



# News from the Core!



## Musculoskeletal Repair and Regeneration Core Center

**May 2006**

Welcome to the first newsletter of the Musculoskeletal Repair and Regeneration Core Center (MRRCC) at Hospital for Special Surgery!

**Who we are:**

We are a NIAMS-funded Center whose mission is to provide services and education to support basic and clinical research targeted at repair and regeneration of musculoskeletal tissues.

**Where we are:**

We are located in the Caspary Research Building of Hospital for Special Surgery, 535 E. 70<sup>th</sup> St., New York, NY 10021

**Contact Information:**

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**Services we provide:**

We provide a range of state-of-the-art analytical, imaging and material assessment services to evaluate musculoskeletal tissues such as bone, cartilage, meniscus, tendon, ligament and tissue-engineered constructs.

**Individual Research Cores:** The MRRCC consists of an administrative core that provides assistance with study design and biostatistics and three Research Cores: Analytical Microscopy, Imaging, and Mechanical and Material Assessment. Each Core provides training, assistance with analyses, and advice with experimental design and data interpretation. Priority for core usage is given to members of the Core Center Research Base. The Core also provides small grants (2 per year for 1-3 yr periods) for Pilot and Feasibility studies as defined by the NIH. Requests for applications are made through HSS and Weill Cornell Medical College-wide broadcast email.

**Applied Statistics Core:** The Applied Statistics Core assists investigators with study design prior to study implementation and with data analysis during and after study completion. Experimental design for both basic and clinical research is available, including the design of clinical trials with blinding, randomization, control arms and the designation of the population of interest, and the selection of truly random samples. For all studies the Core can provide assistance with the examination of data distributions and the selection of appropriate analysis techniques.

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**Analytical Microscopy Core:** The Analytical Microscopy Core provides light and electron microscopic evaluations of musculoskeletal tissues and engineered constructs. Users can be trained in histology, histochemistry, immunohistochemistry, and morphometric analyses. Access to a transmission electron microscope, an environmental scanning electron microscope, and development of new techniques for analysis of musculoskeletal tissues by microscopy are key features of this core.

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**Imaging Core:** The Imaging Core has unique capabilities in state-of-the-art imaging techniques, providing access to and data analyses based on structural (micro-computed tomography, digital radiography) and molecular-level imaging (infrared and Raman; in vivo molecular imaging). The imaging techniques allow determination of geometry, material, and molecular properties of musculoskeletal structures, and of cell function at multiple hierarchical levels.

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**Mechanical and Material Assessment Core:** The Mechanical and Material Assessment Core is based both at Hospital for Special Surgery and at the Sibley School of Mechanical and Aerospace Engineering at the Cornell Ithaca Campus. This core focuses on providing techniques for determining mechanical properties of native and engineered bone, cartilage, soft tissues, and biomaterials, as well as providing models to study adaptation of these tissues to mechanical stimuli. X-ray diffraction and spectroscopic evaluation of homogenized samples are also provided. In addition, assistance with experimental design and data modeling are available through this core.

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**Please visit our websites and contact us for more detailed information regarding analyses of musculoskeletal tissues.**