

Specimen Collection and Preparation

Laboratory test results are dependent on the quality of the specimen submitted. It is important that all specimens and request slips be properly labeled with name of patient, patient's date of birth, collection date, and origin (source) of specimen, when applicable.

If there is any doubt or question regarding the type of specimen that should be collected, it is imperative that ThedaCare Laboratory be called to clarify the order and specimen requirements.

Blood Collection

Most laboratory tests are performed on anticoagulated whole blood, plasma, or serum. Please refer to the requirements for a specific test to determine the preferred method of specimen preparation prior to shipment or courier pick up.

- **Plasma:** Draw a sufficient amount of blood with the indicated anticoagulant to yield the necessary plasma volume. If required, separate plasma from cells by centrifugation as soon as possible. This must be done within 2 hours of drawing specimen.

—Plasma Collection Tubes Available

- **Green-Top (Lithium or Sodium Heparin) Tube:** Lithium heparin tubes are most frequently used for drawing heparinized plasma or whole blood. Sodium heparin tubes are available from ThedaCare Laboratory upon request for special testing only.
Note: After tube has been filled with blood, immediately invert tube 8 to 10 times to prevent coagulation.
- **Grey-Top (Potassium Oxalate/Sodium Fluoride) Tube:** This tube contains potassium oxalate as an anticoagulant and sodium fluoride as a preservative—used to preserve glucose in whole blood and for some special chemistry tests.
Note: After tube has been filled with blood, immediately invert tube 8 to 10 times to prevent coagulation.

- **Lavender-Top (EDTA) Tube:** This tube contains EDTA as an anticoagulant and is used for most hematologic procedures.
Note: After tube has been filled with blood, immediately invert tube 8 to 10 times to prevent coagulation.
- **Light Blue-Top (Sodium Citrate) Tube:** This tube contains sodium citrate as an anticoagulant and is used for coagulation studies.
Note: It is imperative that this tube be completely filled. The ratio of blood to anticoagulant is critical for valid test results. Immediately after drawing blood, invert tube 3 to 4 times to activate anticoagulant.
- **Mint Green-Top (Lithium Heparin Gel) Tube:** This tube contains lithium heparin anticoagulant and gel to separate the plasma from red cells. This tube is used for plasma assays in chemistry to eliminate the time required for a serum specimen to clot.
Note: Underfilling tubes may cause erroneous results due to excessive heparin. Immediately after collection, gently invert filled tube 8 to 10 times to mix anticoagulant with blood. Then centrifuge at full speed (between 1,100 and 1,300 g) for 10 minutes in a swing head unit or 15 minutes in a fixed angle unit. Gel barrier should form a tight seal separating the red cells from the plasma. After centrifugation, Mint green tube must be kept in a vertical, closure-up position.
- **Pink-Top (K₂ EDTA) Tube:** This tube contains potassium EDTA, 10.8 mg. This tube is used for Blood Bank testing.
Note: After tube has been filled with blood, immediately invert tube 8 to 10 times to prevent coagulation.
- **Serum:** Draw a sufficient amount of blood with the appropriate tube to yield the necessary serum volume. Plastic serum tubes should be gently mixed by inversion 5 times. Allow tube to clot in a vertical position at ambient temperature for a minimum of 30 minutes. Then, centrifuge at FULL SPEED (between 1,100 and 1,300 g) for 10 minutes in a swing-head unit or for 15

minutes in a fixed-angle unit. Be sure to properly balance the tubes in the centrifuge. Separate serum from cells by centrifugation within 2 hours of drawing specimen.

—**Serum Collection Tubes Available**

- ***Gold-Top Serum Gel Tube:*** This tube contains a clot activator and serum gel separator. It is used for various laboratory tests.
Note: After tube has been filled with blood, immediately invert tube 5 times to activate clotting. Allow tube to clot for a minimum of 30 minutes in a vertical position; observe a dense clot prior to centrifugation. Then, centrifuge at full speed for 10 minutes in a swing-head unit or 15 minutes in a fixed-angle unit. Gel barrier should form a tight seal separating red cells from serum. If frozen serum is required, serum must be removed from gold-top tube and transferred to a plastic transport vial available from ThedaCare Laboratory.
- ***Red-Top Tube:*** VACUTAINER® It is used for drawing serum for selected chemistry tests as well as clotted blood for immunohematology.

Specimen Collection for Microbiology

See “Microbiology Collection” in “Special Instructions” for instructions on collection and handling of microbiology specimens.

Special Collection Tubes

- ***Royal Blue-Top Tube:*** There are 2 types of royal blue-top Monoject® tubes. One has EDTA anticoagulant and the other is a plain tube. These are used in drawing of whole blood or serum for trace element analysis. Please refer to individual test listings to determine correct tube type.
- ***Tan-Top Tube:*** This tube contains potassium EDTA anticoagulant and is used for drawing whole blood for trace element analysis, such as lead. Please refer to individual test listings to determine correct tube type.
- ***Yellow-Top (ACD) Tube:*** This tube contains ACD and is used for drawing whole blood for special tests. Please refer to individual test listing to determine correct tube type.
- ***Lavender-Top (EDTA) Tube:*** BD MICROTAINER® with BD Microgard closure: this MICROTAINER® contains potassium EDTA anticoagulant. Please refer to individual test listings to determine correct tube type.