



Hematology Coagulation

Specimen Collection - Coagulation

Allina Medical Laboratories has been offering Special coagulation analysis for a number of years. Accurate results can only be obtained on properly collected and prepared specimens. The physician interpreting results may be misled by abnormal results obtained from mishandled specimens.

To ensure the best possible specimens, follow collection requirements as closely as possible.

1. **Patient should be fasting, if possible.** For certain tests the patient cannot be receiving anticoagulant medications (heparin or warfarin/coumadin®). See individual test information for requirements.
2. **Draw blood from the patient into light blue top (sodium citrate 3.2%) vacuum tube(s).** 4.5 or 2.7 ml tubes are acceptable.

NOTE: If the patients hematocrit is $\geq 55\%$, the volume of anticoagulant should be adjusted using the following formula to determine the correct anticoagulant volume:

$$\text{Amount of sodium citrate} = \frac{\text{Pt.'s plasma volume (100 - Hct)} \times 0.5}{\text{Normal plasma volume (57)}}$$

Following NCCLS H21-A4 guidelines.

The chart below has some precalculated volumes.

Correction Chart - 4.5 ml tube

HCT	CITRATE VOLUME NEEDED	ML TO REMOVE
54	0.40	0.10
57	0.38	0.12
60	0.35	0.15
63	0.32	0.18
69	0.27	0.23
71	0.25	0.25
74	0.22	0.28
77	0.02	0.30

Place the volume of anticoagulant in the collection tube and add blood up to the required volume. A clean venipuncture with a syringe/needle is essential to avoid activation of coagulation by tissue thromboplastin.

Specimens containing fibrin clots, will be rejected.
Specimens that are grossly hemolyzed will be rejected.

3. **The specimens must be double centrifuged to prepare a platelet free (<10,000) plasma specimen.** Immediately centrifuge at $\geq 1,500 \times G$ for 10 minutes, at 25°C if possible. Carefully remove plasma from the cells avoiding the platelet buffy coat. Dispense into a plastic tube and centrifuge again at $\geq 1,500 \times G$ for 10 minutes, at 25°C. DO NOT process at cold temperatures. Remove the top portion of plasma leaving approximately 0.5ml in the bottom to discard. The double -centrifuged plasma should be aliquoted (0.5-1.0ml each) into clearly labeled plastic tubes (glass vials and false bottom tubes will not be accepted), attach the PPP/NaCl label to each aliquot, if available. The number of tests ordered will determine the aliquots needed, generally 1 aliquot per test.
4. **Patient specimens should be frozen at $\geq -40^{\circ}\text{C}$,** if possible, and sent together in the same container with at least 5 lbs of dry ice. They must arrive in a frozen state.
5. **Please include the requested information (see individual test description) as the testing and interpretations are dependent on clinical history.**
6. Careful specimen handling will most often ensure acceptable specimen and valid results.