The Health Sciences Core Research Facilities are made up of five research cores under a common administration.

Genomics Research Core

The Genomics Research Core (formerly the GPCL) offers cost-effective and quality controlled, high throughput genomics services to all researchers, regardless of institutional affiliation. Senior staff are available to discuss your project and to assist in experimental design and project planning. Genomics Research Core leaders review innovative genomics products and applications and regularly adopt new services that are of value to the research community. In addition to our role in the Health Sciences Core Research Facilities (HSCRF) we are a resource of the University of Pittsburgh Clinical and Translational Science Institute (cTSI). Genomics technologies offered by the Genomics Research Core complement other cTSI resources in order to ensure that clinical and translational research is facilitated. The Genomics Research Core works with our customers to provide high quality, reproducible results from your experiments.

Services:

Specimen Processing
- DNA and RNA isolation, including FFPE samples

Genotyping
- Low to very high throughput using Illumina fixed or custom SNP Arrays and Sequenom iPLEX Gold

Gene Expression
- Low to high-throughput technologies including Illumina 3’IVT, Affymetrix whole transcriptome arrays and digital expression with NanoString nCounter

Next Generation Sequencing
- Flexible next generation sequencing project design with our Ion Torrent instruments: DNA and RNA applications, capillary sequencing is also available

Epigenetics
- Genome-wide DNA methylation studies using the Illumina Human Methylisation 450 array

For more information go to: www.genetics@pitt.edu

Contact: Janette Lamb
          Debby Hollingshead
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Health Sciences Tissue Bank

The Health Sciences Tissue Bank (HSTB) provides essential support for University of Pittsburgh research programs needing tissue materials from patients seen at the University of Pittsburgh Medical Center (UPMC). The main objectives of HSTB are to provide a mechanism to simplify and streamline the process of research tissue accrual and disbursement, and to provide effective research pathology support services including research histology and tissue microarray. The Tissue Bank strives to provide customers with the highest quality service in the interest of research excellence.

To reach these objectives, the Tissue Bank made the following improvements within the past year:

- Addition of an “Assistant Director” position
- Appointment of a “Quality Manager”
- Newly hired “Project Coordinator”
- Updated online Project Management Tool
- Allows access to Pitt researchers as well as those at UPMC

Approved and Implemented a new “Cost Model.”
- Tissue banking and research histology services price lists are both available on line at the Tissue Bank website

For further information, go to: http://www.tissuemank.pitt.edu

Contact: Assistant Director, Susan M. Kelly
          QA Manager, Luke T. Wiehagen
          412-623-1042
          Project Coordinator, Vanessa Benkovich
          412-623-5890

Peptide Synthesis Core

The Peptide Synthesis Core provides comprehensive services for synthesis, purification, and characterization of synthetic peptides that are verified by mass spectrometry. Peptides can be produced at standard scales of ~0.025 mg (10-20mg), 0.1 mg (50-100mg), 0.2 mg (100-200mg), and 0.5 mg (300-500mg). Peptides may also be prepared with specialized modification, such as acetylation, biotinylation, phosphorylation, cyclization, or fluorescent dyes. Sponsered in part by the cTSI at the University of Pittsburgh, facility personnel are available for consultation with investigators regarding the design of synthesis peptides, estimates of yield, and considerations of purity requirements. The facility has the capacity to produce certified peptides for use in human clinical trials with appropriate production documentation for submission to the FDA and other regulatory agencies.

Services:

Peptide and pepoid design
- Including synthesis, purification, characterization and quality control

Peptide libraries

Certified peptide production
- Suitable for human clinical trials with appropriate FDA production documentation

Customized conjugate chemistry and peptide pepoid modifications
- Including Biotinylation, phosphorylation, dye conjugation, acetylation/nitroxide spin label, isotopic peptides, glycopeptides, peptide thioster, peptide dendrimers, metalloconjugates

For further information, see:
http://www.peptide.pitt.edu

Contact: Peptide & Pepoid Synthesis Facility
          Tel: 412-383-9540
          Fax: 412-648-0251

Small Molecule Biomarker Core

The SMBC was created through a partnership of the University of Pittsburgh Clinical and Translational Science Institute (CTSI) and the Department of Pharmaceutical Sciences within the School of Pharmacy. SMBC uses state-of-the-art mass spectrometry systems to provide quantitative analysis of small molecules (i.e. – hormones, arachidonic acid metabolites) in clinical samples. The use of UPCL/MS-MS allows for rapid, highly sensitive and specific measurement of multiple biomarkers in the same sample. It is often more specific than immunoassay methodologies, with short run times and small injection volumes. The multi-analyte panels listed below allow for significantly reduced turn-around times and costs as compared to conventional HPLC methods.

Validated panels include:
- Arachidonic acid panel 1
  - 12 Cyclohexide P450 and lipoxygenase products
- Arachidonic acid panel 2
  - 12 Prostaglandins and their metabolites
  - Contraceptive progestins
  - eotaxin, levonor-drester, medroxyprogesterone acetate, norlethohprints, progesterone
- Estrogens
  - estradiol, estrone, ethinylestradiol
- Neurosteroids
  - pregnenolone, progesterone, 5-alpha dihydroprogesterone (DHP), epiallopregnanolone and allopregnanolone

For further information, visit: www.biomers.pitt.edu or biomark@pitt.edu

Contact: SMBC Director, Sam Polycar
          polycar@pitt.edu
          SMBC Supervisor: Beth Minnigh
          mam212@pitt.edu

Biomedical Mass Spectrometry Center

The Biomedical Mass Spectrometry (BioMS) Center is a campus-wide shared facility dedicated to enhance the use and application of mass spectrometry in basic, translational, and clinical research. The center combines state-of-the-art high resolution mass spectrometry with classical biochemical approaches to identify and quantify biologically relevant proteins.

Not sure how to get started? The BioMS center helps newcomers get started fast, by offering an in gel protein identification service. Cut out your coomassie stained gel band and get it to us by noon on Monday and we will send you a list of identified proteins and post-translational modifications the following week.

Make us an extension of your lab. Sometimes there is no substitute for doing it yourself. Faculty and students that want to gain first hand mass spectrometry experience are encouraged to work alongside the expert staff and other users in the center. We provide the bench space, instrumentation, and expertise. You provide the excitement and energy.

Want to discuss a specific project? Nathan Yates (Center Director) and Xuemei Zeng (Asst. Director for Proteomics) regularly meet with investigators to discuss and plan collaborative research projects. To schedule a meeting, contact Ms. Roberta Melick (rlm14@pitt.edu).

BioMS website: www.bioms.pitt.edu

For more information go to: www.health.pitt.edu

Contact: Project Coordinator, Susan M. Kelly
          412-864-6658

QA Manager, Luke T. Wiehagen
          412-623-1042

Project Coordinator, Vanessa Benkovich
          412-623-5890

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For further information, go to: www.HSCRF.org