**EQUIPMENT**

|  |
| --- |
| **GORDON CENTER FOR MEDICAL IMAGING (MGH)** |

## PET and PET/CT Imaging

* GE Discovery MI-25 TOF PET-CT
* Siemens ECAT EXACT HR+
* Photo Diagnostic Systems NeuroPET-CT scanner (dedicated brain PET/CT imaging system)
* Siemens Biograph 64 slice PET-CT
* Siemens Biograph TruePoint 64 slice PET-CT

## PET/MR and MR Imaging

* Siemens mMR whole body simultaneous PET-MR system
* Siemens BrainPET scanner (PET acquisition simultaneous with MR when inserted in 3T Magnetom Trio)
* Siemens Skyra platform 3 Tesla MRI
* GE whole body Signa TOF PET-MR (renovations in progress, expected Q1 2021)

## SPECT Imaging

* Siemens single and dual-head E.CAM SPECT systems
* Siemens Symbia S SPECT systems
* Siemens Symbia-T6 SPECT-CT system

## Small animal PET/SPECT/CT

* Sedecal Argus microPET-CT
* Triumph TriFoil microPET/SPECT/CT
* Focus 200 microPET scanner
* Two Concorde microPET P4 Animal Imaging Cameras
* GE eXplore Vista microPET scanner

## Fluorescence / Optical Imaging

* 1 Nikon bright field microscope
* 1 Nikon fluorescent microscope
* GE Typhoon phosphorimager
* Bio-Rad ChemiDoc XRS (fluorescence, colorimetry, densitometry, chemiluminescence, chemifluorescence)
* Thermo Scientific Evolution 300 UV-Vis spectrometer
* Varian Cary Eclipse fluorescence spectrophotometer
* CAEN NIM-based 16-channel programmable spectroscopy amplifier
* Molecular Devices SPECTRAmax Gemini XS fluorescence microplate reader
* Ocean Optics USB-2000-UV-Vis absorbance spectrophotometer
* Ocean Optics USB-2000-FL Vis/NIR fluorescence spectrophotometer
* Pan Vera Beacon 2000 fluorescence polarization system
* NI PXIe-1082, 8-Slot 3U PXI Express Chassis
* NI PXIe-8840, Quad-core, Win 7 (64-bit)
* NI PXIe-5170R, 14-bit Oscilloscope
* Optical components lens, microscope objective lens, optical glue, scintillating phosphors, alignment tools
* LC-MS spectrometer (Advion, Expression CMS System) with Agilent 1220 HPLC auto-sampling system
* Nikon Stemi 305 stereomicroscope
* Nikon TE2000 inverted epifluorescence microscope
* Nikon Eclipse E800 upright transmitted light and fluorescence microscope
* Nikon Diaphot fluorescence microscope
* Nikon TMS microscope
* Krelltech NOVA polishing machine

## Other Imaging

* Fluoroscopy Suite
* GE Stenoscope Imaging
* CIRPI catheter-based imaging probe and several components of CIRPI peripheral system

## Radioisotope production

* GE PETtrace 18/9 MeV Dual Particle Cyclotron
* GE Process Cabinet (PROCAB) for the gas phase production of [11C]CO2, [11C]CO, [11C]HCN and [15O]O2, [15O]CO, [15O]CO2
* Ga68/Ge68 generator

## Chemistry/Radiochemistry

* cGMP Compliant manufacturing facility and clean room housed within the PET Nuclear Pharmacy
* Shielded ISO Class 5 Isolator
* Shielded Iodination hood
* 2 GE FX-N F-18 Automated chemistry modules
* 2 GE FX-C C-11 Automated chemistry modules
* Eckert and Ziegler Modular Lab Automated chemistry module
* Flo-Gard 6100 Fluid Pump
* Developmental High-Radioactivity radiochemistry area with Hot Cells
* Developmental Low-Radioactivity radiochemistry areas
* Analytical Chemistry equipment including: HPLC, GC, LC/MS, LC/MS/MS, NMR and TLC
* High-Purity Germanium Radiation Detector
* 12 fume hoods, 2 shielded fume hoods, and shielded Iodination hood
* Prucka Cardio Lab 4.1 GE
* Ora Neptis Mosaic automated chemistry module
* FPLC AKTApurifier (GE Healthcare) with UV, pH and fluorescent detectors and fraction collector
* 3 Hot Cells, 14 Mini Cells
* 4 cell culture BSL2 hoods, 8 CO2 incubators
* Perkin Elmer Wizard2 2480 gamma counter
* Perkin Elmer Wizard 1470 gamma counter
* Bruker UltraFlex III MALDI-TOF
* Waterbaths (Labline)
* Benchtop centrifuges
* MBraun glove box with gas purifier
* Dionex quaternary HPLC
* Buchi rotovapor
* 3 vacuum pumps
* 4 hot plate stirrers
* Oven
* TLC viewing cabinet
* Sonicator bath
* pH meter

## Animal support equipment

* Flo-Gard 6100 Fluid Pump
* SurgiVet Perimeter Monitor (EtCO2/ECG/Pulse Ox)
* 144 microisolator cage/720 capacity murine housing rack (adjacent to preclinical imaging)
* Stryker T/pump Temperature Therapy system (heating pads)

## Other equipment

* 2 Waters 1525 HPLCs with UV-PDA detector and Capintec FlowCount detectors and 1 radioTLC
* Agilent Single Quad LC/MS
* Ion Trap LC/MS/MS.
* Varian VNMRJ 500 MHz NMR instrument
* Thermo PCR machine
* Leika 1950 cryostat
* Leika 1950UV cryostat
* -20 ºC freezer
* -80 ºC freezer
* Liquid nitrogen freezer (Thermoscientific CryoPlus 2) for longterm storage of cell lines.
* 1 SwissTrace “twilite two” continuous blood sampling counting system
* 2 column-switching radioHPLC systems for metabolite analysis
* Capintec dose calibrators
* MRidium 3680 MR-compatible peristaltic infusion pump
* Ismatec REGLO Digital 2 peristaltic infusion pump

## Computing

* Global shared memory Silicon Graphics Altix UV supercomputer cluster
* Beowulf Linux cluster
* LC-model workstation for advanced MR spectroscopy processing
* PETsys 256-channel data acquisition system and readout
* CAEN VME-based 64-channel data acquisition system
* CAEN Desktop 32-channel data acquisition system
* Vertilon 64-channel data acquisition system
* Silicon Mechanics workstation computer with 10 core CPU, and 128 GB memory

## Electronics

* Andor iXon Ultra EMCCD Camera, Back-illuminated 512x512, 16 μm
* Andor Solis Software, a comprehensive graphical user interface for camera control, data acquisition, and processing
* Opotek Opolette HE 355 LD tunable Laser System
* Kinetron 1 mm diameter micromotor
* Mestech Volteq DC Power Supply HY3005D-3
* Koolertron Dual-channel Arbitrary Waveform Function Generator
* Electronics station: digital volt multimeter with temperature, soldering iron, desoldering pump
* Tektronix 4-Ch MSO6 oscilloscope, with 4 GHz bandwidth 62.5M record length per channel
* AIT-Instrument preamplifier boards for Hamamatsu MPPCs and SensL SiPMs
* 20 Watts, 1MHz femtosecond laser for micromachining with a XYZ linear stage (100 nm accuracy)
* Olympus 5073PR Ultrasonic Pulser/Receiver, 1kHz-75MHz Bandwidth, up to 39 dB RF Gain