

# Specimen Submission for Bone Marrow Study

A bone marrow study is offered through Allina Health Laboratory with all requests initially processed as a consultation. Special studies will be performed if diagnostically indicated. To accommodate enzyme cytochemical stains, immunophenotyping, immunohistochemical stains, molecular or flow cytometry studies, the following specimen requirements must be followed to ensure proper handling and processing.

## Scheduling

1. Complete a Bone Marrow Notification Form located in the Allina Health Laboratory's electronic Test Catalog (The Central Laboratory must be pre-notified of all bone marrows collected).
2. Provide the date and time of collection
3. Provide courier time of departure and arrival to ensure expedited processing
  - a. Courier time of departure should be known prior to bone marrow procurement.
  - b. Bone marrow processing is available from 7:00a.m. to 7:00p.m.
  - c. **In the event that all routine couriers are missed for the day, a STAT courier MUST be ordered to ensure same day processing**
    - i. The Central lab does not arrange couriers for other Allina sites
    - ii. Central will arrange stat couriers for non-Allina sites, but those sites will be charged back for the service
  - d. No bone marrow processing is available on the weekends
  - e. For emergent marrows, contact client services immediately to arrange courier and notify hematology lab
  - f. The specimen must be received the same day of procurement to ensure appropriate sampling processing
4. Send the completed form to Client Services via secure email ([labclientservices@allina.com](mailto:labclientservices@allina.com)) or fax (612-863-4067)
  - a. **If the completed form is being submitted on the same day as the procedure, you MUST call Client Services at 612-863-4678**

## Placing Orders

1. Manual requests:
  - a. Complete an Allina Health Laboratory Bone Marrow Request form
    - i. Patient's full legal name (Last, First and MI)
    - ii. Date of birth
    - iii. Gender
    - iv. Home Address
    - v. Phone Number
    - vi. Date and time of procedure
    - vii. Diagnosis (reason for bone marrow)
    - viii. Ordering M.D. and phone number (required for pathologist communication)
  - b. Complete the Bone Marrow Worksheet by filling in areas shaded in gray

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2. Electronic requests:
  - a. Bone Marrow Study (LAB851) order is placed in Excellian/Orchard
  - b. Complete Bone Marrow Worksheet by filling in areas shaded in gray

## Bone Marrow Kit

1. Bone Marrow Kits can be ordered using Allina Health Laboratory online Supply Catalog
2. Each Bone Marrow Kit will include:
  - a. (2) 4 mL EDTA tubes
  - b. 4 slide carriers
  - c. (2) 5 mL B+ fixative vials
  - d. 3 Biohazard specimen bags
3. For sites that supply their own liquid heparin to procure the 2<sup>nd</sup> aspirate, order the Bone Marrow Kit (Liquid Heparin)
  - a. Two (2) 8 mL polystyrene round bottom Falcon tubes
4. For sites that DO NOT use their own liquid heparin to procure the 2<sup>nd</sup> aspirate, order the Bone Marrow Kit (Sodium Heparin tubes)
  - a. Two (2) Sodium Heparin tubes will be provided for collection

## Specimen Requirements

### CBC, differential and Reticulocyte count

1. A fresh (<24 hour old) EDTA peripheral blood sample
  - a. If CBC, differential and Reticulocyte are performed on site, send copy of analyzer printout along with the EDTA peripheral blood tube.
  - b. If CBC, differential and Reticulocyte are not performed on site, one will be ordered when received at the Central laboratory. Submit an EDTA peripheral tube
2. If unable to send EDTA peripheral blood sample, a copy of a CBC and Differential and Reticulocyte Count results and 2-4 unstained peripheral smears of good technical quality are needed.
  - a. Ensure the slides are properly labeled
    - i. Patient's full first and last name
    - ii. Patient's date of birth
    - iii. Date of collection
    - iv. Label as PB (peripheral blood)
  - b. Place slides in a plastic shipping slide holder

# Specimen Submission for Bone Marrow Study

## Bone Marrow Aspirate

1. EDTA aspirate
  - a. A **minimum of 5ml** of EDTA aspirate is required.
  - b. Extra aspirate should be placed in an EDTA tube
  - c. **No portion should be discarded!**
2. Heparinized aspirate
  - a. A **minimum of 10 mL** of heparinized aspirate is required, split between 2 8 mL polystyrene round bottom Falcon tubes.
  - b. Sites using liquid heparin should transfer heparinized aspirate to 2 8 mL polystyrene round bottom Falcon tubes provided in kit.
    - i. Sites not using liquid heparin should transfer the aspirate to 2 sodium heparin tubes provided in the kit
  - c. Specimens submitted in Lithium Heparin are not acceptable and will be rejected

## Bone Marrow Smears

1. Smears are prepared on a frosted or super-frosted slide
2. The slides must be labeled on the frosted end using a pencil or a slide/cassette labeling marker. Label with:
  - a. Patient's full first and last name
  - b. Date of birth
  - c. Date of collection
  - d. Slide type (direct, unit, TP)
  - e. Left or right
3. Prepare 4 Direct smears
4. Prepare 4 Unit smears
5. Prepare 4 touch prep slides

## Procurement Instructions

1. Set out slides, EDTA tubes, cassettes, and gauze
2. Immediately prior to procedure, procurer will stop for a Time Out
  - a. Verify patient name and date of birth
  - b. Verify procedure and equipment
  - c. Verify labeling on slides, cassettes and tubes
  - d. Verify consent form has been reviewed and signed by patient
3. Check off Time Out steps on Bone Marrow worksheet to verify completion
4. The following equipment will be dropped onto Bone Marrow tray with sterile technique
  - a. Syringes
  - b. 1 blade scalpel
  - c. Syringe needles
  - d. Bone Marrow Biopsy needle
  - e. Sterile gauze
  - f. Sterile dressing

## Specimen Submission for Bone Marrow Study

5. Assist procurer with filling syringes for lidocaine and heparin
  - a. Fresh lidocaine must be used with each patient
  - b. Heparin is not needed if using sodium heparin tubes from kit
  - c. Always present bottle with label facing procurer
6. Acquire 1<sup>st</sup> syringe from procurer using sterile technique
  - a. Place a small drop of aspirate on each Direct smear slide
  - b. Place 1-2 larger drops of aspirate on each Unit smear slide
  - c. Remaining aspirate should be dispensed into (2) 4 mL EDTA tubes
7. Make Direct smears
  - a. Smear made with technique used for making a blood smear
8. Make Unit Smears
  - a. Locate unit within drop of aspirate on slide
    - i. Notify procurer if units are not present
  - b. Soak up residual aspirate to isolate unit
  - c. Lie a second slide on top of unit and gently press down to crush unit
  - d. Pull slides apart in a parallel motion
9. Acquire 2<sup>nd</sup> syringe from procurer
  - a. If syringe is not heparinized, immediately dispense into (2) Sodium Heparin tubes supplied
  - b. If syringe is heparinized, transfer to (2) 8 mL polystyrene round bottom Falcon tubes for transport
10. Acquire core biopsy from procurer and gently remove excess aspirate with gauze
11. Make Touch Preps
  - a. Gently press core biopsy to slide 5-6 times at close intervals over the bottom 1/3 of the slide
  - b. Roll core slightly with edge of slide every 2-3 touches to acquire imprints of entire core
12. Repeat steps 10-11 with core biopsy from opposite side if bilateral
13. Place core biopsies in B+ fixative container supplied in kit
  - a. Put a patient label on the container
    - i. If no patient label available, label container with patient complete legal first and last name and date of birth
  - b. Write "core", side of biopsy(L or R), time the core was put into B-plus fixative and initials on label
  - c. Cores from different sides **should not** be put in the same container

### Packaging and Shipping Requirements

1. Package the labeled, dried, unstained glass slides in plastic slide carriers provided in kit.
2. Place slide carriers in biohazard specimen bag
  - a. Place all paperwork in outer pouch
3. Place peripheral blood, EDTA aspirate and heparinized aspirate in **2nd** biohazard specimen bag
4. Place B-plus fixative core container(s) in a **3rd** biohazard specimen bag
  - a. B-plus fixative **MUST** be in bag separate from other specimens
  - b. B-plus fixative fumes will damage prepared slides and make them unusable for the Bone Marrow Study

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5. Package slides and specimens in the Courier Transport bag the kit supplies were sent in
  - a. If multiple marrows being sent, send 1 bone marrow per Courier Transport bag
6. Place a courier barcode label on the Courier Transport Bag and the matching label in your log book
7. Transport to Allina Health Laboratory with your next available courier at ambient temperatures.
8. Arrange for an unscheduled courier if necessary.
9. **Do not freeze any of these samples.**