

BRB Lobby

Table	Core Facility/Service	Services Offered	Affiliation
B1	Neurobehavior Testing Core	Test mice in state of the art assays of simple and complex behaviors; comprehensive behavior phenotyping of mice or training to perform the tests within our facility and analyze data; consultation in behavior battery design, data analysis and interpretation of results; mouse surgical and tissue harvest procedures	Perelman School of Medicine
B2	CDB Microscopy Core	Offers training and access to a variety of light microscopes; imaging for customers who are not trained; scanning electron microscopy services (sample preparation and imaging)	Perelman School of Medicine
B3	Bioinformatics Core	Professional bioinformatics services, including data analysis and consultation to Penn biomedical research community; dedicated to building efficient pipelines to handle various next-generation sequencing (NGS) data	Perelman School of Medicine
B4	Next Generation Sequencing Core	Ultra high throughput sequencing services; library quality assessments, sequencing, and optional preliminary data analysis for a wide variety of experimental protocols including ChIP-seq, RNA-Seq, HITS-CLIP, miR-Seq, exome capture, and BIS-seq; limited library preparation services; advises on library preparation techniques	Perelman School of Medicine
B5	Cell Center Services Facility	Provides training and services in cell culture and related procedures including cell culture at various scales, large scale growth of hybridoma and other cell lines, antibody purification, EBV induced transformation of lymphocytes, and mycoplasma and endotoxin testing. Additionally, it offers hybridoma generation by cell fusion and screening, and the transfection of mammalian cells. The facility prepares specialized cell culture media, drosophila media, and various tissue culture and molecular biological reagents.	Perelman School of Medicine
B6	DNA Sequencing Facility	Provides sequencing services on two platforms, Sanger sequencing on ABI capillary sequencers, and next-generation sequencing (NGS) on Ion Torrent PGM and its upgrade, S5 along with experimental design and data analysis. Other services include microsatellite genotyping and fragment analysis, human cell line authentication. The molecular biological services are PCR, cloning, constructs, mutagenesis, and DNA preps at different scales.	Perelman School of Medicine
B7	Molecular Profiling Facility	Provides whole genome and targeted molecular profiling of DNA and RNA on multiple platforms including Affymetrix GeneChips & Gene Titan, Agilent aCGH, Fluidigm BioMark HD, Luminex FlexMap 3D, and ABI QS 12K Flex real-time PCR. Consultation and training are available throughout the user projects, including during experimental design and budget development, sample accrual, data management and analyses, and manuscript/grant preparation.	Perelman School of Medicine
B8	Clinical Cell and Vaccine Production Facility	Provides focused scientific, technical and regulatory support for investigator initiated investigational new drug applications (INDs) in cell and gene therapy	Perelman School of Medicine
B9	Electron Microscopy Resource Laboratory	Facility dedicated to ultrastructure analysis of biological samples by electron microscopy (EM); offers high quality EM imaging services at low cost; full spectrum of both transmission EM and scanning EM services	Perelman School of Medicine
B10	Penn Gnotobiotic Mouse Facility	Centralized germ-free and gnotobiotic mouse services; access to small experimental isolators for a variety of in vivo studies utilizing germ-free mice; maintains several common strains of germ-free mice, such as C57BL6, and RAG knockout mice (available immediately upon request); developing method to provide re-derivation services for generating customized germ-free and gnotobiotic mouse strains & generation of bone marrow chimeras, in the near future; offers technical support to investigators for numerous experimental procedures	Perelman School of Medicine
B11	Flow Cytometry and Cell Sorting Facility	Provides high quality, cost effective services and scientific expertise necessary for investigators to use cytomics in their clinical and basic science research efforts; services for cell sorting/analysis & 24/7 access to operator-independent bench top analysis instruments and FACS Aria II cell sorters (after facility-provided training)	Perelman School of Medicine
B12	Vector Core	For investigators interested in the use of vectors for gene transfer; provides investigators access to state-of-the-art vector technology for preclinical studies and other basic research applications	Perelman School of Medicine
B13	Quantitative Proteomics Resource Core	4 kinds of services for simple and very complex protein samples: Enzyme digestions: Trypsin, Chymotrypsin, Thermolysin, Glu C; SPE Sample Cleanup; nanoUPLC/Orbitraps: Pro, Elite, QE, Fusion; Mass Spectrometry Data Analysis/Database Search	Perelman School of Medicine
B14	Research Instrumentation Shop	Machine shop services including (but not limited to), making new mechanical parts, design assistance, packaging of electronics/optics and repairs of simple lab equipment	Perelman School of Medicine
B15	High-Throughput Screening Core	Professional HTS screening services to identify genes or organic small molecule modulators of signaling pathways, cellular phenotypes, and protein function in models of human disease; educates and assists scientists with HTS assay development, optimization, miniaturization, and validation; maintains libraries of siRNA, shRNA, cDNA, and FDA approved/FDA-like organic small molecule libraries for HTS; provides robotics infrastructure and technically trained staff for HTS, including small screens of user defined libraries	Perelman School of Medicine
B16	Clinical Research Computing Unit	Comprehensive research operation services – project management, data management and research technology	Perelman School of Medicine
B17	CRISPR Cas9 Mouse Targeting Core	Our mission is to streamline procedures that facilitate investigators' use of the CRISPR/Cas9 genome editing technology for the rapid and economic generation of novel mouse genetic tools.	Perelman School of Medicine
B18	Transgenic and Chimeric Mouse Facility	Produces infection-free transgenic founder, chimeric and genome-edited strains of mice carrying transgenes or gene "knockouts" of specific interest to Penn researchers; services including DNA pronuclear injection into fertilized oocytes (& genotyping of transgenic founders), ES cell injection into blastocysts, cytoplasmic RNA injection (for CRISPR technology), embryo/sperm cryopreservation, in vitro fertilization, re-derivations of live and cryopreserved lines; oversees cryopreservation facility for long-term storage of mouse embryos & sperm samples	Perelman School of Medicine
B19	Cell Center Stockroom	A University service center, established in 1973 to provide a full range of cell culture media and molecular biology reagents needed by investigators to perform cell culture techniques in their own laboratories	Perelman School of Medicine
B20	Stem Cell and Xenograft Core	Comprehensive resource laboratory that integrates a viable tissue bank of normal human hematopoietic cells and hematopoietic malignancies with a full range of xenograft services	Perelman School of Medicine
B21	Biostatistics and Analysis Center	The Biostatistics Analysis Center (BAC) is a University of Pennsylvania service center offered by the Perelman School of Medicine's Center for Clinical Epidemiology and Biostatistics. The BAC is staffed by professionally trained biostatisticians, biostatistical programmers and data managers, and provides a wide range of biostatistical and epidemiological consulting services to the University's biomedical research community and externally.	Perelman School of Medicine
B21	Penn Diabetes Center RIA Biomarker Core	Provides Radioimmunoassays and ELISAs as high-volume/cost-effective service; assay over 50 different diabetes and endocrinology-related markers using absorbance/fluorescence technology; offer multiple analyte (multiplex) services using the established Luminex multiplex ELISA services (in conjunction with CTSAs); uses cell-sorting technology to measure multiple proteins simultaneously (plastic or magnetic beads); multiplex platform allows screening of human cohorts in disease research (particularly small volume in repeated sampling protocols)	Perelman School of Medicine
B22	Recruitment, Outcomes and Assessment Resource (ROAR)	Available to meet the needs of investigators participating in cancer-related studies; offers assistance with recruiting subjects, including the development of recruitment plans, materials, and media campaigns, as well as with study design and implementation	Perelman School of Medicine
B22	Mixed Methods Research Laboratory (MMRL)	The mixed methods research lab uses qualitative and mixed methods to capture contextual, socio-cultural and experiential factors that contribute to health-related behavior, health disparities, implementation of interventions and patient-centered outcomes research. Our methodologies include concept design, training, and research support through protocol and instrument development, data collection, and qualitative coding and analysis.	Perelman School of Medicine
B23	Investigational Drug Service	Research pharmacy charged with the management of research medications used in clinical (human) drug trials, as well as the oversight of medication use in drug trials	Perelman School of Medicine
B23	ITMAT: eagle-i	Eagle-i is a highly structured highly curated resource browser designed to make the job of finding resources to aid in research easier. Imagine if searching for mouse lines or cores or specialized services or algorithms was as easy as searching for merchandise on amazon.com. Eagle-i realizes such a system, and more.	Perelman School of Medicine
B24	PennVet Imaging Core	Offers cutting-edge optical imaging capabilities; includes instruments to perform transmitted light, epifluorescence, confocal, multiphoton, fluorescence lifetime, and total internal reflection fluorescence (TIRF) microscopy; provides software tools for 3D rendering of confocal images and for image analysis; focused on making imaging technology accessible to all labs, regardless of prior level of experience	PennVet
B24	PennVet Comparative Pathology Core	To provide skillful interpretation of lesions in animal models by board-certified veterinary pathologists with specific training in comparative pathology. Services include: mouse autopsy training, study design consultation, comprehensive slide evaluations/grading, mouse phenotyping (for investigators developing new therapies or models with unknown phenotypes), digital photomicroscopy, and access to full-service histology laboratory.	PennVet

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B25	Johnson Foundation Biophysical and Structural Biology Core Facilities	The Department of Biochemistry and Biophysics at Penn has a wide range of unique equipment and expertise to facilitate modern biophysical characterization and structural analysis of proteins and other biomolecules. These facilities, funded in large part through the generosity of the Johnson Foundation, are available for use by the research community at Penn.	Perelman School of Medicine
B25	Mouse Phenotyping, Physiology, and Metabolism Core	Provides consultation as well as whole body and tissue metabolic analyses: glucose and lipid homeostatic parameters: clamps, tolerance tests, secretion and uptake; energy homeostasis: indirect calorimetry during normal behavior, cold exposure and exercise, in vivo metabolic flux: stable isotope infusions coupled with MS, and body composition: NMR and DEXA. New assay design and validation	Perelman School of Medicine
B26	Center for Advanced MRI & Spectroscopy	Provides oversight in the responsible use/application of Magnetic Resonance in research through leadership, education, and guidance: the development of new research/collaborations which can translate into advanced clinical techniques; training in safe/efficient use and dissemination of current, accurate and evolving MR Technology; scheduling upgrades of MR Systems/facilities; scheduling systems operations and personnel within MR department; receiving and acting on recommendations pertaining to the administration of CAMRIS Facilities.	Perelman School of Medicine
B26	Center for Advanced Computed Tomography Imaging Services (CACTIS)	Oversees proposed research protocols involving human, animal, phantom or specimen studies; ensures all research performed on the CT scanners comply with CACTIS and University policy and Federal Regulations	Perelman School of Medicine
B27	Human Immunology Core	Provides immune assays, cellular products and immunological expertise for clinical trials and immunology research; specimens and reagents to facilitate basic and translational research	Perelman School of Medicine
B28	Small Animal Imaging Facility	Provides multi-modality radiological imaging and image analysis for cells, tissues, and small animals, primarily mice and rats	Perelman School of Medicine
B29	Penn Medicine Academic Computing Services (PMACS)	School-wide computing infrastructure (network, server, storage, and desktop support), web/database design, application development, sponsored project/program development and support; access to/management of enterprise-grade applications (LIMS, HPC, CTMS,DMS) in support of research, educational and administration missions across Penn Medicine.	Perelman School of Medicine
B29	Penn Medicine Data Analytics Center (DAC)	The Data Analytics Center is an enterprise wide group centered on Decision Support, Data Access, Data Visualization and Data Warehousing & Big Data. Our team is responsible for guiding researchers, clinicians, analysts, and many others through the challenges of requirements gathering and decision making and on to the realized end-product.	Perelman School of Medicine

## Outdoor Tent

Table	Core Facility/Service	Services Offered	Affiliation
T1	Healthcare Analytics Core	The Healthcare Analytics Unit (HAU) Core is a service unit of two centers at CHOP: The Center for Pediatric Clinical Effectiveness and PolicyLab. The core serves as a resource for investigators who want to use administrative or other existing data to answer research questions. HAU is staffed by PhD and Masters-level research statisticians and statistical scientists who pull, clean, manage, and analyze complex data. The HAU also has expertise in geographic information systems and geospatial analyses. Some of the data sources for which HAU provides expertise include: PHIS, HCUPS databases, Medicaid, NAMCS, NHDS, Premier Perspective and OPTUM.	Children's Hospital of Philadelphia
T2	Bioanalytical Core Lab	The Bioanalytical Core serves as a central component of the Center for Clinical Pharmacology and specializes in developing and validating robust liquid chromatography/ tandem mass spectrometry (LC-MS/MS) methods for the analysis of natural products, drugs, and metabolites in various biological samples (blood, dried blood spot, urine)	Children's Hospital of Philadelphia
T3	CIRP - Center for Injury Research and Prevention Driving Simulator	The Driving Simulator Core provides the technical and administrative support for conducting simulator-based observational studies to monitor and analyze driving behaviors and performance in our high fidelity, fixed-base simulator with a rich, customizable auditory/visual environment as well as integrated advanced, lightweight eye-tracking capabilities.	Children's Hospital of Philadelphia
T5	Tumor Tissue and Biospecimen Bank (TTAB)	Provides investigators the resources and organizational capabilities to maximize the potential of using tissue and other biospecimens for basic and translational research; works to define data driven standards for tissue and biospecimen banking practices at Penn	Perelman School of Medicine
T5	Penn Medicine BioBank	The Penn Medicine BioBank (PMBB) coordinates the ethical collection, storage, annotation, and distribution of tissue and peripheral blood samples. Access to cohorts of properly preserved and well-characterized tissue and blood samples accompanied by high quality data is available to Penn researchers with IRB-approval and meeting PMBB governance review.	Perelman School of Medicine
T6	Singh Center for Nanotechnology	The Singh Center for Nanotechnology is a nanotechnology and microfluidics research center that opens its doors to all of academia and industry. The Singh Center currently houses over 90+ pieces of instrumentation for the fabrication, characterization and measurement of nanomaterials and devices. Currently one third of the Center's User Base comes from the Life Sciences, with multiple pieces of equipment specifically related to nano-biotechnology.	University of Pennsylvania
T7	Office of Clinical Research (OCR)	The Office of Clinical Research (OCR) is a central office in the Perelman School of Medicine (PSOM) designed to support the management and conduct of clinical research while promoting compliance. This is accomplished through standardizing the approach to clinical research across the various research centers and departments in the Perelman School of Medicine, and supporting investigative teams through regulatory and operational assistance, and enhancements in study management and oversight.	Perelman School of Medicine
T8	TCL - Translational Core Lab	The Translational Core Laboratory (TCL) at CHOP provides a variety of services ranging from laboratory testing to specimen special processing. We support investigators at both CHOP and UPENN for patient-orientated research as well as preclinical studies. Lab testing services include immunoassays, biochemical assays, clinical chemistry, DNA/RNA extraction and gene analysis, cell culture, and hematology (CBC) analysis.	Children's Hospital of Philadelphia
T9	Protein and Proteomics Core	The Protein and Proteomics Core Facility provides access to state-of-the-art mass spectrometry-based proteomics technologies. These include: quantitative whole proteome, phosphoproteome, and ubiquitylome analysis; targeted multiplexed quantification of proteins and peptides in complex matrices; intact mass and post-translational modification of specific proteins; and discovery of protein-protein interacting partners. We also provide expert assistance for protein purification and characterization.	Children's Hospital of Philadelphia
T10	BDMC - Biostatistics and Data Management	The Biostatistics and Data Management Core (BDMC) supports the biostatistical and data management needs of the investigators at CHOP from virtually all subspecialties of pediatric medicine. The BDMC supports studies ranging from narrowly defined basic science projects to large multi-site clinical trials. The BDMC is supported by Westat, a large health research organization with extensive biostatistics, information technology, and data management resources.	Children's Hospital of Philadelphia
T11	Pathology Core	Pathology Core unites several main components: Histopathology, Tissue Microarray, Laser Capture Microdissection, and Whole Slide Imaging. The core offers a full range of histopathology services, including tissue processing, embedding and cutting for both paraffin and frozen tissue. The core also performs most standard stains as well as immunohistochemistry, antibody workup, and fluorescence. The core can also help with basic imaging and whole slide scanning and analysis.	Children's Hospital of Philadelphia
T12	NeuronsRUs - CNS Cell Culture Core	NeuronsRUs produces high quality cell cultures of mouse or rat neocortex or hippocampus in a variety of formats at very low prices. We also supply cells for those who choose to make their own cultures. Special dissections are available. We can also advise about tailoring the cultures for specific experiments.	Perelman School of Medicine
T13	Cooperative Human Tissue Network (CHTN)	The CHTN is a prospective human tissue procurement service assisting investigators with collection, processing and preservation of research samples. Our staff will personalize sample acquisition and processing to meet project requirements. Samples (malignant, normal, diseased, etc.) and biofluids can be preserved in a range of methods (fresh, frozen, fixed, etc.)	Perelman School of Medicine
T14	Penn STEM Libraries	Research support offerings at the STEM Libraries include: 3D and poster printing, systematic reviews, research consultations for your clinical and basic science projects, NIH open access troubleshooting, support in using NCBI databases, copyright guidance, and evaluating research impact at the institution, individual researcher, journal, and article levels. Visit: <a href="http://guides.library.upenn.edu/hlthsci-research-resources">http://guides.library.upenn.edu/hlthsci-research-resources</a> for more information.	University of Pennsylvania

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T16	The Raymond G. Perelman Center for Cellular and Molecular Therapeutics Human Pluripotent Stem Cell Core	The Human Pluripotent Stem Cell (HPSC) Core provides expertise and quality-control reagents for the culture, differentiation, and genome editing of embryonic stem cells (ESCs) and induced pluripotent stem cells (iPSCs) to the CHOP and University of Pennsylvania academic communities.	Children's Hospital of Philadelphia
T17	CHPS - Center for Human Phenomic Science (CHOP)	The Center for Human Phenomic Science (CHPS) provides the resources, environment, operations, and training to support and promote the highest quality clinical and translational research by qualified investigators. These include outpatient services for research activities, a scatterbed nursing program, and a range of other research services and expertise. The CHPS is a major component of the Clinical and Translational Science Award - providing child and adult research programs and services at The Children's Hospital of Philadelphia and the University of Pennsylvania Health System.	Children's Hospital of Philadelphia
T18	CHPS - Center for Human Phenomic Science (Penn)	The Center for Human Phenomic Science is located on 4 PCAM and Presby, providing the staffing and service cores to do almost any outpatient research procedure from blood draws, echocardiograms, vascular monitoring, pK/pD, exercise and diet studies. Visit us at: <a href="http://www.med.upenn.edu/chps/">http://www.med.upenn.edu/chps/</a>	Perelman School of Medicine
T19	Cell Culture and iPSC Core (CCiP)	Our mission is to provide support in the design and implementation of experiments involving the use of human iPSCs, human embryonic stem cells (hESCs) and primary and established mouse and human cells of the gastrointestinal system. Our services include derivation of patient-specific iPSCs, genome engineering of existing stem cell lines using CRISPR/Cas9 technology, and lineage specific differentiation of iPSCs/hESCs including hepatocytes, cardiomyocytes and endothelial cells.	Perelman School of Medicine
T20	Molecular Pathology and Imaging Core (MPIC)	The Molecular Pathology and Imaging Core provides histological services and microscope usage to its members. The histological services include paraffin and frozen sectioning, standard histological stains, and access to reagents for immunohistochemistry (IHC) and immunofluorescent (IF) stain.	Perelman School of Medicine
T21	Host-Microbial Analytic and Repository Core (H-MARC)	The mission of H-MARC is to provide services for the analysis of both host and microbial biological processes as well as facilitate translation into the clinical arena via human subject research.	Perelman School of Medicine
T22	The Wistar Institute	The faculty and senior scientific staff of The Wistar Institute have assembled state-of-the-art technologies into Shared Resources to function as engines of discovery for biomedical research initiatives. It is our privilege and responsibility to share these resources, when possible, with the greater research community. Wistar Shared Resources, also known as core facilities, are available to Wistar investigators, affiliates, and outside researchers. Visit the individual core websites ( <a href="http://wistar.org/resources">wistar.org/resources</a> ) or browse our online brochure below to explore the opportunities Wistar provides for your research.	Wistar Institute
T23			
T24	Microbiome (CHOP)	The CHOP Microbiome Center is comprised of a Sequencing Core and an Analytical Core. Together we support all aspects of microbiome sequencing projects including study planning and design, sample processing, DNA purification, library preparation, high-throughput sequencing, and bioinformatic and statistical analysis	Children's Hospital of Philadelphia
T25	Microbiome (PENN)	The goals of the Microbiome Program are to understand the human microbiome and alter its properties to improve health.	Perelman School of Medicine
T26	CytoF Service Center, Penn Institute for Immunology	The CyTOF2 is a new generation mass cytometer. The system uses heavy metal labeled antibodies instead of fluorescent-labeled antibodies, which allows multi-parametric single cell analysis for more than 40 channels with minimal background and compensation problems. IFI offers a wide variety of CyTOF-related services including consultation, antibody-conjugation, and data acquisition.	Perelman School of Medicine
T27	VWR	Vendor	Vendor
T28	iLab	Vendor	Vendor

## ARC Lobby

Table	Core Facility/Service	Services Offered	Affiliation
A1	Research Shipping Core	The Research Institute's Shipping Core is available for shipment of hazardous substances for all Research Institute faculty and staff.	Children's Hospital of Philadelphia
A2	Zebrafish Core	The Zebrafish Core offers molecular biology, histology and imaging services using the small vertebrate zebrafish as models for human disease and to study gene function. The standout features of this model are very easy accessibility to genetic manipulations (CRISPR/Cas9, morpholino gene knock down, mutant libraries, transgenesis) and the optical clarity and fast development of the larvae allowing to analyze disease phenotypes in intact tissues within 5 days of larval maturation. The Zebrafish Core designs, performs and analyzes complete assays and trains researchers to become zebrafish experts.	Children's Hospital of Philadelphia
A3	Transgenic Core	The Transgenic Core Facility affords scientists the opportunity to genetically manipulate the mouse genome in an effort to better model and study human disease. Services offered include transgenic and knockout/in mouse production, mouse line rederivation, embryo and sperm cryopreservation and in vitro fertilization.	Children's Hospital of Philadelphia
A4	CAG - Center for Applied Genomics	The Center for Applied Genomics (CAG) is one of the world's largest genetics research programs, providing both genotyping and sequencing services. For your genotyping needs, CAG provides Illumina, Affymetrix, Fluidigm, and Taqman platforms. For your sequencing needs, we offer WES, WGS, RNA-SEQ, and 10X genomics sequencing. Experienced scientists and staff will work with you to provide the best services for your project.	Children's Hospital of Philadelphia
A5	Flow Cytometry Core	The Flow Cytometry Core Laboratory offers access to cytometers, cell sorting services, as well as polychromatic assays for clinical research studies. Individualized training and assistance with experiment design are aimed at enabling researchers to take full advantage of a wide variety of flow cytometry applications.	Children's Hospital of Philadelphia
A6	Thermo Fisher Scientific	Vendor	Vendor
A7	High Throughput Sequencing	The High Throughput Sequencing (HTS) Core provides automated library construction and high-quality, high-throughput next generation sequencing services for whole exome, RNA-SEQ, and other genomics applications.	Children's Hospital of Philadelphia
A8	Nucleic Acid PCR Core	The Nucleic Acid PCR (NAP) Core Facility provides a centralized source for specialized services, technical expertise and reagents to support investigators' molecular biology needs. These services include Sanger and Next-Generation DNA sequencing, microarray services, real-time PCR, fluorescent fragment analysis, oligonucleotide synthesis, SNP analysis and RNA analysis.	Children's Hospital of Philadelphia
A9	The Raymond G. Perelman Center for Cellular and Molecular Therapeutics Clinical Vector Core	This state-of-the-art cGMP Clinical Vector Core (CVC) manufacturing suite manufactures both adeno-associated viral vectors and Lenti viral vectors, helping to realize the enormous promise of gene transfer therapy to address unmet medical needs.	Children's Hospital of Philadelphia
A10	The Raymond G. Perelman Center for Cellular and Molecular Therapeutics Clinical Research Core	The Research Vector Core provides state-of-the-art technology support for investigators requiring viral-based vectors for gene transfer in basic research and pre-clinical studies. The core utilizes molecular biology techniques and follows Good Laboratory Practice (GLP) guidelines to engineer and produce premium quality recombinant AAV and Lentiviral (LV) vectors at a variety of scales. The core works closely with investigators to develop vectors for individual experiments.	Children's Hospital of Philadelphia
A11	SAIF - Small Animal Imaging Core	The Small Animal Imaging Facility (SAIF) Core is a comprehensive imaging resource available to the CHOP and PENN research community. The imaging suite is located directly inside the vivarium and animals can go back and forth between imaging and holding rooms for longitudinal studies. Services include: Animal MRI at 7T, NMR and Microimaging at 9.4T, PET-CT, Optical and Ultrasound imaging.	Children's Hospital of Philadelphia
A12	Metabolomic	The Metabolomic Core at CHOP is a state-of-the-art research and analytical facility to provide investigators with a resource that facilitates the analysis of metabolic profiles and metabolic fluxes in humans, animals and in vitro systems.	Children's Hospital of Philadelphia