Children's Hospital of Philadelphia
RESEARCH INSTITUTE

REASEARCH CORE FACILITIES

The shared interdepartmental facilities at the Children's Hospital of Philadelphia Research Institute bring state-of-the-art instrumentation, methodologies and expertise crucial to the promotion of research at CHOP. The development of shared resources is part of our commitment to interdisciplinary research and will be an important part of our future endeavors.

Core facilities make it possible to share our wealth of expertise, facilities and equipment with the research community. This allows for more efficient use of resources, promotes collaboration among investigators and further enhances the competitiveness of CHOP investigators to secure research funding.

To visit the core websites go to the Research Core Facilities page at https://www.research.chop.edu/research/chop-research-core-facilities.

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 and tissue).

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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, data management, and information technology resources.

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CENTER FOR APPLIED GENOMICS

The Center for Applied Genomics (CAG) is one of the world's largest genetics research programs, providing state-of-the-art Genomics services (Biobank, sample handling, genotyping, sequencing services, bioinformatics and consulting). For your genotyping needs, CAG provides Illumina, Affymetrix, Fluidigm, and Taqman platforms. For your sequencing needs, we offer Whole Exome sequencing (different methods and input), Whole Genome Sequencing (WGS), RNA-SEQ, Methylation sequencing and 10X genomics technology for linked reads and Single Cell RNAseq. Our services cover all aspects of a project, including experimental design, sample processing, DNA or RNA purification, library preparation, high-throughput sequencing, and bioinformatics and statistical analysis. Experienced scientists and staff will work with you to provide the best services for your project.

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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.

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CLINICAL RESEARCH STAFFING

The Clinical Research Staffing Core provides clinical research personnel to support all types of clinical research studies. We excel at matching top quality clinical research staff with clinical investigators and teams.

The RSC is comprised of clinical research professionals with diverse backgrounds and various levels of education and experience, including registered nurses, respiratory therapists, coordinators who hold advanced degrees in psychology, public health, business, education and clinical research. Our coordinators and clinical project managers are experienced with many types of clinical research studies, including behavioral health, tissue collection, data abstraction, interview/survey based, and all phases of drug and device trials.

Coordinators are available on a fee-for-service basis to assist investigators with any stage in the implementation and conduct of clinical research studies.

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FLOW CYTOMETRY

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.

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HEALTHCARE ANALYTICS UNIT

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, OPTUM & MarketScan.

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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.

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MICROBIOME

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.

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NUCLEIC ACID PCR

The Nucleic Acid and PCR Core Facility provides a centralized source for specialized services, technical expertise and reagents to support investigators' molecular biology needs. These services include Sanger sequencing, Next-Generation Sequencing (NGS), NGS library preparation and evaluation, real-time PCR, fluorescent fragment analysis, cell line integrity testing, oligonucleotide synthesis and RNA analysis.

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PATHOLOGY

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.

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PROTEIN AND PROTEOMICS

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.

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RESEARCH SHIPPING

The Research Institute's Shipping Core is available for shipment of hazardous substances for all Research Institute faculty and staff.

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SMALL ANIMAL IMAGING FACILITY

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.

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THE RAYMOND G PERELMAN CENTER FOR CELLULAR AND MOLECULAR THERAPEUTICS CLINICAL VECTOR CORE

This state-of-the-art cGMP Clinical Vector Core (CVC) manufacturing faculty 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.

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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.

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THE RAYMOND G PERELMAN CENTER FOR CELLULAR AND MOLECULAR THERAPEUTICS RESEARCH VECTOR 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.

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TRANSGENIC

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.

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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.

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ZEBRAFISH

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.

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CORE FACILITIES ADMINISTRATION

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