

Center for Skeletal Research
MGH Endocrine Unit

Imaging and Biomechanical Core

Director: Mary Bouxsein, Ph.D

Manager: Daniel Brooks, MSc

Technician: Adriana Martinez-Betancourt

Email: MicroCTcore@partners.org

Website: https://csr.mgh.harvard.edu/imaging_biomechanical

Imaging and Biomechanical Core Services, fees, and Policies

Services:

Service	Description
<p>Mouse long bones microCT</p>	<p>Billing: A flat fee is charged per bone (please see fee schedule). The flat fee includes the following:</p> <ul style="list-style-type: none"> - Distal metaphyseal region scan (10-12 μm resolution) for trabecular evaluation - Mid-diaphysis scan (10-12 μm resolution) for cortical evaluation - Image reconstruction - Standard sample analysis <p><u>The parameters that are typically reported for long bones include:</u></p> <p><i>Trabecular parameters:</i></p> <ul style="list-style-type: none"> - BV/TV (%) - Ratio of bone volume to total volume in the metaphysis - Tb.Th (mm) - Average thickness of individual trabeculae - Tb.N (mm^{-1}) - Number of trabeculae per mm of bone - Tb.Sp (μm) - Average distance separating individual trabeculae - Conn.D (mm^{-3}) - Density of trabecular intricacies per mm^3 of bone - SMI - Describes trabecular architecture as either plate-like or rod-like <p><i>Cortical Parameters:</i></p> <ul style="list-style-type: none"> - Ct.Th (μm) - Average thickness of the cortical shell - Ct. TMD (mgHA/cm^3) - Mean cortical bone mineral density - Ct.Ar (mm^2) - Average area of the cortical bone in each cross-section - Tt.Ar (mm^2) - Average total cross-sectional area (bone and non-bone) - Ma.Ar (mm^2) - Average medullary area (Tt.Ar - Ct.Ar) - Ct.Ar/Tt.Ar (%) - Relative cortical bone area - pMOI (mm^4) - Polar moment of inertia <p><u>The following will be given to you upon completion of the project:</u></p> <ul style="list-style-type: none"> - Data will be provided in an Excel spreadsheet - Short report with synopsis of the results of our analysis - Standard images of scanned regions (slice images) - We will provide assistance with writing methods for publications - Upon request we can provide DVDs with DICOMs for your scans (extra fee applies) - Non-standard images will be produced at the hourly consultation rate

Services (cont.):

Service	Description
<p>Mouse Vertebrae microCT</p>	<p>Billing: A flat fee is charged per bone (please see fee schedule). The flat fee includes the following:</p> <ul style="list-style-type: none"> - Scan of the vertebral body (12 μm resolution) for trabecular evaluation - Image reconstruction - Standard sample analysis <p><u>The parameters that are typically reported for vertebrae include:</u></p> <p><i>Trabecular parameters:</i></p> <ul style="list-style-type: none"> - BV/TV (%) - Ratio of bone volume to total volume - Tb.Th (mm) - Average thickness of individual trabeculae - Tb.N (mm^{-1}) - Number of trabeculae per mm of bone - Tb.Sp (μm) - Average distance separating individual trabeculae - Conn.D (mm^{-3}) - Density of trabecular intricacies per mm^3 of bone - SMI - Describes trabecular architecture as either plate-like or rod-like <p><u>The following will be given to you upon completion of the project:</u></p> <ul style="list-style-type: none"> - Data will be provided in an Excel spreadsheet - Short report with synopsis of the results of our analysis - Standard representative slice images of scanned regions - We will provide assistance with writing methods for publications - Upon request we can provide DVDs with DICOMs for your scans (extra fee applies) - Non-standard images will be produced at the hourly consultation rate
<p>Consultation and Custom microCT analysis (all scans other than standard mouse long bone and vertebral scans)</p>	<p>Billing: The fee will be based the scan resolution and the number of slices. The hourly consultation rate will be charged for custom analysis (please see fee schedule). Prior to starting your project we will give you an estimate of what the cost will be to scan and analyze each sample.</p> <p><u>Available options include:</u></p> <ul style="list-style-type: none"> - We can give you the data (DICOMs, TIFFs, etc.) and you can analyze it yourself - Generation of images or videos for publications and presentations - Custom quantification of client defined parameters - Consultation on results and study design - Many other options are available!

Services (cont.):

Service	Description
PIXImus scanning	Billing: Users are charged the hourly PIXImus scanning rate (please see fee schedule) for using the PIXImus machine. Users are required to demonstrate knowledge on the use of the PIXImus machine prior to use. Training is available and is billed at the hourly consultation rate.

Fee Schedule:

Service	Internal (PHS)		External	
	P30 Investigator*	Non P30 Investigator	P30 Investigator*	Non-P30 Investigator
Standard Mouse Bone microCT Analysis**	\$43/bone	\$77/bone	\$62/bone	\$111/bone
PIXImus scanning	\$24/hr	\$43/hr	\$35/hr	\$61/hr
Consultation and custom analysis	\$42/hr	\$74/hr	\$60/hr	\$106/hr

* Investigators that are part of the Center for Skeletal Research Core grant (NIH P30 AR066261)

** This service includes the standard analysis of mouse long bones (femur or tibia) and vertebrae.

Policies:

Analysis timeframe:

In general we begin projects in the order in which they are received. If you have time sensitive samples or specific deadlines we will do our best to work with you. Once you submit a requisition form, we will give you an estimate of when we will be able to complete your project.

Specimen preparation:

Unless prior arrangements have been made, specimens should be delivered to the core ready for scanning (please refer to the *Preparation of Samples for μ CT Scanning* protocol on the Imaging and Biomechanical Core [website](#)). The hourly consultation rate will be charged if it is necessary for our technician to dissect your samples prior to scanning.

Data backup:

After the completion of your project, the data from your scans is backed up to two separate data storage tapes. Additionally, if you would like to secure the data yourself, we can copy your scans to an external hard drive that you provide. The technician time required to copy the data to your external hard drive is billed at the hourly consultation rate.