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## NEXT MONTH

Articles describing the CTSI's Community Engagement and Research Program (CERP) will be featured in the November Newsletter. Capitalizing on Florida's unique size and diversity, CERP will build on community-based initiatives already being undertaken by a host of UF faculty to further encourage, strengthen and support collaborative partnerships between UF clinical and translational scientists and communities statewide.

## TOOLS FOR THE JOB: THE TRANSLATIONAL TECHNOLOGIES AND RESOURCES PROGRAM

BY CURTIS FRANKLIN, JR.

**M**uch of the attention given to CTSI programs has gone to issues like training, mentoring, and facilitating the sharing of information between scientists and healthcare professionals within the broad CTSI community. CTSI participants will have access to training, mentoring, and management programs to help broaden the scope of their collaboration, and they will be able to take advantage of a wide variety of analytical and information technology assets to help the translational aspects of their work.

The CTSI has two broad goals in the areas of translational technologies and resources: First, to establish a formal Translational Technologies and Resources (TTR) Program that will coordinate the activities of an integrated network of technology cores throughout the CTSI constituent organizations; and second, to establish new technology-based cores to support those doing cutting edge work in translational science. The new cores will provide both the technology necessary for the work and advanced training in the use of those technologies so researchers can make best use of the most appropriate technology for their projects.

### Where We Start

While the CTSI will be establishing a program to coordinate the translational activities of several technology cores, many of the cores themselves are already established and successful. Among the core programs that will make up the TTR are:

#### *Interdisciplinary Center of Biotechnology Research (ICBR)*

This Center, established in 1987, is directed by Robert Ferl, PhD and occupies 33,000 sq. ft. on the first floor of the Cancer Genetics Research Complex on the UF campus near the Health Sciences Center. The ICBR features 12 core service laboratories divided among four divisions: Genomics, Proteomics, Cellomics, and Bioinformatics. In addition to access to technology, the ICBR offers a wide range of training and education programs for both faculty and students.

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### *Center for Pharmacogenomics*

Established in 2001, the Center works to bring together staff from various colleges and disciplines for projects in pharmacogenomics. The Center, which currently hosts several promising research projects, is part of the national Pharmacogenetics Research Network.

### *DNA, Tissue, and Serum Banks*

Did you know that there are multiple banks storing DNA, tissue, and serum for prostate, breast, brain, hematological, head and neck and liver tumors and cord blood at the Health Science Center? If you didn't know, don't feel alone. Whether due to accidents of location or other reasons, many of the banks within the organizations that make up the CTSI are well-hidden secrets. There are long-standing rationales for restricting access to some of these resources, but the result is a loss of opportunities for cross-discipline and translational research.

### *Biobehavioral Research*

UF is home to a number of different centers of biobehavioral research. Among the centers scattered throughout the university's colleges and departments are the College of Dentistry's Comprehensive Center for Pain Research, the Addictive and Health Behaviors Research Institute at UF's Jacksonville campus, the Center for the Study of the Psychology of Emotion and Attention, the Claude D. Pepper Center for Research in Oral Health in Aging, the Cognitive Neuroscience Laboratory in the Department of Psychiatry, the Brain Rehabilitation Research Center, the Brooks Center for Rehabilitation Studies, and the McKnight Brain Institute. The depth of biobehavioral research at the University of Florida is great.

Unfortunately, there has never been a coordinated effort to organize the groups or to disseminate information regarding their methods or applications to the wider community of faculty and students.

### *Mass Spectrometry*

Mass spectrometry is a critical tool in the analysis of small biomolecules in many CTS areas including drug metabolism, analysis of stable isotopic metabolic tracers, pharmacokinetics, and therapeutic drug monitoring. It's no surprise, then, that UF has several independent resources that utilize mass spectrometry to gather data. The GCRC's Biomedical Mass Spectrometry Laboratory is well equipped with multiple spectrometers and support equipment. The Analytical Toxicology Laboratory of the College of Veterinary Medicine includes a Class II biological safety cabinet for handling biohazardous samples along with a variety of spectroscopic instruments. The High Resolution Mass Spectrometry Laboratory provides mass spectral identification and quantitative analysis to more than 50 research groups throughout the State University System.

### *Imaging and NMR*

Magnetic resonance has become a foundation technology used in chemical and biological research. Magnetic resonance's flexibility in application complements its flexibility in technique and instrumentation to make it a technology applicable to research as diverse as drug discovery and anatomical imaging. The Advanced Magnetic Resonance Imaging and Spectroscopy (AMRIS) facility, a joint project of UF, the Department of Defense, the McKnight Brain Institute, and the National High Magnetic Field Laboratory, houses

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seven state of the art magnetic resonance spectrometers. The applications supported by AMRIS include molecular and cellular imaging, in vivo animal imaging, high-resolution structural imaging, and high-sensitivity small volume NMR.

### Where We Want to Go

As good as UF's resources currently are, more support and integration is needed before they can fully function in multi- and interdisciplinary translational research capacities. To enhance the quality, quantity, and availability of advanced technologies, the TTR Program will consist of a network of core facilities – both currently existing and to be developed – that will form the foundation for biological, biobehavioral, imaging, and analytical research resources within the CTSI. Five cores will form the foundation of the TTR: 1) the Interdisciplinary Center for Biotechnology Research (ICBR); 2) a new Genomics Core; 3) a new Metabolomics Core; 4) a new DNA/Tissue Bank Core; and 5) a new Biobehavioral Core.

### *General Core Training and Education*

The resources within the technology cores will be coordinated through the Administrative Core of the CTSI, making it easier for interested researchers to discover and coordinate applications of the technology. Use of the technologies will be further enhanced by the joint actions of the CTSI's Research Portal system and its Biomedical Informatics Program (BIMP). Its electronic Research Portal will be key in letting researchers know about resources, including technology, seminars, and workshops, through the newsletter that you're reading now.

One of the basic commitments of the TTR is to training. A key initial part of the training program will be made up of a Translational Technology Seminar Series, in which outside speakers and core representatives will train potential technology users and share information on the use of cutting edge technology. For more in-depth training, potential users, students, postdoc trainees, faculty, and staff will be able to turn to seminars, short courses, and periodic training sessions on the core technology components.

### *New Core: Genotyping*

A new core, providing access to centralized state-of-the-art, cost-effective genotyping technologies will be established as the fusion of the genotyping services offered by the Center for Pharmacogenomics and the ICBR Genomics Core. The new core will enhance the visibility of the services offered by the core and aid in the coordination of the services as they are offered to cross-disciplinary research teams throughout the CTSI. For more information contact Dr. Julie Johnson (johnson@cop.ufl.edu).

### *New Core: Metabolomics*

The Metabolomics Core will provide researchers with research tools applicable to every aspect of laboratory and clinical research conducted through the CTSI. Working closely with patient-oriented investigators, the Metabolomics Core will be able to advance knowledge of normal physiology and disease mechanisms and conduct early-phase testing of new therapeutics in human subjects. Metabolomics will provide a tool for researchers at UF to understand the effects of interventions to move clinical and

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translational medicine into a phase in which discoveries are rapidly accessed and developed for application to patients with the greatest chance of benefit.

The Metabolomics Core will represent a network of five UF laboratories and the Stedman Center or Nutrition and Metabolism at Duke University. The Core will be divided into two basic functions: the Molecular Identification and Metabolomics Group, and the Quantitative Metabolomics Group. Both groups focus primarily on the measurement of drugs, chemicals and their metabolites in biological tissues and fluids. Both have experience in developing new analytical methods and working with difficult biological sample matrices, so they will do most of the work setting up new analytical and sample handling methods for CTSI clients and projects. The newest facility, the Nutrition Metabolomics Laboratory (NML) is currently being formed to address the specific needs of nutritionally-related research and will be incorporated into the Quantitative Metabolomics Group. A significant overall focus of these groups is the development and application of methods, new or modified, specific to a clinical and translational researcher's project. For more information contact Dr. David Powell ([powell@chem.ufl.edu](mailto:powell@chem.ufl.edu)).

### *New Core: DNA and Tissue Bank*

The DNA and Tissue Bank Core will bring together a collection of independent silos of genetic and tissue repositories under a common administrative and operational framework. In addition, the Core will provide a centralized workflow to ensure the integrated function of the components. Enhanced collaboration among investigators and comprehensive inventory management should make each of the

constituent banks, and the collection of the banks in total, far more valuable to individual research projects and the university community as a whole. The following component tissue banks on the Gainesville campus currently exist: Pancreas; Brain (McKnight Brain Institute); Stem Cell/Cord Blood (UF-Shands Cancer Center); Prostate (Department of Urology); Breast (Department of Surgery); Liver (Department of Pathology); TrialNet/Diabetes Prevention Trial-1 (DPT-1); serum bank (Department of Pathology); the DNA repository in the GCRC; the Saliva Bank (College of Dentistry) and the DNA Bank for cardiovascular diseases (College of Pharmacy). For more information contact Dr. Michael Clare-Salzler ([salzler@ufl.edu](mailto:salzler@ufl.edu)).

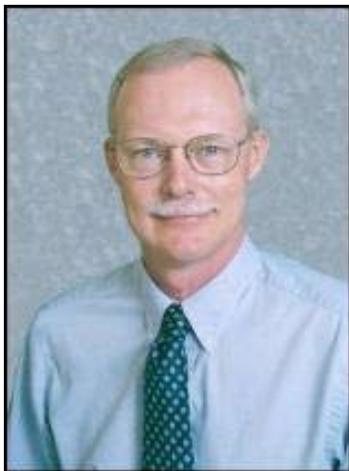
### *New Core: Biobehavior*

The Biobehavioral Core will coordinate access to biobehavioral research resources across the 12 colleges of the CTSI, provide research personnel trained to administer a repertoire of validated behavioral assessments, provide consultation on the use of potential assessment tools, and offer training in the use of validated assessment tools. The Core will maintain a library of validated CTS assessment instruments, providing a valuable resource to a wide variety of clinical and translational researchers. The Biobehavioral Core will also provide skilled graduate students and postdoctoral fellows to collaborate with investigators in the application of neurological and neuromuscular assessments in both laboratory and clinical research settings. For more information contact Dr. Sara Jo Nixon ([sjnixon@ufl.edu](mailto:sjnixon@ufl.edu)).

## MEET THE TTR DIRECTOR

BY CURTIS  
FRANKLIN, JR.

**T**he TTR Program will be directed by Dr. Jesse Gregory, Professor of Food Science and Human Nutrition in the College of Agricultural and Life Sciences. Dr. Gregory is also that College's representative on the CTSI's governing Steering and Planning Committee. Dr. Gregory has been involved in teaching and research on the faculty of UF since 1977. He has a highly productive research career primarily in the chemistry, nutritional properties and metabolic function of B vitamins, especially folate and vitamin B6. He has a strong level of extramural research funding primarily from the NIH and USDA and is recognized internationally as a leader in the fields of vitamin nutritional biochemistry and the application of stable isotopic tracer techniques to the study of human metabolism. Dr. Gregory has been a GCRC investigator since the early 1990s and has been a member of the GCRC Scientific Advisory Committee since 2001.



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*RFA Announcement*

## New Funding Opportunity!!!

The Research Partnership in Cognitive Aging, a newly launched public-private effort to support current and emerging research on age-related changes in the brain and cognition, announced Oct. 15 it will accept online applications for two new funding opportunities to be awarded by the National Institute on Aging (NIA).

The partnership, jointly funded by the NIA and the Orlando-based McKnight Brain Research Foundation, through the Foundation for the National Institutes of Health, is expected to award \$20 million in research grants over the next five years. The partnership aims to expand understanding of how we think, learn and remember with age and develop interventions that maintain cognitive health as we grow older.

NIA is accepting online applications until Nov. 3 for RFA-AG-09-009, Interventions to Remediate Age-Related Cognitive Decline, at <http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-09-009.html>; and RFA-AG-09-010, Neural and Behavioral Profiles of Cognitive Aging, at <http://grants1.nih.gov/grants/guide/rfa-files/RFA-AG-09-010.html>.

The NIA anticipates awarding the grants in mid-2009.

## PILOT PROJECT GRANTS AWARDED!

The second (August) edition of the Newsletter essentially was an RFA for seed money support through our new Pilot and Collaborative Projects Program. We received 20 proposals by the September 26 deadline for receipt of applications. The Programs' Executive Committee made the following awards on September 30 with funding available by November 1, 2008.

## CTSI Pilot and Collaborative Project Program Awards (October, 2008).

Category	Awardee	Academic Affiliation	Title of Project	Award
Graduate Student	Adam Mecca	College of Medicine	Cerebroprotection via Viral-Mediated Gene Delivery of AngiotensinAT2 receptors	\$ 7,500
	Rachel Watson	College of Medicine	Elucidating the Role of CTGF and TGF $\beta$ -1 in Joint Fibrosis	\$ 7,488
Junior Faculty	Rhonda Cooper-DeHoff, PharmD	College of Medicine	PPAR $\gamma$ Expression in Key Metabolic Organ Systems is Modulated by Treatment with Thiazide Diuretics and ACE Inhibition	\$ 17,500
	Margaret Ribeiro-Dasilva, DDS, PhD	College of Dentistry	Determinants of Pain Response in Temporomandibular Muscle and Joint Disorder (TMJD)	\$ 17,500
Novel Methods* and Technology	Timothy J. Garrett, PhD	College of Medicine	Development of a MALDI hybrid linear ion trap/time-of-flight imaging mass spectrometer	\$ 24,800
	Sara Jo Nixon, PhD	College of Medicine	Applying Nanotechnology to Addiction Recovery	\$ 22,600
Major Initiatives*	Lakshmyya Kesavalu, B.V.Sc	College of Dentistry	Association Between Periodontal Disease and Cardiovascular Disease	\$ 50,000
	David H. Powell, PhD	College of Liberal Arts & Sciences	A Global Metabolomic Approach to Pediatric Neuro-Metabolomic Disorders	\$ 70,708
			Total	\$218,096

\* Multiple co-investigators and/or colleges were represented by these proposals, but only the PIs and their colleges are listed.

Congratulations to the awardees! Competition was stiff and many meritorious proposals could not be funded. For those who did not apply or who were unsuccessful this round, we plan to announce the next RFA in the March, 2009 Newsletter.