Translational and Imaging Resources for Drug Development and Discovery

CENTERS AFFILIATED WITH THE CHEMISTRY OF LIFE PROCESSES INSTITUTE

CENTER FOR DEVELOPMENT THERAPEUTICS

cdt.northwestern.edu

CDT is a portal for pre-clinical drug development. Center personnel identify and assist with development on translational projects. The Center collaborates on research grant, program projects and other large scale funding applications to support translational projects by providing a broad spectrum of services: animal models, cell-based experiments, target-based experiments, drug pre-formulation, analytical method development, PD and biomarker method development, exploratory PK and toxicology.

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CENTER FOR MOLECULAR INNOVATION AND DRUG DISCOVERY

cmidd.northwestern.edu

CMIDD catalyzes academic drug discovery by providing technical expertise and leadership for investigators seeking to advance their research, forming interdisciplinary collaborations that will reduce barriers to scientific advances and developing a vigorous education and outreach program within the Northwestern community and beyond.

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NORTHWESTERN PROTEOMICS

proteomics.northwestern.edu

Northwestern Proteomics develops new proteomics technologies and applies them to timely questions in basic, translational and clinical research. The Center deploys cutting edge instrumentation and novel approaches to a wide range of fundamental and translational research, such as the Human Proteome Project, development of "protein barcodes" for disease, and epigenetic modulation of chromatin through post-translational histone modification. The Center collaborates with researchers to better understand the myriad roles of proteins and their isoforms and applies this knowledge to the development of new platforms for therapeutics and diagnostics.

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CHICAGO REGION-PHYSICAL SCIENCE ONCOLOGY CENTER

psoc.northwestern.edu

CR-PSOC is organized around the conceptual framework that addresses the spatio-temporal organization of chromatin and information transfer in cancer integrates the strengths of chemistry, genetics, and physics to address chromatin dynamics in cancer. Through the use of shared model systems, Center investigators are able to integrate data from across projects to develop a new conceptual understanding of the mechanisms underlying physical rearrangement of chromatin in cancer and how that controls gene expression.

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clp.northwestern.edu

BIOLOGICAL IMAGING FACILITY

bif.northwestern.edu

BIF provides a wide range of photonic and electron microscopy along with all the equipment necessary for users to prepare samples and image analysis all in one facility so that users can acquire data quickly and efficiently. Microscopy capabilities include: confocal laser scanning, differential interference contrast (DIC), FCS, FLIP, FRAP, FRET, live-cell imaging, phase contrast, and widefield fluorescence.

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CENTER FOR ADVANCED MOLECULAR IMAGING

cami.northwestern.edu

CAMI offers state-of-the-art in vivo imaging modalities that enable basic science researchers and clinicians to develop new tools to image disease states of cells and small animals and their responses to treatment. Imaging modalities offered include: 7T and 9T MRI, IVIS Spectrum, micro SPECT-CT, and micro PET-CT. CAMI's one-stop imaging suite includes tissue culture and small animal facilities.

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CHEMCORE

cmidd.northwestern.edu

ChemCore offers cheminformatics and molecular modeling, and medicinal and synthetic chemistry services to support drug discovery research. ChemCore's dedicated staff of PhD-level chemists design and synthesize novel small molecules that are suitable for therapeutic development for collaborative projects with physicians and faculty researchers.

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DEVELOPMENTAL THERAPEUTICS CORE

dtc.northwestern.edu

DTC provides a full suite of fee-for-service tumor biology and translational support services that advance preclinical stage projects. DTC's expert technical staff can select the animal model best suited for your project, perform cell- and target-based experiments, assist with drug pre-formulation and stability, perform analytical method development for pharmacodynamics (including biomarker discovery and validation), pharmacokinetics for biologics, and conduct exploratory non-GLP compliant PK and toxicology. Disease models include sc and orthotopic tumor models and an extensive human tumor derived (PDX) repository. DTC staff provide seamless coordination with in vivo imaging services.

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HIGH THROUGHPUT ANALYSIS LABORATORY

htal.northwestern.edu

HTAL enables researchers to perform massively parallel experiments using state-of-the-art instruments and robotics. Capabilities include: screening of small molecule compound libraries; macromolecular binding, biochemical and cell-based assays; high content screening with widefield or confocal optics; nanoliter liquid handling; whole-plate kinetic assays (ion currents, GPCR signaling); CRISPR/Cas9 screening (multiplexed libraries); analysis of large data sets; fluorescence thermal shift assays; and complex liquid handling work flows.

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PROTEOMICS CORE

proteomics. northwestern.edu

Proteomics Core offers routine services that include simple protein identification, top=down MS, IP-MS pulldown, and BioID. The Core also provides specialized services, such as untargeted quantitative peptide proteomics, targeted quantitative peptide proteomics, epiproteomic histone modification panels A and B, untargeted metabolomics, and phosphoproteomics. The core deploys the latest instrumentation and methods with expertise provided by PhD-level staff.

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QUANTITATIVE BIO-ELEMENT IMAGING CENTER

qbic.northwestern.edu

QBIC provides researchers with access to high-resolution microscopy and high-sensitivity metals analysis instruments, capable of quantitatively imaging metals in individual cells and tissues. Instruments include high resolution ICP-MS, standard ICP-MS, ICP-OES, AAS, and laser ablation coupled ICP-MS. Expert technical staff offer a range of services, including instrument training, sample preparation, analysis, and experiment design.

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RECOMBINANT PROTEIN PRODUCTION CORE

rppc.northwestern.edu

RPPC provides quality controlled recombinant proteins for researchers. Expert technical staff carry out expression (mg to gm scale) and high quality purification of recombinant or synthetic biologics, including potential therapeutic proteins and peptides and hard-to-purify proteins for crystallographic studies. RPPC provides user training and access to parallel bioreactor systems for multiplexed lab-scale cultivation of microbial, insect, and mammalian cells and will also produce low-cost recombinant biologics for users.

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