

Specimen Collection

The accuracy of laboratory testing depends on the quality of the specimen submitted. Proper specimen collection, identification, and transport determine the accuracy and utility of the test results. Please consult the test catalog for information about collection and handling of specimens. If there are any questions, please call Billings Clinic Laboratory to clarify the specimen requirements. To help with specimen identification, Billings Clinic Laboratory requisitions have pre-numbered specimen labels.

Blood Collection

- ***Serum:*** Draw a sufficient amount of whole blood into a plain, red-top tube or a serum gel tube. If using a serum gel tube, gently invert the tube several times to activate clotting. Allow blood to clot at ambient temperature for 20 to 30 minutes. Centrifuge for 10 minutes to separate serum from clot and transfer the serum to a screw-capped, plastic vial if required; this should be completed within 1 hour of obtaining the specimen.

Note: There are some tests requiring serum for which serum gel tubes should not be used. These are identified in the test catalog.

- ***Plasma and Whole Blood:*** Draw a sufficient amount of whole blood into a tube containing the proper anticoagulant. Immediately invert tube gently several times to mix. Unless whole blood is required, separate the plasma from the cells by centrifugation within 30 minutes and transfer plasma to a screw-capped, plastic vial. Examples of anticoagulant collection tubes include the following: green-top (sodium or lithium heparin), lavender-top (EDTA), and light blue-top (sodium citrate).

Specimen Collection Tubes

The following is a list of tubes referred to in the specimen requirements:

- ***Green-Top (Sodium Heparin) Tube:*** This tube contains sodium heparin—used for the collection of heparinized plasma or whole blood for special tests.
Note: After tube has been filled with blood, immediately invert tube several times in order 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 several times in order to prevent coagulation.

- ***Lavender-Top (EDTA) Tube:*** This tube contains EDTA as an anticoagulant—used for most hematological procedures.

Note: After tube has been filled with blood, immediately invert tube several times in order to prevent coagulation.

- ***Light Blue-Top (Sodium Citrate) Tube:*** This tube contains sodium citrate as an anticoagulant—used for collection of blood for coagulation studies.

Note: It is imperative that the tube be completely filled. The ratio of blood to anticoagulant is critical for valid results. Immediately after draw, invert tube 6 to 10 times in order to activate anticoagulant.

- ***Green-Top (Lithium Heparin) Tube With Black Ring:*** This tube contains lithium heparin with no gel separator—used for the collection of heparinized plasma or whole blood for special tests.

Note: After tube has been filled with blood, immediately invert tube several times in order to prevent coagulation.

- ***Green-Top (Lithium Heparin) Gel Tube With Yellow Ring:*** This tube contains lithium heparin with no gel separator—used for the collection of heparinized plasma or whole blood for special tests.

Note: After tube has been filled with blood, immediately invert tube several times in order to prevent coagulation.

- ***Lavender-Top (9 mL-K₃ EDTA) Tube:*** This tube is a new product. It is a special EDTA tube for Blood Bank specimens. At this time, Billings Clinic Laboratory ONLY accepts this tube for Blood Bank testing—not used for hematology testing.

- ***Red-Top Tube with Black Ring Serum Gel Tube:*** This tube is a plain tube with no anticoagulant that contains a clot accelerator—used for collection of serum for selected chemistry tests as well as clotted blood for immunohematology.

- ***Red-Top with Yellow Ring Serum Gel Tube:*** This tube contains a clot activator and serum gel separator—used for various laboratory tests.

Note: Invert tube to activate clotting; let stand for 20 to 30 minutes before centrifuging for 10 minutes. If frozen serum is required, pour off serum into a plastic vial and freeze. Do not freeze tubes.

- Royal Blue-Top Tube: There are 2 types of royal blue-top Monoject® tubes—one with EDTA anticoagulant and the other plain. These are used in the collection of whole blood or serum for trace metals analysis. Refer to the individual metals tests in the alphabetic test listing to determine the tube type necessary.
- Special Collection Tubes: Some tests require specific tubes for proper analysis. Please contact Billings Clinic Laboratory prior to patient draw to obtain the correct tubes for metals analysis or other tests as identified in the alphabetic test listings.
- White-Top Tube: This tube is a plain tube containing no anticoagulant or clot accelerator—used for collection of serum for selected chemistry tests as well as clotted blood for immunohematology.
- Yellow-Top (ACD) Tube: This tube contains ACD—used for the collection of whole blood for special tests.