The Translational and Molecular Imaging Institute (TMII) serves as a research catalyst for a new generation of translational and molecular imaging methodologies. It offers researchers highly efficient, cost-effective services for commonly used imaging tests, without the usual institutional overhead. TMII provides expertise for developing and validating new procedures and encourages interdisciplinary collaborations that help close the gaps between clinical and preclinical studies. Through its targeted seminars, research fellowships, publications, and other training programs, TMII educates researchers, postdoctoral fellows, students, and technicians about biomedical imaging advances and options.

TMII is responsible for coordinating and executing all in vivo imaging research at Mount Sinai. Currently, TMII has over 50 members with expertise in all aspects of translational imaging research, from image acquisition to image analysis. Mount Sinai and TMII have entered into a strategic partnership with Siemens Medical Systems to support its effort in translational research. Housed in approximately 20,000 square feet in the new Hess Center for Science and Medicine, are state-of-the-art Siemens systems, including a whole-body 7T actively shielded MR scanner, a fully integrated simultaneous MR(3T)/PET mMR system, a 3T MR Skyra scanner and a novel dual-source Somatom Force CT for faster and lower dose imaging. These systems will be available for human and large animal research. In addition, TMII will have access to a variety of Siemens systems that will be managed by the Department of Radiology at Mount Sinai, including a 1.5T MR Aera scanner, a PET/CT(40) Biograph mCT, and a multidetector CT Somatom Definition Flash.

TMII also provides preclinical imaging services performed on a variety of small animal scanners, including a 9.4T (89mm bore size) Bruker vertical bore system, a 7.0T Bruker (154mm bore size) horizontal bore scanner, a micro-PET/CT (TBD), a biophotonic IVIS spectrum, a near-IR imager from Dr. John Frangioni, and a micro ultrasound Vevo 2100 from VisualSonics. All of these imaging systems will be equipped with a variety of peripherals for physiological monitoring, physiological gating, fmri experiments, drug infusion and anesthesia delivery.

TMII has a data center in the new Center for Science and Medicine that contains a dedicated server room hosting a larger Mac Server Cluster of 2 x 16TB of initial online storage with direct connectivity to all of the imaging modalities. TMII XNAT serves as the central point for research data transfer, archive, and sharing. TMII XNAT is built upon a secure database, supports automated pipelines for processing managed data, and provides tools for exploring the data. Currently TMII XNAT runs on two mirrored Linux servers with 60TB storage space on each. It can host more than 15,000 image sessions with backups. In addition, TMII offers an image analysis room equipped with a large viewing display and more than 15 high-performance workstations to facilitate learning and image
analysis as well as a nanomedicine laboratory for the design, synthesis and evaluation of novel imaging probes and drug delivery systems.

For more information:
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