



Bone Histomorphometry Fact Sheet

Purpose	Diagnosis and management of metabolic bone disorders
Applications	<ul style="list-style-type: none">• Diagnosis and management of renal osteodystrophy• Differential diagnosis and selection of therapy for osteoporosis• Evaluation of non-response to osteoporosis therapy• Identification of some disorders of the hematopoietic system• Diagnosis of osteomalacia
MML Advantages	<ul style="list-style-type: none">• Performed in our laboratory since 1980, these analyses are well established at MML• MML has a large and expanding collection of prospectively studied normal individuals verified by calcium kinetics and calcium balance• Discussion of results provided by phone consultation• Interpretations and phone consultations are done by clinicians practicing in the field of bone and mineral diseases• Representative microscopic slides are returned at no additional charge• Reasonable fees are possible based on the large number of these tests performed at MML
Service Includes	<ul style="list-style-type: none">• Tissue processing• Goldner-stained sections• Toluidine blue-stained sections• Hematoxylin-Eosin stained sections• Unstained sections for fluorescent microscopy• Quantification• Interpretation• Consultation• Written report
Turnaround Time	26 working days
Special Services Available	<ul style="list-style-type: none">• Special Stains: Iron, Acid Phosphatase, Alkaline phosphatase <p><i>*Note: Mayo physicians recommend Aluminum staining for all renal patients or suspected osteomalacia. (This is performed at an additional charge.)</i></p>

Biopsy Procedure

1. Complete tetracycline labeling. This should be done prior to biopsy whenever possible, and is necessary whenever estimates of mineralization or bone formation are required.

Labeling Schedule

Days 1-3, give tetracycline 250 mg qid. If eGFR (or a measured GFR) is less than 30 mL/minute, including dialysis patients, demeclocycline 150 mg bid should be used instead.

Days 4-17, give no label

Days 18-20, give tetracycline 250 mg qid. If eGFR (or a measured GFR) is less than 30 ml/minute, including dialysis patients, demeclocycline 150 mg bid should be used instead.

Note: If tetracycline is not available, any other tetracycline is acceptable (i.e. doxycycline 100 mg bid) if eGFR is at least 30 mL/minute.

2. Complete a "Bone Histomorphometry Information Sheet" (MML Supply T352) that includes dates of tetracycline use, including name of tetracycline derivative, dose, and frequency of tetracycline administration for histomorphometric analysis.
3. Perform biopsy any time from day 23 to day 27.
Note: The standard biopsy site is located slightly posterior to the anterior superior iliac spine.
4. A transiliac biopsy 5 mm or more in length. A small or fragmented biopsy provides less information and compromises the quantitative analysis. Therefore an intact core of bone is strongly preferred.
5. Place fresh biopsy into 70% ethanol for mailing.
6. Mail at room temperature in protected glass or plastic container not contaminated with aluminum or iron.
7. Send to Mayo Medical Laboratories via courier or an express overnight delivery service.
Shipping address:
Mayo Medical Laboratories
3050 Superior Drive NW
Rochester, MN 55901

MML Tissue Processing and Procedure

The tissue is dehydrated in ethanol, embedded in plastic by controlled temperature polymerization, cut into 5 micron sections, stained and mounted. Quantification is carried out using a semi-automated method. Interpretation of results and slides are done by a clinical endocrinologist trained in histomorphometric techniques. A pathologist interprets the bone marrow from the H& E stained slides.

Questions

Call 800-533-1710