



Boston Children's Hospital offers a growing number of core facilities that provide highly-specialized services and sophisticated technical skills and equipment essential for conducting innovative pediatric research. These unique resources have a strong scientific impact on the Boston Children's research community.

<p><b>Animal Behavior &amp; Physiology Core*</b>  <i>Co-Directors: Director: Alexander Rotenberg and Michela Fagiolini</i>  <a href="mailto:Alexander.rotenberg@childrens.harvard.edu">Alexander.rotenberg@childrens.harvard.edu</a>  <a href="mailto:michela.fagiolini@childrens.harvard.edu">michela.fagiolini@childrens.harvard.edu</a>            Location: Karp 4<sup>th</sup> Flr</p>	<p>The Animal Behavior &amp; Physiology Core (AB&amp;P) enables early phases of central nervous system drug discovery and development by collection and analysis of in-vivo cerebral electrophysiological signals. AB&amp;P services include animal housing, mouse and rat cranial and extracranial surgery, mouse EEG, mouse and rat tissue collection, etc. In addition, AB&amp;P provides a state-of-the-art facility to assist investigators with behavioral, physiological and neurophysiological analyses of mouse models and offer a wide range of standardized and innovative behavioral assays, consultation, training and supervision.</p>
<p><b>Animal Metabolic Physiology Core</b>  <i>Director: Nicholas Stylopoulos MD</i>  <i>Administrator: Lin Lin</i>  <a href="mailto:Nicholas.stylopoulos@childrens.harvard.edu">Nicholas.stylopoulos@childrens.harvard.edu</a>  <a href="mailto:AMPC@childrens.harvard.edu">AMPC@childrens.harvard.edu</a>            Location: CLS 16<sup>th</sup> Flr, ARCH Enders SB7, SSB21</p>	<p>The mission of the Animal Metabolic Physiology Core (AMPC) is to provide comprehensive, standardized and unbiased testing services to facilitate metabolic phenotyping of animal models. AMPC offers state of the art surgical and other metabolic techniques, including weight loss surgical procedures, and cannulation-dependent glucose 'clamp' and other metabolic tracing studies for the assessment of insulin sensitivity and glucose, lipid and amino acid metabolism.</p>
<p><b>Assay Development and Screening Facility (ADSF)</b>  <i>Director: Lee Barrett</i>  <a href="mailto:lee.barrett@childrens.harvard.edu">lee.barrett@childrens.harvard.edu</a>            Location: CLS 12<sup>th</sup> Flr, CLS-12121</p>	<p>The goal of the Assay Development and Screening Facility (ADSF) is to offer automated widefield and laser confocal microscope-imaging options for all standard tissue culture plates and microscope slides in a user-independent manner. The acquired images are then automatically quantified with a state-of-the-art on-site computer cluster. The ADSF offers this as a fee-for-service or user-assisted model. We also provide consultation on assay design, robotic lab automation, as well as in-depth training on image data analysis and algorithm development to address your particular biology.</p>
<p><b>Biobank</b>  <i>Director: Kenneth D. Mandl, MD, MPH</i>  <i>Manager: Thomas Mayer</i>  <a href="mailto:Thomas.Mayer@childrens.harvard.edu">Thomas.Mayer@childrens.harvard.edu</a>            Location: Enders 2<sup>nd</sup> Flr, EN-284</p>	<p>The Biobank Core Lab was created to make the highest quality of human specimen (such as blood, tissue, nucleic acids and more) and corresponding clinical data available for clinical, translational and basic research at Boston Children's and associated organizations. It serves as a service core and a biorepository. The core provides a comprehensive set of services related to research with human specimen to support the scientific community. These services include biobanking, sample and data management, and an array of sample preparations, such as nucleic acid preparations. In concert with the Precision Link team, the core supports identification of the right cohort for a study, sample and data collection, and IT support.</p>
<p><b>Cellular Imaging Core*</b>  <i>Director: Chinfai Chen</i>  <i>Assistant Director: Cvic Innocent</i>  <a href="mailto:chinfai.chen@childrens.harvard.edu">chinfai.chen@childrens.harvard.edu</a>            Location: CLS 13<sup>th</sup> Flr, CLS-13035</p>	<p>The mission of the Cellular Imaging Core is to provide investigators with affordable access to state-of-the art instrumentation, powerful software and insightful training for light microscopy and image analysis. Services include training on microscope systems, accessory instruments and image-analysis software.</p>
<p><b>Cell Function and Imaging Core (CFIC)*</b>  <i>Director: Wayne Lencer</i>  <a href="mailto:Wayne.lencer@childrens.harvard.edu">Wayne.lencer@childrens.harvard.edu</a>            Location: Enders 6<sup>th</sup> Flr – EN-603, EN-613, EN-641/660, EN-643; Enders 12<sup>th</sup> Flr – EN-1250; Enders 13<sup>th</sup> Flr – EN-1313</p>	<p>The Cell Function and Imaging Core (CFIC) provides comprehensive, state-of-the-art imaging, cell characterization, and molecular technologies to support researchers at Boston Children's Hospital and the Harvard Medical School community. Cell function and analysis and advanced confocal imaging and live-cell analysis equipment and training are available.</p>
<p><b>Flow Cytometry Research Lab*</b>  <i>Director: Ronald Mathieu</i>  <a href="mailto:ronald.mathieu@childrens.harvard.edu">ronald.mathieu@childrens.harvard.edu</a>            Location: Enders 8<sup>th</sup> Flr, EN-853; CLS 15<sup>th</sup> Flr, CLS-15037, Karp 6113, 8113</p>	<p>The Flow Cytometry Research Lab offers full-range flow Cytometry services, such as experimental consultation, panel design, assisted and self-operated single cell sorting. The lab also offers 24-hour access to analyzer for independent acquisition and a complete training program involving sample preparation, instrument training and data analysis.</p>
<p><b>Flow Cytometry PCMM</b>  <i>Director: Jodene Moore</i>  <a href="mailto:jodene.moore@hms.harvard.edu">jodene.moore@hms.harvard.edu</a>            Location: Warren Alpert Building 200 Longwood Ave</p>	<p>The Flow and Imaging Cytometry Resource is a fee-for-service facility that provides training and advising on the fluorescence-activated cell sorting, in-vivo molecular imaging and imaging cytometry to all laboratories at Boston Children's and the Harvard Medical School scientific community.</p>

<p><b>hESC Core Facility</b>  Director: Thorsten Schlaeger  <a href="mailto:Thorsten.Schlaeger@childrens.harvard.edu">Thorsten.Schlaeger@childrens.harvard.edu</a>  Location: Karp RB05213</p>	<p>The Core is a basic and translational stem cell research facility situated in the Stem Cell Program of Boston Children’s Hospital. Areas of expertise include human pluripotent stem cell biology, cGMP cell manufacturing, reprogramming, genome editing, laboratory automation, chemical screening, and high-throughput confocal imaging and image analysis technologies. The core facility’s goal is the development of pluripotent stem cell based transfusion and transplantation therapies.</p>
<p><b>Human Neuron Core*</b>  Director: Mustafa Sahin  Manager: Ivy Chen  Project Manager: Denise McGinnis  <a href="mailto:Denise.McGinnis@childrens.harvard.edu">Denise.McGinnis@childrens.harvard.edu</a>  Location: CLS 12<sup>th</sup> Flr, CLS-12160.1</p>	<p>The Human Neuron Core (HNC) offers customizable human iPSC-derived neuronal differentiation and phenotyping services. Differentiation services include procurement of patient skin/blood samples and differentiation into specific neuronal subtypes. Phenotyping services include high-content imaging and analysis, multi-electrode array (MEA) recordings and targeted RNA-sequencing. In addition to these services, we offer fee-for-service- or assisted-use of equipment for characterizing cell cultures, including the Axion Maestro MEA system and the IncuCyte live imaging system.</p>
<p><b>PCMM Microscopy Core</b>  Director: Harry Leung  <a href="mailto:harry.leung@childrens.harvard.edu">harry.leung@childrens.harvard.edu</a>  Location: CLS 3<sup>rd</sup> Flr, CLS-03023 and Warren Alpert Building 200 Longwood Ave, Rm 257A</p>	<p>The Program in Cellular and Molecular Medicine (PCMM) Microscopy Core provides advanced instrumentation in Light and Electron Microscopy. While Electron Microscopy offers the ultimate in resolution, modern Light Microscopy such as Confocal and Multiphoton has the advantage of imaging biochemical process in real time, shedding light on the vastly-complex molecular world of cells and tissues. Since 2000, we have operated a dedicated Multiphoton-Intravital Microscopy (MP-IVM) facility on the second floor of the Warren Alpert Building at the Harvard Quad with expertise training that is relevant to the experiment.</p>
<p><b>Molecular Genetics Core*</b>  Director: Alan Beggs  Manager: Catherine Brownstein  <a href="mailto:catherine.brownstein@childrens.harvard.edu">catherine.brownstein@childrens.harvard.edu</a>  Location: CLS 16<sup>th</sup> Flr, CLS-16030</p>	<p>The Molecular Genetics Core provides a central location where investigators can have access to high-quality, low-cost genomic technology services and expertise in a timely, affordable manner. These services include six main functional components: Sequencing (NextGen and Sanger), High-Throughput SNP Genotyping, qPCR and Droplet Digital PCR, Microarray Analysis, Bioinformatics, Sample and Data Management Analysis, and Microsatellite Genotyping.</p>
<p><b>Mouse Gene Manipulation Core</b>  Director: Clifford Woolf  Assistant Director: Mantu Bhaumik  <a href="mailto:Mantu.Bhaumik@childrens.harvard.edu">Mantu.Bhaumik@childrens.harvard.edu</a> Location:  CLS 12<sup>th</sup> Flr, CLS-12122-12124</p>	<p>The Mouse Gene Manipulation Core provides Boston Children’s investigators with easily accessible, efficient, cost-effective and quality-controlled genetically-altered mouse models, utilizing the latest genome-editing techniques. The core also provides resources and comprehensive knowledge of complex mouse-model generation: genotyping founder lines, breeding strategies etc. The Core uses CRISPR/CAS9 technology, which represents a powerful and precise tool to create gene-edited mice.</p>
<p><b>Research Imaging Core</b>  Director: Simon Warfield  <a href="mailto:simon.warfield@childrens.harvard.edu">simon.warfield@childrens.harvard.edu</a>  Assistant: Onur Afacan  <a href="mailto:onur.afacan@childrens.harvard.edu">onur.afacan@childrens.harvard.edu</a>  Manager: Kristina Pelkola  <a href="mailto:kristina.pelkola@childrens.harvard.edu">kristina.pelkola@childrens.harvard.edu</a>  Location: 300 Longwood Ave, LC BCH3429 – Radiology</p>	<p>The Research Imaging Core is a leading innovator in pediatric research imaging and at the forefront of developing treatments and cures for diseases, such as epilepsy and autism. This core provides services, such as access to MRI, CT, PET/nuclear medicine, ultrasound, x-ray, neuropsychology-testing rooms, data analysis and more. The mission of the Research Imaging Core is to assist investigators with achieving the best imaging-research outcomes possible, while also assuring compliance with institutional policies</p>
<p><b>Small Animal Imaging Core</b>  Director: Simon Warfield  <a href="mailto:simon.warfield@childrens.harvard.edu">simon.warfield@childrens.harvard.edu</a>  Assistant: Onur Afacan  <a href="mailto:onur.afacan@childrens.harvard.edu">onur.afacan@childrens.harvard.edu</a>  Manager: Kristina Pelkola  <a href="mailto:kristina.pelkola@childrens.harvard.edu">kristina.pelkola@childrens.harvard.edu</a>  Location: ARCH Enders SB Level</p>	<p>The Small Animal Imaging Core (SAIL) provides the instrumentation, infrastructure and imaging expertise necessary for the Boston Children’s research community to take advantage of the benefits that small animal imaging has to offer for basic and translational research. The imaging modalities available through SAIL include ultrasound, radiography, computed tomography, magnetic resonance imaging (MRI), single photon emission computed tomography and positron emission tomography, as well as optical and fluorescent imaging.</p>
<p><b>TransLab</b>  Director: Myriam Armant  <a href="mailto:Myriam.Armant@childrens.harvard.edu">Myriam.Armant@childrens.harvard.edu</a>  Location: Enders 4<sup>th</sup> Flr, EN-428</p>	<p>The TransLab Core helps physicians treat their patients by bridging science and medicine. With expertise in clinical trial support for bench-to-bedside and bedside-to-bench translational and clinical research, the Core operates in two major areas: 1) Laboratory assays for investigator-initiated clinical and translational trials; and 2) Process and product development (PPD) of assays and biological reagents to support clinical trials.</p>

## **Viral Core**

Director: Zhigang He  
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The Viral Core provides scientists with access to leading-edge, high-quality viral vector technologies in a cost-efficient fashion. We also provide consultations to investigators in selecting, designing and using viral vectors. Currently, we offer custom lenti-viral vector production, custom adeno-associated virus (AAV) vector production and a variety of in-stock AAV vectors.

### *\*Institutional Core*

*If you have any questions about the Research Core Facilities or if you would like to be included in the At-A-Glance publication, please contact [ResearchCoreResources-ECRAC@childrens.harvard.edu](mailto:ResearchCoreResources-ECRAC@childrens.harvard.edu)*