufficient amount of blood to yield the necessary serum volume. Gently mix the blood 5 times if SST is used. Allow blood to clot at ambient temperature, approximately 30 minutes. Separate serum from clot by centrifugation within 60 minutes at RPM's required to give clean spin.

Whole Blood: Draw a sufficient amount of blood with the indicated anticoagulant. Gently mix the blood collection tube by inverting 8-10 times immediately after collection.

Table 1: Scripps Medical Laboratory Specimen Tube Guide

Tube Name/Additive	Tube Top Color	Processing instruction
Serum Separator Tube (SST). Clot activator and gel separator	Gold	Invert the tube five times to activate clotting. Let stand upright for 30 min before centrifuging. Centrifuge 10-20 minutes. Separate Serum from clot.

EDTA anticoagulant	Lavender	Fill the tube with blood, immediately invert the tube eight times to prevent clotting.
Sodium Citrate anticoagulant	Light Blue	Fill this tube to Capacity . The ratio of blood to anticoagulant is critical for valid test analysis. Discard an initial 1-2 cc of blood prior to filling the blue top tube. After draw, immediately invert the tube 3-4 times to prevent clotting.
Plasma Preparation Tube (PPT), Potassium EDTA and a gel separator	Pearl	Centrifuge and freeze PPT tube within 2 hours of collection. Do not aliquot.
ACD, Acid Citrate Dextrose anticoagulant	Yellow	This tube is used for collection of whole blood samples. After draw, immediately invert the tube eight times to prevent clotting.
Plain, EDTA or Sodium Heparin anticoagulant	Royal Blue	This tube is used for collection of whole blood or serum for trace metal analysis.
Potassium Oxalate as anticoagulant and Sodium Fluoride as a glucose preservative	Gray	Fill this tube with blood, immediately invert the tube eight times to prevent clotting.
Sodium Heparin	Dark Green	This tube is used for collection of heparinized plasma or whole blood. After draw, immediately invert the tube eight times to prevent clotting.
Lithium Heparin and a gel separator	Light Green	After draw, invert the tube eight times to prevent clotting. Centrifuge the tube 10-20 minutes to separate the plasma from the cells.

****Note: If there is any doubt or question regarding the type of specimen to be collected, call Client Services at 858-554-9552***

SPECIMEN PACKAGING AND TRANSPORT

Specimen Storage:

Ambient temperature (Room Temp) - Used for transport of serum and urine specimens that do not require special temperature or handling. Avoid exposing blood samples to artificial light or sunlight for any length of time.

Refrigerated Specimen – Refrigerate specimen for storage before pick up by courier. Any specimen which must be stored for more than an hour prior to pickup should be refrigerated, unless otherwise indicated under specimen requirements.

Frozen specimen – Freeze specimen at temperatures below 20.C. as soon as possible after collection. For critical specimens or freezing is not possible, please contact Client Service at 858-554-9552 and arrange for a special transport.

Specimen Transport:

Transportation should occur at correct temperature so that the specimen integrity is always maintained. Appropriate test requisition(s) must accompany labeled specimens and should be placed in the sleeve conveniently located on the front side of the transport bag. Place one patient ONLY per bag.

URINE COLLECTION

Clean Catch Urine Collection

- Wash hands with soap and water, rinse and dry on a disposable paper towel.
- Cleanse urinary area with towelette.
- Pass the first portion of the urine into the toilet bowl and without stopping, catch the remaining urine into a clean container.
- Transfer urine to a labeled screw-capped, sterile container.
- Specimen must be labeled with the patient's first and last name, Medical Record Number, and date of collection.
- Refrigerate urine until courier transport.

24 Hour Urine Collection

- Provide patients with appropriate container containing specific type of preservative.
- Affix hazardous warning labels to containers with acids, and verbally warn the patient of the presence of potentially hazardous preservatives in the specimen container.
- Instruct the patient to discard the first morning specimen and to record the time of voiding.
- The patient should collect all subsequent voided urine for the remainder of the day and night.
- Collect the first morning specimen on day two at the same time as noted for day one.
- Specimen must be labeled with the patient's first and last name, medical record number, date and time of collection, type of preservative (if applicable), and the name of the test to be performed.

REJECTION OF SPECIMEN

Specimens must be collected and handled properly to insure accurate and timely laboratory results. Improperly collected and handled specimens may give misleading results to the physician, waste valuable technologist time, delay clinical decision-making, cause repeated discomfort to the patient, decrease customer satisfaction, and may pose a safety hazard to employee.

All specimens **MUST** be labeled with the patient's first and last name, medical record number, date and time of collection, initials of person who collected the sample. Specimens received that are unlabeled or mislabeled may be rejected. Any unlabeled specimens will be rejected and must be recollected.

The physician's office is notified if a specimen cannot be accepted. The test must be ordered in the laboratory computer and credited with an explanation as to why the specimen could not be accepted.

If the physician insists that testing be run on the specimen, the technologist coordinator or manager will need to be notified.

SPECIMEN REQUIREMENTS

See the Alphabetical Test Listing tab. Look up the test name for specimen requirements, tube types, minimum sample size, storage/transport instructions and more.