A Message from the Vice President for Research

Colleagues,

Welcome to the Premier issue of Investigator, a quarterly Newsletter from the Office of the Vice-President for Research. Its purpose is to provide news, events, and important information for research happenings around our Health Science Center. If you have any suggestions or ideas for columns, or you wish to submit an article, please let us know.

And if you have questions you would like answered, we have a Q & A section. Enjoy!

David S. Weiss, Ph.D.
Dean, Graduate School of Biomedical Sciences
Vice President for Research

 Calling Postdoctoral Research Trainees!

The new Office of Postdoctoral Affairs (OPA) has been established under the direction of Linda McManus, PhD, and Program Coordinator German Medina. OPA provides career development and networking opportunities for Health Science Center postdoctoral research fellows.

OPA plans include implementation of workshops to support postdoctoral trainees in their research career development and in building connections to other trainees. Other efforts will support individual and institutional training grant applications.

To guide OPA efforts an Advisory Committee (OPAAC) has been established and is comprised of experienced mentors and investigators. A separate advisory committee of postdocs advances an agenda to address the needs of postdoctoral scholars throughout the institution. Volunteers are welcome.

The OPA Open House will be held September 17, 9AM-4PM. Please plan to stop by the new OPA office (420A) to meet the Director and Program Coordinator, grab a cookie, and register for door prizes for postdocs (you do not have to be present to win; an email also establishes eligibility for drawings). Faculty have opportunity to learn about OPA resources and plans as well as offer suggestions, ideas, concerns. Postdocs and advanced graduate students can use this opportunity to establish a presence within the wider institutional network of postdoctoral researchers.

Higher Education Coordinating Board Report

The best estimates are that ~150-200 postdoctoral research fellows are presently receiving training at the Health Science Center. This is imprecise since there are many titles bestowed on postdoctoral scholars. The annual report must soon be provided to the Texas Higher Education Coordinating Board. OPA is asking for help in reporting an accurate number to make sure all of the formula funding needed to support trainees is received. Please contact the Office of Postdoctoral Affairs at opa@uthscsa.edu and be included in the count.

Office of Postdoctoral Affairs is located in 420a above the Holly Auditorium.

The OPA email: opa@uthscsa.edu

OPA website: http://research.uthscsa.edu/opa

September 4, 2012

A quarterly newsletter providing research news and events for UT Health Science Center Investigators
Core’s Corner

New Metabolomics Core Laboratory to Help Study Consequences of Obesity on Maternal-Fetal Nutrition

What should a pregnant mother do and eat to best promote the long-term health of her child? Pondered by expectant mothers over the ages, this enduring question is now being tackled by Theresa Powell, and Gynecology. The research team will be working with the new Metabolomics Core Laboratory, a recently launched section of the UTHSCSA Mass Spectrometry Laboratory, to study metabolites and other small molecules linked to the health-related consequences of obesity in pregnancy.

"Fetal development, growth and long-term health are intimately related to the supply of nutrients reaching the fetus during pregnancy, which is largely determined by placental nutrient metabolism and transport," said Powell. The study, sponsored by the National Institutes of Health, will examine "how the placenta handles and metabolizes nutrients in normal pregnancy and in pregnancies complicated by maternal obesity," she said. To do this the teams will examine the metabolomic profiles, or the comprehensive repertoire of small molecules, in blood samples from pregnant mothers and their babies after they are born.

Xiaoli Gao, Ph.D., the Technical Director for the Metabolomics Core Laboratory will perform these analyses using two new instruments, called Thermo-Fisher Q-Exactive mass spectrometers. One instrument was acquired through an NIH Shared Instrumentation Grant and the other from the UTHSCSA fund to outfit the South Texas Research Facility. Dr. Gao, an expert in the analysis of lipids and small molecules (termed metabolomics), was recently recruited to UTHSCSA from the Pacific Northwest National Laboratory in Richland, Washington.

Instruments like the Q Exactive are extremely powerful tools for both “targeted” and “discovery” analyses. “Targeted analysis measures quantities of known metabolites with high precision and accuracy, even when the metabolites are present at ultra-trace levels in complex biological samples,” explained Susan Weintraub, Ph.D., Director of the Mass Spectrometry Laboratory. “The analyses can be conducted in a high-throughput manner, making it possible to examine large numbers of samples in a reasonable time-frame,” she said.

For the discovery experiments, the instruments are set up to analyze a diverse group of small molecules in the specimen. “We first determine if there are differences in the quantities of any of the components using specialized software,” Weintraub noted. The metabolites that exhibit differences in abundance among experimental groups are of major interest as they may either be involved in a disease process or could be useful as prognostic indicators.

“Q Exactives are amazing instruments because they provide extremely high mass accuracy and resolution measurements. This means that we can distinguish between two molecules that have nearly identical masses, with a high degree of confidence,” Weintraub added. By taking advantage of this high-resolution mass accuracy in the discovery mode, the lab is able to resolve many more distinct molecules than was previously possible.

“The data needed to understand the complexity of placental nutrient handling can only be obtained by metabolomics,” Jansson said. The study’s results will contribute information needed to improve the health of mothers during pregnancy and the life-long health of their children.

For more information on the Metabolomics Core Laboratory, contact Dr. Weintraub (weintraub@uthscsa.edu) or Dr. Gao (GaoX@uthscsa.edu).

CTSA Update

The Institute for Integration of Medicine & Science (IIMS) recently announced the recipients of the Clinical and Translational Science Award (CTSA) Pilot Projects for 2012-2013. The primary goal of this program is to support early-stage collaborative translational and clinical studies that will lead to increased interdisciplinary, institutional, and community-based research likely to compete successfully for national grant support and ultimately to improve human health. The maximum budget for these one-year awards is $50,000. The RFA is normally issued in December with a Letter of Intent due in January and the completed grant due in February.

This year, by partnering with the Office of the Vice President for Research (VPR), the Cancer Therapy and Research Center (CTRC), the University of Texas at San Antonio (UTSA), and the Vaccine Center, IIMS was able to fund 14 projects, bringing the total number of funded pilot projects since 2009 to 57. The projects funded by the IIMS/CTSA/VPR program are as follows:

Veronica Galvan, PhD; Physiology; Preservation of vascular integrity in Alzheimer’s disease by rapamycin

Marie-Claire Gauduin, PhD; Texas Biomedical Research Institute (TBRJ)/Virology and Immunology; Development of a novel HIV vaccine approach using chimeric SIV/varicella virus

Jonathan Celfond, MD, PhD; Epidemiology and Biostatistics; Building an electronic data analysis record system

Dean L Kellogg, MD, PhD; Medicine & Physiology; Pilot study to assess whether rapamycin will improve immunity in octogenarians

Xin-Yun Lu, MD, PhD; Pharmacology; Alterations in leptin receptor signaling in major depression

Raymond F Palmet, PhD; Family and Community Medicine; Distribution of exogenous chemicals in deciduous dentin and enamel

Qiang Shen, PhD; Research Imaging Institute; Probe focal ischemic tissue viability and functional recovery by using multimodal MRI

This was our first time offering two awards jointly funded by UTHSCSA/IIMS and UTSA. This program requires a PI from UTSA and a Co-PI from UTHSCSA. The following are this year’s recipients of the IIMS-UTSA awards:

Jankarim Seshu, PhD (Co-PI: Brian Wickes, PhD, Microbiology); UTSA/Biology; Validation of genotype-specific detection of the agent of Lyme disease

Floyd Wormley, PhD (Co-PI: Thomas Patterson, MD, Medicine/Infectious Disease); UTSA/Microbiology and Immunology; Vaccine potential of recombinant Cryptococcus neoformans heat shock protein 90 against experimental pulmonary cryptococcus

This is our second year in partnership with the CTRC and together we funded the following four projects:

William P Clarke, PhD; Pharmacology; In vivo and ex vivo models of peripheral neuropathy induced by microtubule targeting anticancer drugs

Rita Ghosh, PhD; Urology; Hormone-induced reactive species in prostate cancer

Susan L Mooberry, PhD; Pharmacology; Clinical development of new microtubule stabilizers

Patricia Renee Yew, PhD; Molecular Medicine; Targeting aggressive prostate cancer through the Rb-MCM7-TGFβ1 axis

For the first time this year, IIMS partnered with the Vaccine Center (a collaboration among UTHSCSA, UTSA, and TBRI) to fund a vaccine development project, along with five other such projects supported by the Center:

Ellen Kraig, PhD, Cellular and Structural Biology; Subunit vaccines and recall suppression: Enhancing efficacy in the elderly

IIMS/CTSA plans to issue our next Pilot Project RFA in December. Anyone wishing to receive an email notification can sign up on the IIMS website - http://iims.uthscsa.edu/pilot.html. Simply enter your email address in the subscription box and click on submit.
Grant Seekers 2.0

The goal of Grant Seekers 2.0 is to try and help investigators who seek assistance in submitting a competitive NIH, VA, or other proposal, with a special emphasis on new submissions. With only 2 chances and 12 pages to clearly communicate ideas it is critical to provide specific aims that result in funding or opportunity for resubmission. Chances for resubmission are greater if the grant is scored in the first review cycle.

The need to submit a highly competitive grant in the first cycle is underscored by funding rates for grants submitted by HSC investigators between October 2010 to November 2011.

a) NIH R01 FIRST submission: 1% (1 of 90 submissions)
b) NIH R01 resubmissions: 19% (6 of 31)
c) NIH R21 FIRST submission: 8% (5 of 64)
d) NIH R21 resubmission: 22% (5 of 23)
e) VA Merit FIRST submission: 15% (2 of 13)
f) VA Merit resubmission: 50% (4 of 8)

According to this data HSC investigators are having success with revised R01, R21, and VA Merit proposals. New R21 and VA Merit proposals experienced adequate success during this timeframe when compared to new R01 submissions. These funding rates show the need to resubmit revised proposals.

“Funding rates for new R01s are dismally low and I suspect resulting in a steep ‘drop-out’ rate – that is, we are not submitting a revised application if it did not get funded the first go around. Thus, we have far fewer resubmissions after accounting for grants that got funded in the first cycle,” stated Sunil K. Ahuja, M.D., M.Sc.

Ahuja is leading the Grant Seekers 2.0 effort to help reverse the trend and improve the chances of submitting competitive proposals the first time resulting in either funding or an opportunity for revision and resubmission that results in funding.

The Grant Seekers program is designed to give participants opportunity for an internal review process prior to submission. While emphasis is on NIH/DoD/VA grants, any grant will be reviewed. Initial reviews are provided via a review of an oral presentation provided by the investigator. The makeup of the review panel is determined by the investigator based on ability to provide critical reviews for the subject matter and can include an external reviewer.

If after an oral review the written proposal is put forward for re-review before final submission to the NIH and is deemed to be highly meritorious among all written grants submitted for the year, the PI’s laboratory will be awarded $10,000 for research support through the VPR office.

Sessions typically meet on Fridays. The response thus far has been overwhelming and most slots are filled for the remainder of the calendar year. To meet the needs and timelines of investigators, however, additional sessions are being scheduled.

To participate contact Yolanda Rodriguez at rodriguezy2@uthscsa.edu.
Spotlight on Research

Neural stem cell function is providing clues into the effects of aging in the brain through the work of cutting-edge research.

Erzsebet Kokovay, PhD is a Rising STARs Award recipient and her work in the field of adult neurogenesis is shedding light on the cellular interactions and molecular signals that maintain neural stem cells (NSCs) and their progeny. The Rising STARs Award is a University of Texas System program for the recruitment of promising faculty members.

Kokovay joins the Health Science Center after completing a postdoctoral fellowship studying neural stem cells at the Neural Stem Cell Institute in Rensselaer, NY. Her postdoctoral advisor, Dr. Sally Temple, is the co-Founder and Scientific Director of the Neural Stem Cell Institute. In 2008, Temple was awarded the MacArthur Fellowship Award for her contribution and future potential in the neural stem cell field.

Kokovay received her PhD from the University of New Mexico in Biomedical Sciences where she studied the role bone marrow derived cells played in degeneration and repair during CNS diseases. Dr. Kokovay joined the Department of Cellular and Structural Biology in June of 2012 and is a member of the Barshop Institute for Longevity and Aging Studies.

Kokovay’s research is contributing to advances in understanding adult neurogenesis. Previously it was thought that the brain was hardwired producing no new neurons after birth. The finding that the adult brain harbors neural stem cells (NSCs) that continuously produce new neurons was a revelation and opened up many new possibilities for brain repair. However, NSCs are not distributed throughout the brain and instead exist in specialized regions of the adult brain. These neural stem cell niches are made up of a cellular and molecular milieu that regulates NSC quiescence, self-renewal, migration and differentiation. Kokovay and her collaborators have taken on the challenge of understanding the signaling mechanisms that influence endogenous NSC migration and differentiation.

“I am interested in understanding why neurogenesis declines with age and what impact this has on cognition and repair in the elderly. Specifically I am investigating how the cellular architecture and molecular signaling within the NSC niche changes during aging and what impact this has on neurogenesis,” said Dr. Kokovay. The future goals of her research are to reduce declines in neurogenesis in the aged population and to target NSCs to sites of injury or degeneration and induce them to differentiate into the proper cell type for brain repair.

For the Health Science Center Kokovay represents a critical recruitment to the Department of Cellular & Structural Biology resulting from a rigorous national search targeted to stem cell biologists. She brings with her a research toolkit that unveils new insights into the aging brain and represents the leading edge in adult-tissue derived stem cell research combining the use of stereotoxic surgery, transgenic mouse models, molecular biology and optical imaging to visualize and study the relatively small number of stem cells in the adult brain. Kokovay’s experiments reveal the biology behind the aging neural stem cell niche and strengthen multidisciplinary research in aging and neuroscience.

“Because of the shared interest in brain aging and stem cell aging, the Barshop Institute partnered with us to successfully recruit Dr. Kokovay. Dr. Kokovay’s research is a vital pillar in the department’s burgeoning stem cell program. We look forward to the exciting advances that will be made in her lab and the students and postdoctoral fellows her work will attract,” said Christi Walter, PhD, professor and chair of the Department of Cellular and Structural Biology (CSB).

Kokovay sees her move to the HSC as a "natural fit" and is excited about the collaborations available in CSB and the Barshop Institute, the opportunity to grow HSC capability in stem cell research, and the world class resources available to her through the Optical Imaging Core.

We welcome Dr. Kokovay to our Health Science Center and look forward to her exciting contributions to science.