Collection of Samples

A purple top tube contains an anticoagulant that is used for hematology determinations. A blue top tube contains citrate for collecting samples for coagulation tests. A red top tube with a pale yellow gel in the bottom has no anticoagulant or preservative.

Pre-label each tube with the sample ID and date of collection. Be sure that the information on the requisition matches this data.

If you collect the sample in a syringe, be very careful in filling the tubes from the syringe. It is best to remove the needle and the tops of the tubes to fill each tube. Do not switch tops on the tubes. Do not fill the tubes by injecting the blood through the needle into the tube. This procedure destroys red cells and invalidates some chemistry tests.

Fill the purple top tube first with the appropriate approximately of blood (depending on the size 2, 3, or 5 mL). Cap the tube immediately with the purple top, be sure the cap is on tightly and mix the tube at least 5 times by gentle inversion of the tube. Do not shake the tube.

Fill the blue top tube with the required amount of blood. For vacuum tubes, these tubes have an automatic fill volume. If you fill it from a syringe, you must know the final level of blood and anticoagulant. This blood/anticoagulant ratio is important in analysis of the plasma. For rodents, you must make custom tubes for small volumes. This requires a ratio of 9 parts blood to 1 part anticoagulant. The sample must be well mixed and then centrifuged at approximately 3000 rpm for 10-15 minutes. The plasma must be removed and placed into a labeled transport tube. This must be marked as plasma, since you can not tell plasma from serum in transport tubes. The transport tube should be frozen and shipped on dry ice for analysis.

Fill the red top tube with the rest of the blood, at least 2 mL. Replace the red cap and be sure that is on the tube tightly. Let this tube sit for 30 minutes at room temperature (but not longer than 1 hour). Spin the tube in the centrifuge at 3000 rpm for 10 minutes. Check the tube to be sure that the serum is separated from the red cells by the solid gel. If red cells are on top of the gel, the sample may need to be re-spun.

If the red top does not have a gel separator, the serum must be transferred to a transport tube. Be sure the transport tube has the appropriate ID information.

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