



# BONE MARROW ASPIRATE FOR FLOW CYTOMETRY

## INDICATIONS:

Examination of the bone marrow by aspiration and core biopsy is used for diagnosing and staging both hematologic and many non-hematologic disorders. Many special studies can be performed on bone marrow samples if the specimen is properly collected (e.g. flow cytometry, cytogenetics, molecular diagnostics by PCR and FISH, microbiology and routine pathology).

## SPECIMEN:

Bone marrow Aspiration and Core Biopsy

## SUPPLIES:

1. CPA Requisition slip
2. Clean glass slides
3. Two Containers with 10% neutral buffered formalin
4. Sodium heparin (green top) tube(s).
5. EDTA (lavender top) tube (if PCR studies are desired).
6. 10 or 20 cc syringe(s)
7. Slide holders and biohazard bags for transport to the laboratory.
8. Standard bone marrow collection tray with supplies.
9. Specimen Bag with Biohazard label

## SPECIMEN COLLECTION:

In general, unilateral marrow aspiration and core biopsy specimens are performed. However, in cases where focal marrow involvement is likely (e.g. Hodgkin Lymphoma, metastatic solid tumor, or granulomatous disease) bilateral bone marrow samples are recommended. The major limitation to accurate diagnosis is sample size. If possible, CBC with differential (report from office lab is acceptable), unstained peripheral smear (performed at office lab), bone marrow aspirate smears, aspirate clot sections, core biopsies (of at least 1 cm in length) and core biopsy touch preps are desired on every case.

### 1. Bone Marrow Aspiration:

- a. Label clean glass slides with the patients name and site if applicable (right and left). Label all specimen containers.
- b. Perform the bone marrow aspirate with the standard sterile technique. Aspirate bonemarrow into a sterile syringe. Place a portion of the material onto the labeled slides and prepare smear preparations. Allow the slides to air dry prior to placing in a specimen container for transport.
- c. Place any residual aspirate material into a 10% neutral buffered formalin container. This material will be used to prepare aspirate clot sections.



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d. If the specimen is a dry tap, consider obtaining additional core biopsy specimens to obtain adequate material for diagnosis and any special studies needed. See "Special Studies" below.

## 2. Bone Marrow Core Biopsy:

- a. Perform a core biopsy with the standard sterile technique.
- b. Place the core biopsy onto a clean glass slide to obtain a touch preparation. Allow the slide to air dry prior to placing in a container for transport.
- c. Carefully remove the biopsy from the slide and place either into a second separate container of 10% neutral buffered formalin (for routine processing) or into a container with saline soaked gauze (if special studies such as flow cytometer as desired). Do not "float" the specimen in saline.

## 3. Special Studies:

- a. Flow Cytometry: Place marrow aspirate in green top (sodium heparin) tube.
- b. Microbiology Studies: Place marrow aspirate or core biopsy in green top (sodium heparin) tube.
- c. Cytogenetics: Place marrow aspirate or core biopsy into green top (sodium heparin) tube.
- d. Molecular Genetics by FISH (BCR/ABL, PML/RARA, TEL/AML1): Place material in green top (sodium heparin) tube.
- e. Molecular Genetics by PCR (BCR/ABL, BCL-2, PML/RARA, and T and B cell gene rearrangements): Place material in lavender top (EDTA) tube.

## 4. Submission to the laboratory:

- a. Make certain that all slides, tubes and containers are properly labeled with the patient's name (first and last) and specimen location. Include a right or left designation as applicable.
- b. Include a copy of the current CBC with differential report (from the office laboratory) and an unstained peripheral smear, labeled with the patient's name, time and date of collection.
- c. Fill out the CPA requisition form and bone marrow checklist. Be sure to specify any special studies that are required (e.g. PCR for BCR/ABL). Complete test requisition including last and first name of patient, patient's date of birth and social security number, body site and source of specimen collected. Label specimen container (using the labels provided on the requisition) with patient's first name and last name, and body site/source. The container must have at least two (2) unique identifiers. Examples of unique identifiers: patient name, DOB, unique bar code, etc. Include pertinent clinical information, i.e., previous malignancy, radiation therapy, drugs, etc. Place container in a specimen bag with a biohazard label. Place the requisition in the side pocket of the specimen bag.
- d. Call Cunningham for a STAT courier pickup (205-591-7999).