

Department of Pathology
Consultation Services

TEST SPECIFICATIONS: BONE MARROW LABORATORY

Bone Marrow Aspirate Smears, Bone Marrow Particle Preparation, and Bone Marrow Biopsy
UPMC Presbyterian Clinical Laboratories, UPMC Presbyterian Hematopathology Testing Service
DELIVER ALL SAMPLES DIRECTLY TO THE FLOW CYTOMETRY LABORATORY

Room 9032 (9th floor)
Clinical Laboratory Building
3477 Euler Way
Pittsburgh, PA 15213
(412) 864-6173

BONE MARROW LAB HOURS OF OPERATION: Monday through Friday: 8:00am to 5:00pm.
Call the Clinical Flow Cytometry Laboratory (624-3746) first before sending, to make prior arrangements about where to deliver. The bone marrow specimens can be sent anytime. However they will be processed the following working day if received after hours of operation. The laboratory is also closed on the following holidays: New Year's Day, Martin Luther King Day, Memorial Day, July 4, Labor Day, Thanksgiving Day, and Christmas Day.

SPECIAL INSTRUCTIONS:

- Notify the laboratory before the specimen is sent at (412) 864-6173. If possible, please notify the laboratory one day in advance.
- Send a completed requisition.
- In packaging bone marrows, please:
 1. Tightly close the biopsy container. Keep container upright.
 2. Mark the date and time the biopsy was placed in the B-Plus Fix on the container.
 3. Package slides separately from the biopsy specimen (to avoid vapor fixation of the slides).
- Use adequate safety measures when transporting specimens.

BONE MARROW EXAMINATION TEST DESCRIPTIONS:

Bone marrow examinations may include aspiration with smears, particle preparations or clot sections and biopsies. Aspirate smears are most useful to examine the cytological detail of the marrow elements and for cytochemical and immunocytochemical stains. The aspirated material may also be used for culture, flow cytometric immunophenotyping, cytogenetic, molecular, and other special studies.

The particle preparation represents non-decalcified tissue sections of filtered bone marrow aspirate spicules. This allows for histopathologic analysis of a large volume of marrow with excellent morphology and an intact architecture so features such as cellularity can be easily assessed. It is suitable for a wide range of special stains including immunohistologic stains.

Bone marrow core biopsies are decalcified, sectioned, and routinely stained with H & E and PAS stains. Biopsy specimens are used to evaluate cellularity, hematopoiesis, non-aspirable lesions to see the topographical relationship of focal lesions to the bony trabeculae, and for evaluation of bone and vessels.

BONE MARROW ASPIRATE SMEAR SPECIMEN REQUIREMENTS:

- 10-20 bone marrow slides made at the bedside from the first syringe pulled. Label each slide with name, date, and time of collection.
- If bilateral (right and left hips) bone marrows are done, then label slides left or right hip.
- Send the slides in either durable cardboard slide holders or plastic slide holders. The number of slides sent will vary depending on the tests requested.
- For a basic bone marrow aspirate interpretation based on Wright-Giemsa stains, send two labeled slides plus a recent CBC/differential and corresponding peripheral blood smear.
- If cytochemical or iron stains are requested, the following is a list of the minimum required number of unstained slides that should be sent. Send one additional slide for a Wright-Giemsa stain in all cases. In addition, extra unstained slides are useful if any stain needs to be repeated.

1 SLIDE:

Iron Stain
Naphthyl AS-D Chloroacetate Esterase Stain (CAE)
Myeloperoxidase Cytochemical Stain (MPO)
Sudan Black Stain
Periodic Acid Schiff Stain (PAS)

2 SLIDES:

Non-specific Alpha Naphthol Acetate Esterase Stain (NSE)
Double Esterase Stain (NSE+CAE)

If there are any questions regarding cytochemical stains call the Special Testing Laboratory at (412) 864-6179.

BONE MARROW PARTICLE PREPARATION SPECIMEN REQUIREMENTS:

- Five milliliters of bone marrow aspirate (preferably from the first or second syringe), placed in a yellow top (ACD) vacutainer tube.
- Store at room temperature.
- The material for the particle preparation will be filtered, fixed, and processed by the bone marrow and histology laboratories, at UPMC Oakland.
- In addition submit two aspirate smears, the most recent CBC/differential and corresponding peripheral blood smear.

BONE MARROW BIOPSY SPECIMEN REQUIREMENTS:

- 4-6 touch preparations of the biopsy specimen (3 imprints on each slide) made at the bedside. Label each slide with patient's name, date, and time of collection.
- Place the biopsy into B-Plus fixative. **MARK THE TIME AND DATE THE BIOPSY WAS PLACED IN THE B+ FIXATIVE ON THE CONTAINER.** The B-Plus fixed biopsy should be delivered to the laboratory the same day it is done. Prolonged fixation in B-Plus makes the biopsy difficult to process.
- If performing bilateral (right and left hips) biopsies, each biopsy must be placed in SEPARATE B-Plus fixative containers, and labeled left or right hip.
- In addition submit two aspirate smears, the most recent CBC/differential and corresponding peripheral blood smear.

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- In addition submit two aspirate smears, the most recent CBC/differential and corresponding peripheral blood smear.

WARNING: B-Plus Fixative contains formaldehyde. Formaldehyde is a carcinogen, irritant, and highly toxic. Avoid contact with eyes, skin, and clothing. Do not inhale.

CONTACTS, DIVISION OF HEMATOPATHOLOGY:

- Steven Swerdlow, M.D. Director, Division of Hematopathology (412) 647-5191
- Sara Monaghan, M.D. Director, Clinical Flow Cytometry Laboratory (412) 647-5191

- Miroslav Djokic, MD, Director, Bone Marrow Laboratory
- Celina Fortunato, Lead Technologist, Bone Marrow Laboratory (412) 802-3272