Geisinger

Follow the general instructions below to prepare for bone marrow sample collection.

Pre-Collection:

1. Clearly identify the patient.
2. Label slide, tubes, and containers with 2 patient identifiers.
   2.1. Acceptable patient identifiers: patient's full name, date of birth, medical record number.
3. Assemble collection material and tubes.
4. Standard bone marrow collection:
   4.1. Initial non-heparinized syringe: 0.5 to 1 mL of bone marrow aspirate
   4.2. 2 lavender top (EDTA) tubes: 2-3mL each for molecular testing
   4.3. 2 green top (sodium heparin) tubes: 3mL each for flow cytometry/chromosome/FISH studies
   4.4. 1-2 containers filled with B-plus fixative
   4.5. 1 conical tube filled with RPMI for fresh biopsy if dry tap (optional at hospital sites).
   4.6. 1 non-additive red top tube: 0.5 mL of non-heparinized aspirate for clot
   4.7. 10 clean glass slides on work surface for collection. Have extra slides available for use if needed.
      4.7.1. ≈7 slides (bone marrow aspirate smears) and ≈3 slides (biopsy touch preps)
5. MRD (minimal residual disease testing):
   5.1. Collect an additional 1-2 mL of bone marrow aspirate as the first aspirate in sodium heparin or EDTA tube
   5.2. Continue collection as stated in 3.
6. Engraftment (chimerism) studies:
   6.1. Collect standard bone marrow collection and
   6.2. 2 mL of additional bone marrow aspirate in lavender top (EDTA) per cell type ordered.
7. Paperwork/tubes/containers must include biopsy site location (i.e. right iliac crest) & collection time.

Peripheral blood smears made from venipuncture specimen:

1. Collect 3mL peripheral blood sample via venipuncture into an EDTA.
2. Make 2 direct smears manually, adjusting as necessary for proper length and thickness.
3. Smears can be made by the processing site if the sample arrives within 16 hours of collection.

Collection: Follow steps below to obtain bone marrow core biopsy, clot, and aspirate specimens:

1. Syringes used for bone marrow slides, MRD testing, clot should not be rinsed with heparin.
   1.1. **Do not exceed 2mL** as this dilutes specimen and reduces quality of the specimen.
2. All other syringes can be pre-rinsed with liquid heparin to prevent clotting.
3. Expel some of the non-heparinized aspirate on a slide and check for spicules.
   3.1. If adequate spicules are present, continue.
   3.2. If the sample is inadequate, request redirect of needle for better spicule sample.
   3.3. Due to therapy or disease, some samples may not have good spicules.
      3.3.1. An additional core biopsy can be placed in RPMI for additional studies when aspirate is inadequate
4. Make slides immediately for the aspirate collected using non-heparinized syringe.
   4.1. Tip the slide so excess fluid drains away from spicules.
   4.2. Prepare slides evenly without crush artifact, of correct length and thickness.
   4.3. If slides are not prepared during collection, place aspirate syringe contents into EDTA tube.

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BONE MARROW REQUISITION

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Requesting Location	
Location Code	
Requesting Provider	

Diagnosis Code(s)
1. _____
2. _____
3. _____
3.

Coll. Date: _____ **Rcv Date:** _____
Coll. Time: _____ **Rec Time:** _____
Tech Code: _____

Patient Information (Please Print)

Last Name _____ First Name _____ M.I._____

Address _____

DOB: _____ ☐ Male ☐ Female ☐ Unknown

MRN: _____ Ordering Provider: _____

Collector: _____

Special Instructions: All specimens to arrive within stability limits or special courier needed.

_____

_____

PATIENT HISTORY

_____

_____

History of Bone Marrow Transplant: _____ No _____ Allogenic ____ Auto _____

History of Chemotherapy: _____ No ____ Medications _____

All Specimens and Slides must be labelled with 2 identifiers

Document # specimens Peripheral Blood (PB) ___Bone Marrow (BM) EDTA___Heparin___Biopsy ____Clot

Document # slides PB_____BM ____

SOURCE: BLOOD	REQUIRED SPECIMEN
☐ PERIPHERAL BLOOD SMEAR	• CBC and Diff results/OR lavender top EDTA tube (refrigerated), 16-hour stability. • Slide (stained or unstained). • If previously performed in 16 hours, no additional tube needed.
SOURCE: BONE MARROW	**SUBMIT IN BONE MARROW TRANSPORT KIT (ROOM TEMP):**
☐ BONE MARROW Site_____ B+ fixation	• Bone Marrow Core Needle Biopsy in B-Plus fixative
☐ RPMI COLLECTION (FOR DRY TAP BONE MARROWS)+++	• Bone Marrow Aspirate in RPMI solution
☐ BONE MARROW ASPIRATE SLIDES ☐ BONE MARROW BIOPSY TOUCH IMPRINT	• 7 Unfixed / unstained / air dried bone marrow slides (2 Push 2 Squash, and 3 Extras) • 3 Unfixed / unstained / air dried bone marrow biopsy touch slides • Any remaining aspirate in a lavender top (indicate "bone marrow" on tube)
☐ BONE MARROW ASPIRATE CLOT	• Bone Marrow Aspirate in non-additive container
☐ ANCILLARY TESTING CYTOGENETICS (CHROMOSOME ANALYSIS) FLOW CYTOMETRY +++ MOLECULAR DIAGNOSTICS +++	• 2 sodium heparin tubes with 3 mL each (minimum) of bone marrow • 2 EDTA tubes with 2 mL each (minimum) of bone marrow
☐ MINIMUM RESIDUAL DISEASE _____ ALL _____ AML _____ NPM1	• **First** 1-2 mL non-heparinized tube of bone marrow aspirate
☐ ENGRAFTMENT STUDIES (CHIMERISM) _____ T CELL _____ B CELL _____ NK CELL _____ MONOCYTE _____ MYELOID CELL	• 2 mL of additional bone marrow aspirate in lavender top (EDTA) tube per cell type ordered