#### Coagulation Specimen Requirements

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| Specimen Type | The only acceptable specimen is whole blood drawn in Blue top (plus plastic 3.2% buffered sodium citrate) vacutainer tubes. The tubes must be full to maintain the proper anticoagulant to blood ratio. |
| Safety | Laboratory employees are expected to maintain a safeworking environment and an injury-free workplace. Laboratory employees are responsible for their own safety, the safety of others and adhering to all departmental and medical center safety policies and procedures. Refer to Policy and Procedures Safety Manual Infection Control 11-085-01. |

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| **Test Stability** | Protime   * If unopened specimens maybe left at room temperature, unspun for **24 hours**. Testing must be completed within **24 hours** after the draw time.   PTT and aPTT Mixing Studies   * Must be tested within **4 hours** of collection. * If testing cannot occur within **4 hours**, then plasma must be separated and frozen (see Note and Centrifugation section).   Anti-Xa heparin assays   * Must be tested within **2 hours** of collection. * If testing cannot occur, then centrifuge and separate within **1 hour** and freeze (see Note and Centrifugation section).   Fibrinogen   * Store at room temperature, stable for **8 hours** after collection.   D-dimer   * Remove plasma if not run immediately. * Plasma storage: **8 hours** at Room Temperature (20 ± 5ºC).   *Continued on next page* | |
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| **Test Stability,**  **continued** | **NOTE**: PT, aPTT, aPTT Mixing Studies and Anti-Xa samples can be stored frozen if sample has been double spunned. Double spun citrated plasma can be stored for **2 weeks at -20 °C** or **6 months at -70 °C**. | |
| Centrifugation | Blue top tube for coagulation testing should be centrifuged in a refrigerated centrifuge if possible. Centrifuge for 5 minutes at an RPM high enough to create a platelet poor plasma (platelet count less than 10,000/uL).   * If freezing is needed, plasma must be double spunned as described below:  1. Separate the plasma in a plastic tube [being careful not to go near the bottom of the plasma and disturb the buffy coat] 2. Spin again for 5 minutes. 3. Separate the plasma again in a plastic tube [being careful not to go near the bottom of the plasma and disturb the buffy coat] 4. Record on the label that the specimen has been double spun. | |

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| Special Coag Studies | | Special Coagulation studies may require that the blood sample be placed on ice at the time it is drawn. See Kaiser Permanente Reference Manual For Laboratory Tests for specific requirements. | |
| Anticoagulant Adjustment for High Hematocrit Specimens | | This adjustment is for a 3 mL tube.  The anticoagulant (sodium citrate) in blue top tube must be adjusted when Hematocrit is greater than 55%.  The formula is as follows:  Y (100 - HCT)  X =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  HCT  X = amount of anticoagulant needed  Y = 0.3 (3 ml tube)  Pipette out and discard the amount of anticoagulant from the 3 ml that you do not need and draw patient blood to the top of the tube. | |
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| **Specimen Rejection Criteria** | The following conditions are not acceptable for coagulation specimens:   * Unlabeled or improperly labeled * Hemolyzed * Tube improperly filled * Wrong anticoagulant * Clotted * Improperly processed |

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| **Validation of Specimen Processing for Platelet-Poor Plasma** | CAP Standard HEM.37175 requires a *“system to at least annually measure the actual platelet count of the "platelet-poor" plasma used for many coagulation tests.*  *NOTE: Platelet-poor plasma is particularly important when testing for the presence of a lupus anticoagulant, when measuring the level of unfractionated heparin, and in plasma samples to be frozen for later testing. Platelet-poor plasma should have a residual platelet concentration of less than 10 X 109/L. aPTT, prothrombin time/international normalized ratio (PT/NR) performed on fresh plasma samples are not affected by platelet counts of at least up to 200 x 109/L (200,000/μL).”*  Annually the lab will evaluate all centrifuges used for processing coagulation testing specimens.   * Five specimens collected in sodium citrate tubes will be spun in each centrifuge to be evaluated for 5 minutes. * The residual platelet count of the plasma will be measured using the hematology analyzer. * If the average platelet count of the 5 specimens is less than 10x10 9 /L, specimens requiring platelet-poor plasma may be spun for 5 minutes in the centrifuge. * If the average platelet count exceeds 10x10 9 /L, repeat the test with 5 new specimens and centrifuge for 10 minutes. * See form for recording and evaluating data.   *Continued on next page* |

**KAISER PERMANENTE-ORANGE COUNTY**

**IRVINE MEDICAL CENTER**

**MEASUREMENT OF PLATELET-POOR PLASMA LOGSHEET**

**Centrifuge IR # \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Date Tested \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **HEM.37175** | **Platelet-poor Plasma** |

Platelet-poor plasma should have a residual platelet concentration of less than 10 X 109/L.

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| **Sample #** | **Platelet Count**  **5 minute Centrifugation** | **Acceptable/**  **Not Accepatable** | **Platelet Count**  **10 minute centrifugation** | **Acceptable/**  **Not Acceptable** |
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| **Average Platelet**  **Count** |  |  |  |  |

**□PASSED:**

**(**Specimens requiring platelet-poor plasma may be spun for 5 minutes in this centrifuge)

**□NOT PASSED:**

**(**Specimens requiring platelet-poor plasma must be spun for 10 minutes in this centrifuge)

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Document History Page

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| Change type: New, Major, Minor etc. | Changes Made to SOP – describe | Name of responsible person/date | Med. Dir. reviewed/ date | Lab Manager reviewed/ date | Date change Imp. |
| Minor | 1) Updated the format.  2) Added SAFETY section. | Julius Salomon  08/21/14 |  |  |  |
| Major | 1) Added Thrombin Time  2) Revised test stability of Anti-XA, centrifuge within 1 hour of collection. | Julius Salomon 11/19/15 |  |  |  |
| Minor | Remove Thrombin Time test. Testing to be done at RRL. | Julius Salomon 4/26/17 |  |  |  |
| Minor | Revised specimen stability on PTT and Anti-XA to emphasize freezing procedure. | Julius Salomon 11/6/17 |  |  |  |
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Imp. =Implemented