

## PROGRAM

# Brigham Research Cores and Resources Fair

Sponsored by the Brigham Research Institute

### BIOMEDICAL IMAGING RESEARCH CORE (BICOR)

The purpose of BICOR is to fulfill the need for radiotracers for research staff and clinicians. It is committed to increasing the list of available compounds in response to the changing needs of the community. The facility includes a medical cyclotron, radiotracer processing facilities which meet the requirements of current good manufacturing practices (cGMP), a radiopharmacy, a micro PET/CT lab, and various support laboratories.

Contact: [pholton1@bwh.harvard.edu](mailto:pholton1@bwh.harvard.edu)

### BioMEMs CORE

BMC focuses on translational activities that advance biomedical research of Mass General Brigham investigators and creating an environment attractive for industry partners interested in prototype testing early scale-up efforts. The core provides consulting to biomedical investigators interested in microfluidic tools, training in microfluidic-specific techniques, access to microfabrication infrastructure to trained users, and microfabrication services for Bio-MEMs device users.

Contact: [dirimia@mgh.harvard.edu](mailto:dirimia@mgh.harvard.edu)

### BONE DENSITY AND BODY COMPOSITION RESEARCH CORE

This research core uses dual energy x-ray absorptiometry (DXA) to provide high quality measures of bone mineral density (BMD, VFA and TBS) and body composition (fat, lean tissue, and visceral adiposity).

Contact: [cyu@bwh.harvard.edu](mailto:cyu@bwh.harvard.edu)

### BRIGHAM DIGITAL INNOVATION HUB

The iHub is the center for digital health and innovation across Brigham Health. They create, enable, and advance digital solutions through design, adoption, evaluation and commercialization.

Contact: [ccao@bwh.harvard.edu](mailto:ccao@bwh.harvard.edu)

### BRIGHAM RESEARCH ASSAY CORE

The BRAC laboratory provides a comprehensive menu of state-of-the-art high-quality research assays to the Partners and non-Partners research communities at competitive costs. The BRAC lab offers high-sensitive SERUM, Plasma, Urine, and Saliva sample analysis using LC/MS/MS, Equilibrium Dialysis, RIA, ELISA, and Chemiluminescence. Portfolio includes uncommon assays such as Free Testosterone, GDF-8, GDF-11, DABK, and DAKD.

Contact: [brac@partners.org](mailto:brac@partners.org)

### BWH METABOLIC CORE

This core provides metabolic and behavioral testing using a Comprehensive Lab Animal Monitoring System (CLAMS.) The system collects continuous quantitative data of multiple metabolic and behavioral parameters, including O2 consumption, CO2 production, energy expenditure, core body temperature, feeding, sleeping, locomotion, and running wheel activity. Metabolic assessment can be performed under a variety of conditions.

Contact: [metabolic.core@bwh.harvard.edu](mailto:metabolic.core@bwh.harvard.edu)

Website: [www.bwhresearch.org/researchfair/](http://www.bwhresearch.org/researchfair/)

## BWH PHYSIOLOGICAL NMR CORE

This core provides services such as: simultaneous measurement of high energy phosphate, intracellular pH, Glucose uptake rate, ATP and phosphocreatine (PCr) synthesis rates in perfused organs with <sup>31</sup>P-NMR spectroscopy; simultaneous measurement of cardiac function with cardiac energetics in Langendorff system with <sup>31</sup>P-NMR spectroscopy; tracking of substrate utilization/metabolism with <sup>13</sup>C-NMR spectroscopy; determination of intracellular Na content with <sup>23</sup>Na-NMR spectroscopy; simultaneous measurement following 27 metabolites of cellular redox and energy state in a single sample with HPLC.

Contact: [hhe3@bwh.harvard.edu](mailto:hhe3@bwh.harvard.edu)

## CANARY NATURAL LANGUAGE PROCESSING PLATFORM

Canary is a free/open-source platform for development of natural language processing (NLP) tools. It is a GUI-based software that is oriented towards researchers, clinicians and analysts without a computer science background to empower them to create their own NLP tools.

Contact: [aturchin@bwh.harvard.edu](mailto:aturchin@bwh.harvard.edu)

## CAMD RESEARCH CORE

This core provides metabolic and behavioral testing using a Comprehensive Lab Animal Monitoring System (CLAMS). The system collects continuous quantitative data of multiple metabolic and behavioral parameters, including O<sub>2</sub> consumption, CO<sub>2</sub> production, energy expenditure, core body temperature, feeding, sleeping, locomotion, and running wheel activity.

Contact: [mbaltay@bwh.harvard.edu](mailto:mbaltay@bwh.harvard.edu)

## CARDIOVASCULAR PHYSIOLOGY CORE

This core is made up of experts in delivering therapeutics and molecular target discovery, using a myriad of surgical and non-surgical approaches in preclinical model development. It is home to many cutting-edge imaging tools, including the Vevo3100 platform. They are fully engaged in basic and translational research studies that focus not just on cardiovascular disease, but also renal, hepatic, pulmonary, inflammatory, reproductive, developmental and endocrine disorders.

Contact: [sfisch@bwh.harvard.edu](mailto:sfisch@bwh.harvard.edu)

## CLINICAL PHARMACOLOGY CORE

This core offers the expertise and laboratory capabilities to undertake preclinical and clinical pharmacokinetic (PK) studies. Examples of major services include experimental design, procedures for sample collection, processing storage, metabolic identification, and more.

Contact: [jsupko@mgh.harvard.edu](mailto:jsupko@mgh.harvard.edu)

## ERIS RESEARCH COMPUTING CORE

This group provides consulting and technology services to researchers and their project teams. The Core collaborates with users on finding efficient solutions using technology for the unique needs of research environments.

Contact: [ascharf@partners.org](mailto:ascharf@partners.org)

## GENOMICS AND BIOINFORMATICS HUB

This Hub develops and explores computational and quantitative approaches and tools to help the biomedical research community maximize their understanding of the growing volume and complexity of biomedical big data.

Contact: [xdong@rics.bwh.harvard.edu](mailto:xdong@rics.bwh.harvard.edu)

Website: [www.bwhresearch.org/researchfair/](http://www.bwhresearch.org/researchfair/)

## GNOTOBIOTIC MOUSE COX 7 CORE/MGH

This core has been breeding and maintaining defined flora mice in the Cox-7 gnotobiotic animal facility, a fully AAALAC-accredited and unique animal facility that generates about 30 different strains of high-quality mice. Mice such as Nude and SCID mice are widely available, as well as more heavily immunodeficient NOD-SCID and NSG mice.

Contact: [EGARZON@mgh.harvard.edu](mailto:EGARZON@mgh.harvard.edu)

## HARVARD CATALYST BIOSTATISTICAL CONSULTING PROGRAM AND THE CENTER FOR CLINICAL INVESTIGATION AT BWH

This program supports Harvard postdoctoral and faculty investigators undertaking clinical and translational research. It offers consultations and expertise to researchers as they launch new projects. The program also promotes the development and mentoring of Harvard Catalyst biostatisticians, as well as biostatistical training consultations that review grant submissions, IRB submissions, protocol reviews, and more.

Contact: [rmaurer@bwh.harvard.edu](mailto:rmaurer@bwh.harvard.edu)

## HUMAN IMMUNOLOGY CENTER FLOW CORE

This BWH core facility serves both internal and external users. It is equipped with a 4-laser BD FACSAria™ Fusion cell sorter and a NEW 5-laser BD FACSAria™ Fusion cell sorter. Both sorters are built into HEPA filtered biosafety hoods for Biosafety Level II cell sorting. All sorting will be performed by Core personnel.

Contact: [HICFLOWCORE@partners.org](mailto:HICFLOWCORE@partners.org)

## LMA CyTOF ANTIBODY RESOURCE CORE

Utilizing a 42 metal catalogue, this core has developed panels for both human and mouse immune cell subsets, along with other cell conjugations. With over 450 unique conjugations, any user can create their own panel from this inventory. Custom conjugations allow the user to collaborate with this core to find the best metal choice to fit their panel, and potentially, core inventory.

Contact: [BHANCOCK2@bwh.harvard.edu](mailto:BHANCOCK2@bwh.harvard.edu)

## MGB CLINICAL TRIALS OFFICE

This office provides contracting, budgeting and CTMS services to member-hospital investigators and their industry sponsors conducting Phase I-IV clinical trials. The CTO manages broad array of agreements across the clinical trials spectrum, ranging from confidential disclosure agreements to multi-center coordinator contracts. Our team is ready to assist PIs with both industry-sponsored and investigator-initiated trials. CTO support to the MGB community includes the introductions of OnCore and Forte Payments, both state-of-the-art clinical trials management systems. We have dedicated teams for each of our three functional areas: Agreements, Finance and CTMS which allows for close collaborations between investigators, sponsors and the Clinical Trials Office.

Contact: [ctomailbox@partners.org](mailto:ctomailbox@partners.org)

## MGH CCIB DNA CORE

This core provides a wide range of high-quality services and access to advanced instrumentation and expertise. Complete characterization of unknown plasmids is achieved through de novo assembly. Sequencing of CRISPR Amplicons, Viral Genomes and Complete Amplicons is made possible through specialized NGS-based methods. Additional offerings include Sanger Sequencing, DNA Fragment Analysis, Oligo Synthesis, Mouse Genotyping and Research Automation.

Contact: [aavery@ccib.mgh.harvard.edu](mailto:aavery@ccib.mgh.harvard.edu)

Website: [www.bwhresearch.org/researchfair/](http://www.bwhresearch.org/researchfair/)

## MOUSE BEHAVIOR CORE

This core provides a wide range of tests and equipment for mouse neurobehavioral phenotyping. The facility provides both full-service as well as training and guidance to investigators on best research practices, equipment, procedures and developing new tests. Available assays include models of anxiety, depression, learning and memory, attention, social interaction, motor activity and coordination, and a 24h system that monitors locomotor activity, food intake and metabolic measures. The surgical suite is outfitted with two stereotaxic frames. Housing is available in an adjacent vivarium.

Contact: [Barbara\\_Caldarone@hms.harvard.edu](mailto:Barbara_Caldarone@hms.harvard.edu)

## NEUROTECHNOLOGY STUDIO

The NeuroTechnology Studio is a platform of advanced instrumentation and expert support for brain research at BWH and beyond. Its major instruments include: Zeiss LSM880 confocal microscope with AiryScan FAST (super-resolution); Zeiss LSM710 confocal microscope; Leica DMI8 widefield fluorescence microscope; Thorlabs Multiphoton Mesoscope; Agilent Seahorse XF Analyzer; Illumina NextSeq550 NGS.

Contact: [lding@bwh.harvard.edu](mailto:lding@bwh.harvard.edu)

## NORCH/MGH METABOLIC IMAGING CORE

This core offers investigators a variety of state-of-the-art imaging technologies for human nutrition and obesity research. Services include individual consultation, training, imaging acquisition, and analysis. The combined expertise and instrumentation allow for complex investigations in obesity, metabolism, and nutrition-related neurobiology and behavior.

Contact: [mtorriani@mgh.harvard.edu](mailto:mtorriani@mgh.harvard.edu)

## PATIENT-REPORTED OUTCOMES, VALUE, AND EXPERIENCE (PROVE) CENTER

The PROVE Center focuses on understanding patient and caregiver preferences and values to promote and operationalize high-value and patient-centered care at MGB and globally. The mission is to expand the collection, analysis and utilization of patient-reported outcome measures (PROMs). The PROVE Center PROMs Research Launch Pad provides a consultant service to help clinicians and researchers seeking support for PROM-related research projects.

Contact: [PROVECenter@bwh.harvard.edu](mailto:PROVECenter@bwh.harvard.edu)

## RESEARCH SUPPORT SERVICES (RSS)

RSS provides your department with experienced consultants to support and manage all aspects of the research grant lifecycle from proposal development to grant closeout.

Contact: [researchsupportservices@partners.org](mailto:researchsupportservices@partners.org)

## SINGLE CELL GENOMICS CORE

The advent of droplet-based single cell transcriptomic analysis now offers the ability to assess single cells from patient samples or animal models in dramatic detail and has the potential to identify new pathologic cell subsets and phenotypes that may be targeted therapeutically. This core offers researchers an integrated pipeline to perform successful single cell transcriptomic analysis, including droplet-based single cell transcriptome library preparation, sequencing, and bioinformatic analysis through the core, along with technical expertise on tissue processing, sample preparation, and cell isolation.

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