Spring 2012

Integrative Biology & Pharmacology Newsletter

UTHealth
The University of Texas Health Science Center at Houston
Medical School

Contents

Job Well-Done ~*Goodbye and Good Wishes*

Richard Clark, Ph.D.
Sharat Vayttaden, Ph.D.
Faiza Baameur, Ph.D.

I and my technician of 30 years, Jackie Friedman, as well as the Pochnyuk group across the hall and Carmen and Jeff with whose research groups we had biweekly lab meetings over the years, are in a mourning phase after almost simultaneously wishing well to Drs. Sharat Vayttaden and Faiza Baameur as they head to new horizons. Sharat is off to the NIH and a postdoctoral fellowship with Ian Fraser to model and study immunological regulation after five years in his PhD program. Faiza Baameur, after 9 years in my lab, first as a technician, second as a PhD candidate for five years, and finally two years as a postdoctoral fellow, is starting a new postdoctoral fellowship with Seva Gurevich at Vanderbilt. Seva is the world's leader on arrestin negative function in desensitization through uncoupling of GPCR activation, and positive signaling through scaffolding of protein kinases.

Those of us who knew Sharat and Faiza know that they were not only bright and capable students, but real positive contributors to both the intellectual and social environment in the department and CRB program. Ever willing to help colleagues and pitch in to the community, they will be sorely missed. I was very close to both Sharat and Faiza, one of the advantages of a small lab, and will miss their contributions, humor and companionship. It was, with all its ups and downs, a treasured experience to help them grow toward being independent scientists, an evolution that was really helped by all our colleagues and collaborators over the years. Sharat, the *argumentative* modeler drove our quantitative modeling program almost single handedly with his deft and frankly mysterious manipulations of modeling software - although carefully watched over by Carmen, Jeff and I. His modeling paper on GRK pathways of desensitization in PLOS Computational Biology has had over 2200 hits. Faiza, who became the GRK guru, and was fondly known as "*the princess*", drove our attempts at mapping the GRK structure and developing a GRK specific inhibitor. One of my fondest memories was in helping her purify rod outer segment rhodopsin from 200 retinas, a 200 step process that took seven straight 14 hr days mostly under red light in the darkroom.

Ultimately both Faiza and Sharat progressed to the point where we were colleagues, and I learned as much from them as they from me. This was all capped off by a couple of parties at which I was able to get the last word in with a roast of each based on the Gilbert and Sullivan song from the Pirates of Penzance, " I am the very model of a modern BS graduate" for Sharat and " I am the very model of modern female terrorist" for Faiza (her home country, Algeria, is listed as a terrorist state). These are available upon request.

~Dick Clark, Ph.D.

FACULTY SPOTLIGHT

Dr. Zhu Receives Algomedix award

Michael Zhu, Ph.D.
Professor

Dr. Michael X. Zhu, in collaboration with Algomedix, Inc, a biotech company based in Mill Creek, Washington, recently received a Phase 1 Small Business Innovation Research (SBIR) award from National Institute of Drug Abuse, NIH, to support their project on "Analgesics targeting TRPA1 for treatment of chronic pain".

TRPA1 is an ion channel belonging to the superfamily of Transient Receptor Potential (TRP) channels that mediate calcium and sodium influx into cells in response to various environmental changes or assaults. These channels serve important physiological functions in many aspects of human life and have been implicated in a large number of diseases. Recent studies indicated that TRPA1 channels play a highly specific function in sensory nerves that transmit the sensations of pain and hyperalgesia in response to inflammation and nerve injury. Since TRPA1 is one of the most important signal integrators for pain in sensory nociceptors, targeting TRPA1 is a logical approach to block nociceptive signals at the first stage of neural processing. A TRPA1 antagonist will function as a peripherally acting analgesic and is thus designed to be without addictive and abuse potential.

The overall objective of the SBIR project is to identify and develop a novel functional antagonist of TRPA1 channels for the treatment of chronic pain. Current therapeutics of chronic pain are inadequate in addressing patient needs and present significant safety, efficacy, tolerability and addiction concerns that often limit use. Algomedix has employed an innovative rational pharmacology approach which has proven capable of identification of multiple new chemical scaffolds with potency equivalent to established TRPA1 ligands. Dr. Zhu has an established collaboration with Algomedix and has provided the assay systems that allow the synthesized compounds to be tested for their effects on TRPA1 and related channels. The NIH funding will support generation and optimization of lead compounds and further functional test using intracellular calcium measurement and electrophysiology. These efforts will identify TRPA1 ligands which are classical antagonists, desensitizing agonists, inverse agonists and allosteric modulators. The data generated will form the basis for Phase 2 SBIR application in order to further develop the identified compound(s).

Dr. Zhu has been working on TRP channels for more than 15 years. His lab is experienced with structural and functional analyses and physiological functions of multiple subtypes of TRP channels, including TRPA, TRPC, TRPV, and TRPM channels. Using high throughput screening technology, Dr. Zhu's lab has discovered new chemical probes for TRPC channels. Dr. Zhu has collaborated with Dr. Jeffrey Herz, President and CSO of Algomedix Inc. and the principal investigator of the SBIR grant, on pharmacological effects of known drugs on TRPA1 channels. Their coauthored paper entitled "Activation of TRPA1 channels by fenamate non-steroidal anti-inflammatory drugs" (by Hu et al., Pflügers Archiv-European Journal of Physiology 459:579-592, 2010) was one of the most frequently downloaded articles of the journal in 2010. The collaboration brings together the expertise in medicinal chemistry by Herz and functional target ion channel analysis by Zhu.

The NIH SBIR is a highly competitive program that encourages domestic small businesses to engage in Federal Research/Research and Development that has the potential for commercialization. It enables small businesses to explore their technological potential and provides the incentive to profit from its commercialization. It supports scientific excellence and technological innovation through the investment of federal research funds in critical American priorities to build a strong national economy. There are three phases for a SBIR program. Phase 1 supports exploration of the technical merit or feasibility of an idea or technology. Phase 2 supports expansion of Phase 1 results, research and development work, and evaluation of commercialization potentials. Phase 2 grants are awarded exclusively to Phase 1 award winners. Phase 3 is for the innovation to move from the laboratory into the marketplace. NIH SBIR program only supports Phases 1 and 2. Phase 3 support has to be from a private sector or other non-SBIR federal agency funding. The funded Phase 1 SBIR grant is expected to deliver an advanced lead molecule and backup compounds targeting at TRPA1 channels that have all properties necessary for nomination to a full development program in Phase 2 SBIR.

~Michael X. Zhu, Ph.D.

Studying Synapse Development:

A Small Step Toward Understanding the Inner Workings of the Brain

Kartik Venkatachalam, Ph.D.
Assistant Professor

"Who am I?" This existential question has fascinated both scientists and philosophers for millennia. In the contemporary post-genomic era, answers are finally beginning to emerge. The prevailing theory is that we are defined by our genes. Personalities, behavior, and even political mind-sets have been linked to an individual's genetic make-up. This concept is further supported by the fact that identical twins with the same genetic make-up display a remarkable convergence in several aspects of their lives. But is this the whole picture? Are we really just a collage of our genes? What about our memories, thoughts, fears, ambitions, and life experiences—the unique aspects of us? It could be argued that these factors define us a lot more than the genes we inherit from our parents. It appears that although genes set the stage, the actual process of thought and personality encoding is conducted by components of the nervous system. However, from this simple statement emerges a much larger and daunting enigma: *how does the brain actually store all this information, and evoke higher order concepts like consciousness?* Neuroscientists are taking multiple approaches to study this problem. One common outcome of these studies is elucidation of the concept that cells in the brain called neurons form extensive networks, and tiny electrical currents surging through these networks underlie the overall activity of the brain. Scientists are finding that multiple neuronal circuits exist simultaneously, and coordinated activity of these circuits is required for the healthy functioning of the brain. Furthermore, when these networks go awry, the specter of neuropsychiatric disease rears its ugly head.

Neuronal networks are not ethereal entities. Rather, they consist of individual neurons forming physical connections called synapse with other neurons. The electrical activity of one neuron drives the activity of all the other neurons connected to it. Therefore, the network is defined largely by the set of connections between the cells. Formation of this "connectome" is guided by genetic and environmental factors that orchestrate the development of synapses with exquisite spatiotemporal precision. Take these rules of synapse development, add a 100 billion neurons, each of which is capable of forming around a 1000 synaptic connections for a whopping total of a 100 trillion synapses crackling with electrical activity, and you have yourself a human brain!

The principles of synapse development are geared to ensure optimal connectivity between neurons, and maintain electrical activity at a healthy level – neither too much nor too little, but just right. You may wonder how we study this process at the scale described in the last paragraph? The short answer is that we don't! Instead of dealing with the grand complexities of the human brain, scientists have chosen simple model organisms to study the development of synapses: the humble mouse, zebra fish, fruit fly or worm. Let me explain the utility of this approach. Take for example the fly brain which has approximately a million times fewer neurons than the human brain. Despite this obvious "limitation", genetic factors that govern the development of each synapse, and cues which drive network formation are remarkably well conserved between flies and humans. Therefore, what we learn from flies may be applicable to humans! This is not to say that flies (or even mice) are little people, but it is important to remember that biological patterns seen in humans are often also found in simpler organisms, albeit at a significantly smaller scale. The overarching goal of my lab for example is to identify genes that direct synapse development in the fruit fly. Subsequently, we hope to place these genes in functional groups that either in collaboration or conflict give rise to synapses. This approach will not only help identify mechanisms underlying neuropsychiatric disease, but will also provide valuable insight into how the nervous system develops. At the same time, many labs including ours are studying how neuronal networks emerge from the connectome. In terms of current understanding, the rules governing network development are even more enigmatic than those governing synapse development. Once again, studies aimed at elucidating neuronal networks responsible for encoding a variety of behaviors in model organisms appears to be the panacea. Ultimately, the goal is to utilize a collaborative effort between several disciplines to inch forward in our quest to understand the brain at multiple levels. Without this knowledge, we can never get to the heart of the existentialist questions that have intrigued humans for millennia.

~Kartik Venkatachalam, Ph.D.

Dr. Carmen Dessauer Named Fellow of AAAS

Carmen Dessauer, Ph.D.
Professor

Dr. Carmen Dessauer, professor of Integrative Biology and Pharmacology, has been named a fellow in the American Association for the Advancement of Science (AAAS), the world's largest general scientific society and publisher of the journal *Science*.

She is one of 539 AAAS members who will be recognized with the honor Feb. 18 at the 2012 AAAS Annual Meeting in Vancouver, British Columbia.

"She is regarded highly nationally and internationally for her work," said Dr. John Hancock, chair of the Department of Integrative Biology and Pharmacology and holder of the John S. Dunn Distinguished University Chair in Physiology and Medicine.

Dessauer's interest in cell signaling dates back to her days as a postdoctoral fellow in the laboratory of Dr. Alfred Gilman, who shared the 1994 Nobel Prize in Physiology and Medicine for his part in work involving proteins (G proteins) that serve in the communication process. Gilman is a professor emeritus at The University of Texas Southwestern Medical Center in Dallas.

Dessauer and her colleagues said they believe this information could potentially be used to block signals tied to disease. Building on Gilman's work, Dessauer was honored for her efforts to further the understanding of how G proteins impact a second messenger named cyclic AMP.

"In the heart, we are working to identify complexes that regulate cyclic AMP actions and to inhibit one of the proteins that makes cyclic AMP in an effort to address heart disease," said Dessauer, noting that cyclic AMP plays a key role in functions ranging from control of heart rate and force of contraction to learning and memory.

According to Gilman, chief scientific officer of the Cancer Prevention and Research Institute of Texas (CPRIT), "The regulation of cyclic AMP synthesis by adenylyl cyclases is a very important and extremely complex subject, with many enzymes and other proteins involved. Carmen Dessauer kicked open the door on this subject when she worked in my lab, now several years ago. And she has continued to make outstanding contributions to our knowledge in this area. In addition to being a superb scientist, she is a fine person and a strong institutional citizen."

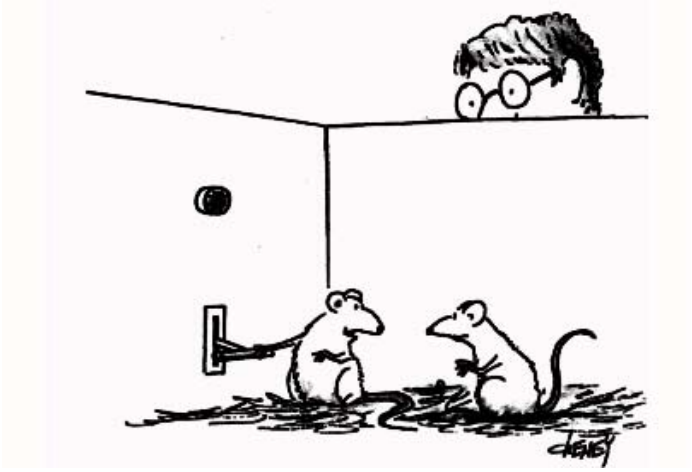
Elected by their AAAS peers, fellows are recognized for efforts to advance science or its applications. Dessauer joins at least eight other AAAS fellows affiliated with UTHealth.

Dessauer received her doctorate at LSU and completed a postdoctoral fellowship at UT Southwestern Medical Center.

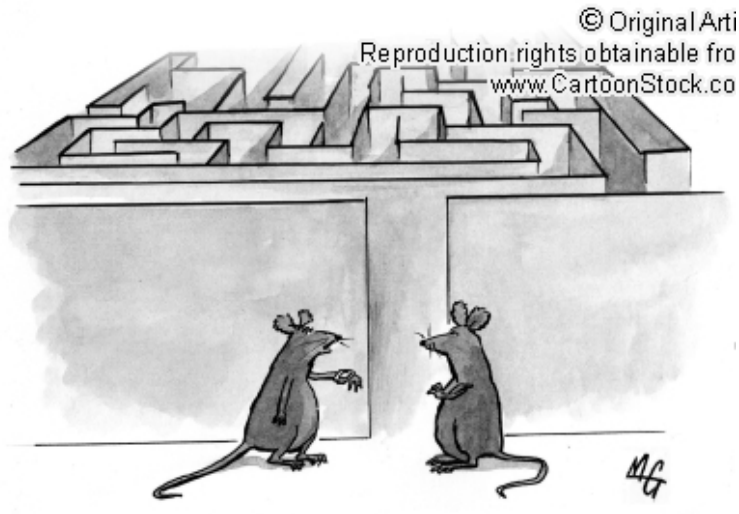
AAAS was founded in 1848 and includes 262 affiliated societies and academies of science.

~Robert Cahill, Office of Advancement, Media Relations

RESEARCH HUMOR?



What did one lab rat say to the other?
"I have my graduate student so well trained, that every time I push this buzzer, he brings me a snack!"



"This GPS eliminates all the guesswork!"

GRADUATE STUDENT AWARDS & ACTIVITIES

Qing Yang Receives Paralyzed Veteran's of America Research Award

Dr. Qing Yang, an Instructor working in Dr. Edgar T. Walters' lab, was recently awarded a research grant from The Paralyzed Veterans of America (PVA) Research Foundation, entitled "The contribution of K^+ channels in nociceptors to SCI-induced chronic pain". PVA supports innovative research that improves the lives of those with spinal cord injury (SCI) and disease. Medical progress has given SCI patients greater longevity and improved overall health, allowing chronic pain to emerge as a major complication in this population. Post-SCI pain can be devastating, and conventional treatment approaches are often inadequate, which is largely due to limited understanding of SCI pain mechanisms.

Recent work from Dr. Walters' laboratory indicates that spontaneous electrical activity intrinsic to the cell bodies (somata) of the first neurons in pain pathways (nociceptors) might be an important mechanism driving central pain following SCI. K^+ channels play an essential role in setting the resting membrane potential and in controlling the excitability of many neurons, including nociceptors. The observation that spontaneous activity (SA) in nociceptors is associated with membrane depolarization and increased membrane resistance suggests that SA is promoted by down-regulation of K^+ channels. This award will provide Dr. Yang the chance to define the roles in SCI-induced SA of several K^+ channels reported to be open at subthreshold potentials, particularly KCNQ and K_{ATP} channels. These channels are promising candidates for regulating nociceptor SA for several reasons. 1) They control excitability within the resting membrane potential range of -60 to -40 mV, where most SA occurs. 2) Transcriptional repression of these channels in nociceptors is reported in other chronic pain models. 3) Pharmacological openers for KCNQ and K_{ATP} channels are available, which suppress nociceptive behavior in both inflammatory and neuropathic pain models. The goal of this award is to produce mechanistic insights into the potential role of the K^+ channels in SCI-induced chronic pain. A detailed understanding of functional alterations of these K^+ channels following SCI may lead to clinical use of specific channel opener drugs as a strategy to treat post-SCI pain.

Dr. Qing Yang received her M.D. degree from Wuhan University School of Medicine in China in 1992. She was then a lecturer at the Department of Physiology in Wuhan University School of Medicine from 1992 to 2002. She received postdoctoral training in the University of Arkansas for Medicine Sciences and U. T. M. D. Anderson Cancer Center, before joining Dr. Edgar T. Walters' laboratory in 2007 and starting her research on SCI-induced chronic pain.

~Qing Yang

Wonkyung Oh Receives Fellowship

Wonkyung Oh is a third year postdoctoral fellow in Dr. Frost's lab in the Dept. of Integrative Biology & Pharmacology. She is the recent recipient of a Department of Defense Breast Cancer Research Program postdoctoral fellowship. Her project title is: "Regulation of ATM-dependent DNA Damage Responses in Breast Cancer by the RhoGEF Net1". Dr. Frost's lab has been focusing on understanding signaling pathways regulated by Rho family small G proteins that contribute to breast cancer initiation, progression and response to therapy. Small G proteins function as molecular switches to control various aspects of cell proliferation, cytoskeletal architecture, cell motility and invasion, and cell cycle progression. Dr. Frost's lab is particularly interested in the role of the proto-oncogene Net1 in controlling breast cancer cell behavior. Net1 is a RhoGEF (Rho guanine nucleotide exchange factor) specific for the RhoA subfamily of GTPases. Recently, Dr. Frost's lab has shown that Net1 is overexpressed in human breast carcinomas and its co-expression with the α6β4 integrin is associated with a high risk for distant metastasis in node positive breast cancer patients. In another recent study, Dr. Frost's lab showed that Net1 expression was required for cell survival in response to DNA damage. However, there has been no molecular mechanism describing how Net1 regulates DNA damage responses. Thus, this fellowship will identify the molecular mechanisms accounting for the role of Net1 in DNA damage signaling, and establish how this applies to human breast cancer. In

preliminary data, Wonkyung demonstrated that Net1 expression is required for activation of ATM and its downstream effector proteins in breast cancer cells. ATM is a central component in determining responses to ionizing radiation (IR), ultimately regulating cell cycle arrest, apoptosis, DNA repair, and genomic stability. Reduced ATM activation results in a combination of cell cycle checkpoint and DNA repair defects, and mutation of the ATM gene confers an increased risk of breast cancer. Previous studies suggested that ATM activation is a critical target of breast cancer therapy and the down regulation of ATM has been implicated as a therapeutic strategy in radio sensitization of breast cancer. Wonkyung's future research will identify new Net1 interacting proteins that control early DNA damage responses, and define their impact on DNA repair mechanisms following exposure to IR. Additionally, because radiation therapy in people results in the risk of serious damage to normal tissues, Wonkyung will investigate whether normal breast epithelial cells also require Net1 for ATM activation and survival after IR. Understanding how Net1 may differentially control DNA damage responses in normal breast epithelial cells and breast cancer cells will provide a new perspective on radiation therapy. Wonkyung's research may also eventually lead to the identification of new therapeutic strategies for breast cancer treatment.

~Wonkyung Oh

Students Honored for High Marks

Each year the Department of Integrative Biology and Pharmacology recognizes outstanding student performance in the fields of pharmacology and physiology. The Pharmacology award is named for G. Alan Robison, who was the first chair of the department of physiology when the medical school was founded over 40 years ago.

Allen Cockerill receiving the G. Alan Robison Award from IBP Chair, Dr. John Hancock

The 2011 recipient of this award was Allen Cockerill, whose final grade in his pharmacology class was 101% .

Similarly, Eugene G. Jacobson was the first chair of physiology upon the founding of the medical school.

David Hernandez receiving the Eugene G. Jacobson Award from IBP Chair, Dr. John Hancock

David Hernandez, who achieved a score of 96.34% in his physiology class, was one of two students to receive the award this past year. The other was Michael Moore whose final grade was 95.64%.

Michael Moore receiving the Eugene G. Jacobson Award from IBP Chair, Dr. John Hancock

Congratulations are due to all of these students for their outstanding accomplishments. This year's recipients will be announced in May.

~Trish McFarland, Anne Dybala, Andy Morris, Gary Rosenfeld

DEPARTMENTAL NEWS & EVENTS

IBP Staff Visits Ghislain Breton's Lab

In November, the administrative staff of IBP were treated to a field trip to Dr. Ghislain Breton's lab. We tend to be a curious group, and we wanted know what he could be researching using such tiny fish and a robot. What we found was both fascinating and enlightening.

Zebra Fish Tanks in the Breton Lab

Dr. Breton described for the staff how he uses zebra fish to study the impact of circadian rhythm on heart disease, diabetes and cancer. When we asked "Why?", he explained there are higher instances of cancer and diabetes in shift workers, especially those who work at night, compared to those who have regular day jobs.

Dr. Breton explains to Hea Jin and the rest of the staff how his zebra fish lab works.

To explain how his lab researches this subject, Dr. Breton began by showing a time-lapsed video of a zebra fish embryo as it divided from one cell to many. It was intriguing to see the heart begin to beat within 24 hours of life.

Monica Gardner couldn't wait to try on the computer glasses which allow computer work to take place in complete darkness.

There ensued a lively discussion around circadian rhythms and what happens in the body when those rhythms are interrupted. Since we had just moved from Daylight Savings Time, a few of the administrative staff had been experiencing some difficulties adjusting to the time change. This opened the door for Dr. Breton to explain that if your circadian rhythm is interrupted, it can affect every organ of the body. He also explained the time it takes for the body to recover from these disruptions—about one hour for every 24 disrupted. This helped us to understand how those who do shift work could be much more seriously affected by circadian rhythm disruption.

Dr. Breton explaining how the robot works

Circadian rhythm is replicated in his lab with the use of a robot which helps to monitor how disruptions affect healthy cells and tissues in the body. Hopefully, this will result in better, more successful treatments for some very serious diseases.

~Lisa Byrd
& Anne Dybala

Quantitative Genomics & Microarray Cores Combine

Greg Shipley, Ph.D.
Assistant Professor

On February 1, 2012 the Quantitative Genomics and Microarray Core Labs officially moved from the Office of Research to the Department of Integrative Biology and Pharmacology. There is no change to the physical location of the laboratory, which is still located in MSE R319/321 and the services offered are as before. The name has changed to the Quantitative Genomics and Microarray Facility. Please see Dr. David Loose (500-7440) for all questions around a Microarray experiments or Dr. Greg Shipley (500-7458) for information on all experiments involving a qPCR instrument or Meso Scale quantitative ELISA inquiries. The web sites for the Core Lab will be integrated into the IBP web site soon along with a current list of services and pricing.

~Greg Shipley & David Loose

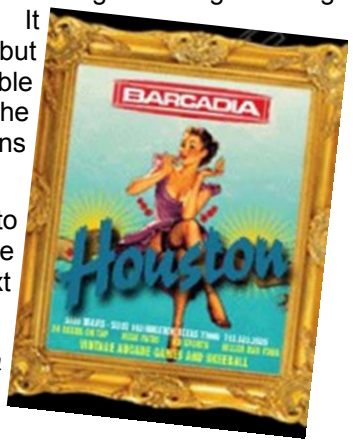
IBP Christmas Party

On Tuesday, December 20, 2011, the IBP department celebrated the holiday season with a party at the Barcadia Bar and Grill in Midtown. Guests were treated to free vintage arcade and video games, a variety of beers on tap, and bar food which included mini-cheeseburgers, brisket sliders, loaded nachos, and cheese frittes.

There was the sound of laughter and serious conversations taking place throughout the bar. It was learned that one lab staff member had just turned 30 (we won't name names) and some war stories were told about the good old days as a PostDoc.

Then the competitive spirit reared its head as several faculty and staff took to the video games. Our chairman showed his stuff on the skee ball game and there was plenty of heckling going on from those bystanders watching. Scores are still being disputed as it appears there was creative math taking place on some of the games.

Some of the lab staff took advantage of the giant Jenga game located on the patio. It was a tad nippy outside, but word is they had no trouble staying warm during the game, due to libations consumed prior to playing.



All in all everyone seemed to enjoy themselves and are looking forward to the next departmental get together.

~Lisa Byrd & Monica Gardner

Lisa Byrd Honored for Ten Years of Service

Lisa Byrd
Sr. Administrative Coordinator

Lisa Byrd, Senior Administrative Coordinator, was recently honored at the Annual STAR awards for ten years of service to the University of Texas Health Science Center. Lisa's work for the University began in 2001 when she was employed by Integrative Biology & Pharmacology as a PC Support Specialist. Since joining IBP, Lisa has held several increasingly more responsible positions including Sr. Support Specialist, Administrative Assistant I, Administrative Coordinator, and finally, Sr. Administrative Coordinator.

Currently, Lisa manages the financials for both the Imaging Core and the Quantitative Genomics and Microarray Core. She assists in monthly reconciliations of some departmental grant accounts, processes the CLAMC animal care invoices, resolves purchasing issues, takes care of the facilities needs for the department, maintains the departmental website and provides back-up to several of our staff.

~Anne Dybala

Staff Meeting Nets Changes

In February, the administrative staff met to discuss the ongoing issue of trapped or hung encumbrances in our accounts. Encumbrances, especially trapped encumbrances, continue to be a significant issue within the department, the Medical School and the University at large. This issue is significant because it results in funds continuing to be set aside for an expense which has already taken place, and therefore, making those funds unavailable for use. Releasing the funds requires rather time-consuming research on the part of our staff and follow-up with UT financial offices.

The department, in an effort to more proactively address this issue, has identified an IBP Encumbrance Team. The team will be led by Cordelia Conley and Monica Gardner (who are tasked with research and closure of trapped encumbrances) with support from Lisa Byrd, Sandy Cegielski and Anne Dybala.

The staff also discussed the move of the Quantitative Genomics and Microarray Core Lab to the department. Lisa Byrd will lead the administrative needs for this group (as she does for the Imaging Core) with assistance from Anne Dybala and Monica Gardner, the latter offering her services as strong-arm collections agent for the group! Lisa and Anne will be attending a File Maker Pro course in April to help address the management of the data base files for both of the core labs.

Monica has also decided to take on the responsibility for the monthly reconciliation of a few of our departmental accounts including the salary account, the IDC account and both of the imaging core accounts.

Finally, one supervisory change was made this month. Both Hea Jin and Cordelia Conley will report to Anne Dybala beginning March 1st.

~Anne Dybala

RESEARCH CORNER

Proposals Submitted & Received in the 1st Quarter of FY2012

Fourteen proposals, totaling more than $16 million, were submitted by the Department of Integrative Biology & Pharmacology in the first quarter of Fiscal Year 2012. Five proposals were awarded.

~Data provided by Deborah Brougher, Sr. Grants and Contracts Specialist

# Rec'd	State	Federal	Non profit	For profit	Total
4		327,154.00			**327,154.00**
1			11,000.00		**11,000.00**
5	**0.00**	**327,154.00**	**11,000.00**	**0.00**	**338,154.00**

Proposals Submitted Summary FY2012 1st QTR					
# Submitted	**State**	**Federal**	**Non profit**	**For profit**	**Total**
1	1,162,129.00				**1,162,129.00**
9		13,076,110.00			**13,076,110.00**
1					**378,511.00**
3			1,431,000.00		**1,431,000.00**
14	**1,162,129.00**	**13,076,110.00**	**1,431,000.00**	**0.00**	**16,047,750.00**

CALENDAR OF EVENTS

IBP Seminar Series~ *Directed by Drs. Rebecca Berdeaux and Catherine Denicourt*

March 5, 2012

Jon Levine, M.D., Ph.D.
University of California San Francisco

"Mysteries of the Nociceptor: Toward a Cell Biology of Pain"

Host- Dr. Terry Walters

March 12, 2012

Sarah Plowman, Ph.D.
UTHSC Houston

"Regulation of EGFR function by the lipid environment"

Host-Dr. Shane Cunha

March 19, 2012

Jeff Rosen, Ph.D.
Baylor College of Medicine

"Wnt/Fgf Interactions in Mammary Stem Cells and Breast Cancer"

Host-Dr. Jeff Frost

March 26, 2012

Robert S. Kass, Ph.D.
Columbia University

"Molecular Pharmacology of Cardiac Ion Channels: Disease-Associated Mutations and Patient-Specific Genetics"

April 2, 2012

Donald Gill, Ph.D.
Temple University School of Medicine

"Calcium Signal Transduction and Stress Sensing through STIM proteins"

Host-Dr. Kartik Venkatachalam

April 16, 2012

Channing Der, Ph.D.
University of North Carolina Chapel Hill

Title to be announced

Host-Dr. Jeff Frost

April 19, 2012
**THURSDAY @ 2PM, MSB 2.135

A. Mark Evans, Ph.D.
University of Edinburgh

Title to be announced

Host- Dr. Michael Zhu

April 23, 2012

Brian Wadzinski, Ph.D.
Vanderbilt University

"Novel regulatory mechanisms for PP2A family members, key regulators of the cell"

Host-Dr. Agnes Schonbrunn

May 7, 2012

Irina Serysheva, Ph.D.
UTHSC Houston

Title to be announced

Host-Dr. Michael Zhu

May 14, 2012

Dafna Bar-Sagi, Ph.D.
New York University
Langome Medical Center

Title to be announced

Host-Dr. Sarah Plowman

NOTE

Seminars are held on Mondays at 4:00 PM in MSB 2.135, unless otherwise noted. For information and questions, please contact Hea Jin at Hea.Y.Jin@uth.tmc.edu or 713-500-7514.