

THE CORE

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Confidentiality & Non-Disclosure Agreement Form

We are pleased to announce that the Office of Research Administration has developed a form Confidentiality and Non-Disclosure Agreement (“NDA”) for use by the core labs with their external (i.e., non-Emory) customers. This form NDA is available at www.corelabs.emory.edu at the bottom of the home page. Customers sometimes must share trade secrets or other proprietary information with the core lab as they work together to develop specifications for the requested analysis. In other cases, the samples the customers provide for analysis embody proprietary information. In all such cases, customers understandably expect assurances that the lab will not use or disclose their proprietary information other than for purposes of performing the requested analysis. The form NDA provides these assurances in a relatively succinct and accepted manner. The availability of our own “home-grown” form NDA means that we can fill this need efficiently, facilitating our services to these customers. Requests from external customers for changes in the language of the form NDA should be directed to Trish Haugaard for resolution. Once signed by the external customer, all core lab NDAs should be routed to Trish, who will arrange for signature on Emory’s behalf by an authorized officer of the University.



Josh Barwick, JD

Can We Feature Your Core?

Thank you for reading this issue of The Core, a core labs publication.

If you have a story idea or core lab update you would like to have included in an upcoming newsletter, please contact us at corelabs@emory.edu.

Included in the last two pages of this newsletter you will find a listing of all the core labs and service centers available at Emory to our researchers and external customers. Do you know of a core or service center not included on this list please email us at corelabs@emory.edu so we can add it to our list.



Inside this issue:

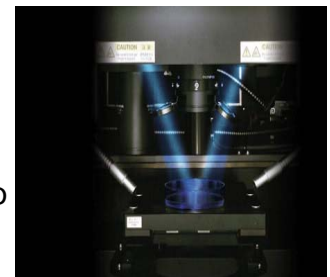
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WCI Cell Imaging & Microscopy Core

The Winship Cancer Institute’s Cell Imaging and Microscopy Core has acquired a state-of-the art Olympus in vivo small animal imaging microscope (OV100). This microscope can visualize fluorescence in a living mouse from the cellular level to the whole-animal level without moving the mouse. This microscope is part of a joint partnership with Dr. David Martin's Transgenic Mouse Core in Clinic B to facilitate small animal handling and provide animal expertise. Users will be trained by our staff to operate the microscope. Information and rates can be found at <http://cancer.emory.edu/cellimaging.html>



Adam Marcus, PhD



The Emory Clinical Pathology Translational Research Laboratory



The Emory Clinical Pathology Translational Research Laboratory (ECTRL) began in 2008 under the direction of Dr. James C. Ritchie, Ph.D., and Dr. Ross J. Molinaro, Ph.D. ECTRL offers multiple clinical pathology services to intra- and inter-institutional Investigators, Diagnostic Companies, Pharmaceutical companies, and Industry affiliates. ECTRL specializes in the development of clinical based testing methods, clinical utility assessments, clinical trial testing, routine and special method development, and method validation (FDA). The goal of ECTRL is to assist in the analytical transition of research based testing methods to clinical diagnostics.

SERVICES AVAILABLE:

Method Development – ECTRL specializes in the planning, development, and analysis of customized routine and special methods of interest to its customers. Liquid chromatography (UPLC)-Electrospray Tandem Mass Spectrometry, High-Performance Liquid Chromatography (HPLC)-UV/electrochemical detection, ELISA, radio-immunoassay (RIA), coagulation based assays, and gene- expression analysis systems are some of the methods employed by ECTRL.

Stability Testing – ECTRL offers this testing in line with published FDA procedures including pyrogen, sterility, and package stability testing.

Clinical Specimens – ECTRL offers procurement and testing on residual clinical patient specimens banked from Emory University and its affiliated Hospital's. The patient population seen in our geographical area presents useful opportunities for translational research on residual specimens procured from the clinical laboratory. Specimens include serum, plasma, urine, and CSF.

Clinical Method Validation – ECTRL offers complete validation of clinical methodologies in compliance with mandated FDA procedures.

Clinical Trials – ECTRL offers complete clinical trials management from patient enrollment to completion of all laboratory analyses and document preparation.

Consultation – The ECTRL Director's offer extensive consultation services. Dr. Ritchie and Dr. Molinaro have experience in FDA approval processes, clinical trial testing, clinical quality control, clinical quality assurance, and clinical laboratory regulations and requirements. Please contact ECTRL for more information. ECTRL is located in Woodruff Memorial Research Building, Rooms 2331/2333 on Emory University's main campus. Please contact Dr. Ritchie (404-712-7178, jritchi@emory.edu) or Dr. Molinaro (404-712-1763, rjmolin@emory.edu) for further information or consultation on your project.

Jim Ritchie, PhD

Rodent Behavioral Core

The Department of Human Genetics is pleased to announce the establishment of the Rodent Behavioral Core Facility. The Core provides planning, execution, and analysis of behavioral experiments examining activity, arousal, coordinated movement, learning and memory, anxiety, depression, seizure susceptibility, reward/reinforcement, and aggression in mice and rats. Additional tests can potentially be developed on a case-by-case basis. The Behavioral Core also offers several rodent surgical services and assistance in IACUC protocol preparation. Directed by Jason Schroeder, Ph.D. and David Weinschenker, Ph.D., the Core is located in the vivarium of the Whitehead Biomedical Research Building.

For more information contact

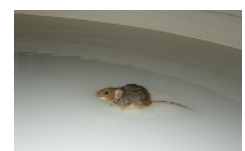
Jason Schroeder, jschroeder@genetics.emory.edu



Locomotor behavior chambers used to measure novelty, home-cage, and drug induced locomotion as well as circadian rhythm.



Invisible-platform task in mouse Morris



Mouse on platform in invisible platform task.

Jason Schroeder, PhD

BimCore News & Updates

1) Sun Microsystems Equipment Donation

BimCore, in collaboration with Dr. Jim Nettles of Pediatrics, has secured a \$45,000 equipment donation from Sun Microsystems in support of Dr. Nettles' ongoing development of a platform for dynamic analysis of drug resistance and target selectivity. A primary goal of the project is to categorize structural changes due to specific mutational variations that occur within the viral polymerases and their role in drug resistance. The equipment grant will provide an environment that combines chemical and biological informatics with dynamic structural modeling.

2) Lasergene 8

We will soon be distributing the long waited upgrade to version 8 of the Lasergene package, which provides a number of significant feature additions including:

- * Better integration between all seven Lasergene modules, which eliminates the need to switch between separate modules to access various functions.
- * Support for Next Generation Sequence Assembly of Illumina, Roche, 454 Life Sciences and Sanger Data. Users can assemble genomic data up to 12Mb in size and perform templated or de novo assemblies as well as hybrid (multi-platform) assemblies.
- * Enhanced primer design capabilities that permits users to design primers directly within the SeqBuilder module.
- * Improved protein structure predication and annotation options that can handle and display larger numbers of features including support and links for and Prosite database to find sequence matches
- * Improved SNP detection tools. Lasergene 8.0 implements a unique trace quality evaluation method to call a highly accurate consensus sequence. A "Maximum Expected Coverage (MEC) feature allows users to select the depth of coverage for an assembly and to visually identify areas where the coverage exceeds the selected level". Thus users can conveniently view and identify candidate SNPs.

3) Bioinformatics Programmer

BimCore is pleased to announce the hiring of Karan Uppal as our new Bioinformatics Application Developer. Karan will design and implement analysis applications, integrate existing research data sources, and support projects emerging from collaborations between BimCore investigators and the Computational and Life Science initiatives. Karan is a recent graduate of the Georgia Tech Masters program in Bioinformatics.

Steve Pittard

Emory Georgia Research Alliance Genome Center (EGC)

The EGC was set up in spring 2009 to offer the Emory Research Community the opportunity to use exciting "next generation" sequencing technologies. The Director of the EGC is Dr Timothy Read (tread@emory.edu). The EGC has an advisory board consisting of Prof David Stephens, Prof Stephen Warren, Dr Michael Zwick and Ms Patricia Haugaard.

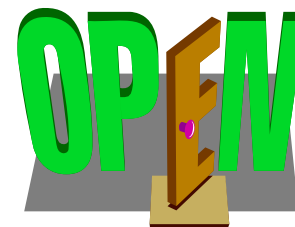
The EGC currently runs two state-of-the art instruments. The Illumina GAI (in April 2009) typically produces 60-80M reads of 18-36 nt in a single flow cell of 8 lanes (one lane is reserved for controls). Reads can be multiplexed using 12 separate tags. Longer, paired-end reads runs reading 36 nt from both sides of a DNA fragment are also possible, as are long-insert libraries of up to 6kb. Input DNA for the GAI is generally 1ug or greater. Typical applications for the GAI include whole genome resequencing (human, plants, bacteria), RNA-seq, Digital Gene Expression, MicroRNA and Chip-Seq.

The Roche/454 GS-FLX Titanium instrument is capable of sequencing 300-600 Mb, with reads lengths of 300-450 nt. Reads can be multiplexed using 12 separate 'MID' tags. Mate pair libraries spanning insert sizes of up to 6 kb can be constructed. A GS-FLX picotiter plate is divided into 2,4,8, or 16 regions. Applications range from de novo bacteria and viral genome sequencing, deep-sequencing of PCR amplicons, metagenomics, ancient DNA sequencing and expression tag sequencing.

Tim Read, PhD

THE CORE

Emory University School of Medicine



Proteomics Service Center—Now Open

Since September 1, 2008, the Proteomics Service Center has been formally established and supported by the Center for Neurodegenerative Diseases, Department of Neurology, Department of Human Genetics, School of Medicine and Winship Cancer Institute (WCI). The goal of the service center is to provide protein analytical services by cutting-edge mass spectrometry (MS). The main services include protein identification (~\$200 per sample) and protein modification analysis (~\$450 per sample). As the service center is partially supported by a P30 NINDS grant (P30NS055077), Emory neuroscience researchers have been receiving up to 75% subsidy. Moreover, WCI researchers have been receiving 10% subsidy.

The main technology platform is microcapillary, nanoscale liquid chromatography coupled with tandem mass spectrometry (LC/MS/MS) for highly sensitive protein identification, post-translational site mapping, and protein quantification. Numerous computational tools have also been developed for high-throughput data processing. Our priority is to serve the needs of investigators at Emory University, but we are capable of serving outside users as well. So far, the proteomics platform has been used by ~40 Emory investigators and ~30 others outside of campus.

The major instruments in the Service Center include a LTQ Orbitrap Hybrid Mass Spectrometer (Thermo Scientific) and a 4000 QTRAP Mass Spectrometer (Applied Biosystems).

A) The LTQ Orbitrap system is coupled with an autosampler and HPLC system. The system allows automated capillary LC-MS/MS runs for top-down, middle-down and bottom-up analyses with high resolution (up to 100,000). It is capable of detecting peptides at sub-femtomolar level, identifying hundreds to thousands of proteins in complex mixtures, mapping post-translational modification sites, and quantifying proteins based on label-free methods or isotope labeling strategies (e.g. ICAT and SILAC).

B) The QTRAP system is linked to HPLC and operated in two modes: triple quadrupole and linear ion trap. Precursor ion scan and targeted proteomics analysis improve the sensitivity for identifying protein modification sites. It provides highly sensitive and specific SRM/MRM/AQUA analysis for protein/peptide quantification. It is also able to quantify site-specific protein modifications in protein mixtures. The MS-based protein quantification method bypasses the requirement of protein antibodies, and can be used to replace traditional Western blotting analysis.

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Junmin Peng, PhD

Core Labs Available at Emory

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Cell Imaging & Microscopy Core

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Core Labs Available at Emory

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