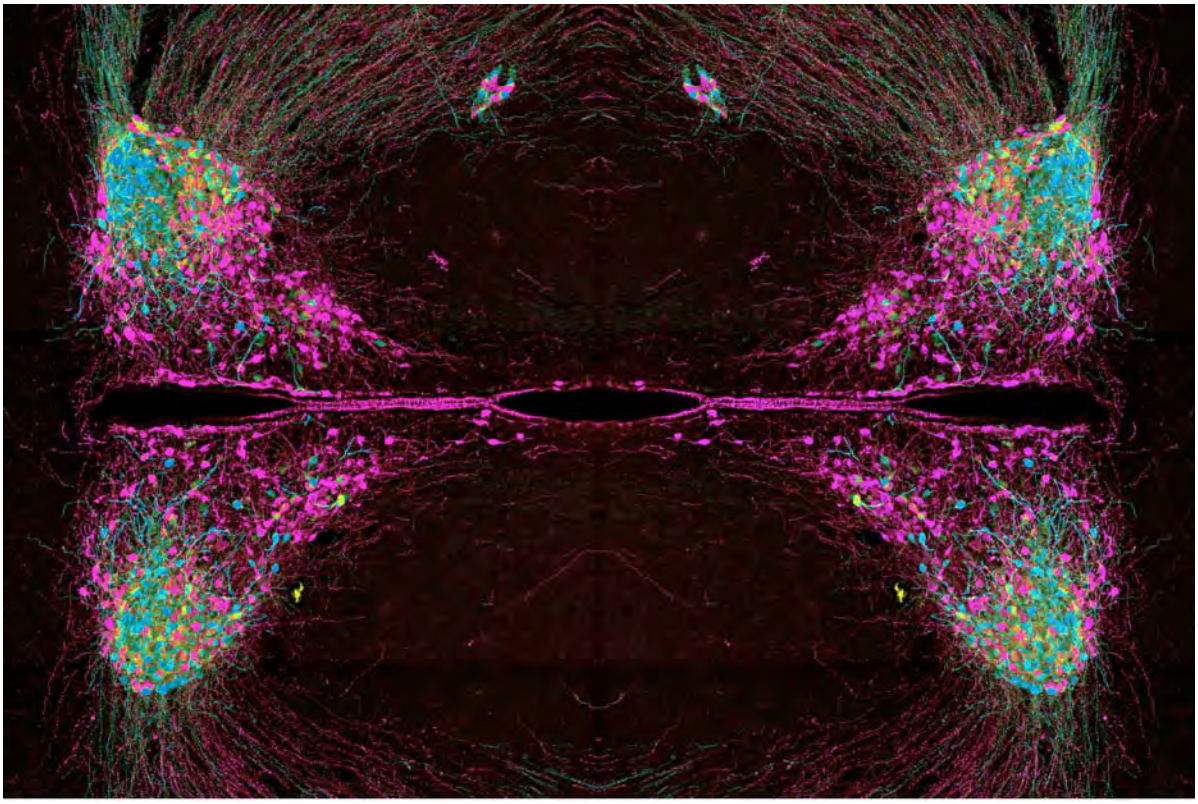
THE
NEUROSCIENCE INSTITUTE
UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

Neuroscience Center of Excellence



Annual Report to the

Tennessee Higher Education Commission

Fiscal year 2012 (7/1/2011-6/30/2012)

TABLE OF CONTENTS

I. ADMINISTRATIVE STRUCTURE

Director:	Professor William E. Armstrong, Ph.D.
	Department of Anatomy and Neurobiology
Co-Director:	Professor Tony Reiner, Ph.D.
	Department of Anatomy and Neurobiology
Administrative Specialist:	Shannon Guyot
IT Specialist/	
Business Manager:	Brandy Fleming

Neuroscience Executive Committee:

Matthew Ennis, Ph.D., Professor and Chair, Department of Anatmy and Neurobiology

Eldon Geisert, Ph.D., Professor and Director, Center for Vision Research, Department of Ophthalmology

Mark LeDoux, M.D., Ph.D., Professor, Department of Neurology

Charles Leffler, Ph.D., Professor, Department of Physiology

William A. Pulsinelli, M.D., Ph.D., Semmes-Murphey Professor and Chair, Department of Neurology

Tony Reiner, Ph.D., Professor and NI Co-Director, Department of Anatomy and Neurobiology

Susan E. Senogles, Ph.D., Associate Professor, Department of Molecular Sciences

Jeff Steketee, Ph.D., Professor, Department of Pharmacology

Jim Wheless, M.D., Professor, Chief of Pediatric Neurology and LeBonheur Chair, Le Bonheur Hospital/UTHSC

Center Address:

University of Tennessee Health Science Center
875 Monroe Ave., Suite 426, Wittenborg Building
Memphis TN 38163
(901) 448-5960
http://www.uthsc.edu/neuroscience

Organizational Structure:

The Neuroscience Center of Excellence comprises the administrative core and financial engine of the University of Tennessee Health Science Center's (UTHSC) Neuroscience Institute (NI), which is located within UTHSC's College of Medicine in Memphis, TN. Prof. William E. Armstrong is the Director, and Prof. Tony Reiner is the Co-Director. The Director reports to the Executive Dean of the College of Medicine at UTHSC, currently David Stern, M.D. Physically the NI is housed within twelve different departments in the College of

Medicine and some other UT departments, with an administrative suite in Rm 426 Wittenborg Building at UTHSC. Affiliated members reside at UT Knoxville, Oak Ridge National Laboratory, St. Jude Children's Hospital, Christian Brothers University, and at the University of Memphis.

Dr. Armstrong supervises Ms. Brandy Fleming, who is our Webmaster/IT specialist and also functions as our Business Manager. Ms. Fleming and Dr. Armstrong supervise our administrative assistant Shannon Guyot. Ms. Guyot organizes the seminar series including all travel arrangements, does NI official correspondence, and also works ¼ time in the Imaging Center. The Neuroscience Imaging Center is managed by Ms.Yunming Hu. Ms. Hu reports to Dr. Armstrong and supervises 3 part-time histologists, Zerriyan Jackson, Shannon Guyot, and Kathy Troughton. Dr. Andrea Elberger manages the Bio-Rad Confocal Microscope. Dr. Armstrong serves as overall director of the Imaging Center.

II. BUDGET (see Schedule 7, page 6)

A. FY 2012. The FY 2012 appropriated budget for the UTNI was $593, 407. We carried forward $425,862 from the previous year for a total budget of $1,019,269. This carryover continued to partly reflect amounts encumbered but unspent for Graduate Stipends that were picked up previously by NI and are now picked up by UTHSC for the student's first 18 months. In addition, some research projects were funded with start dates from the past FY and therefore are carried over. However, the main reason for this year's carryover was the anticipation of assisting with new Neuroscience hires at UTHSC. While this did not happen during this fiscal year, it appears to be imminent in the coming and following fiscal years (see below).

This past FY, we expended $583,016 total personnel costs (including salaries and fringe). Personnel costs include administrative supplements for the NI Director (who also directs the NI Imaging Center), the NI Co-Director, the Director of the BioRad Confocal Microscope, a full-time IT specialist/Business Manager, a full time Administrative Specialist/histologist, full time Technical Director of Imaging Center, 2 other part time histologists in the Imaging Center, matching support for 6 graduate student stipends ($63,904), and 9 matching postdoctoral fellowships ($93,461). In addition, NI continued to partner with COM and the Department of Neurology by supporting Dr. Mike McDonald, hired in 2007, until October of 2011. Dr. McDonald successfully achieved tenure and is currently supported by several NIH grants. Finally, it is important to note that the personnel amount also includes personnel employed under the research projects NI funded this past year, such as technicians.

Neuroscience Imaging Center: We retained our former Technical Director, Ms. Kathy Troughton, as a part-time histologist this past FY. We continue to pay another part-time histologist, Zerriyan Jackson, and our administrative assistant, Shannon Guyot, also works ¼ time in the Imaging Center. We supplement our cost-recovery program to keep user fees low, helping to pay the service contracts on our JEOL 2000 Electron Microscope, our BioRad Confocal Microscope, the Neurolucida workstation, and soon, the Zeiss 710 confocal

microscope, the warranty of which ends May of 2013. This year our cost-recovery program took in $55,336, which paid for our two part-time histologists and a portion of Ms. Hu's salary, and provided fees against the $21,679 paid in service contracts for the Neurolucida system and the JEOL, upgrading the image acquisition system on the JEOL 2000 ($3,200), diamond knife sharpening and acquisition ($4,930) and necessary lab supplies for fixing, embedding and cutting tissue blocks. We began a new contract service with the UTHSC Pathology Group for EM use.

Neuroscience Behavioral Core: Behavioral Core incurred no cost this past year, but has seen vigorous use of the donated equipment of this facility, managed by NI member Mike McDonald. The procedures for use and available equipment can be viewed at: http://www.uthsc.edu/neuroscience/behavioral-core/index.php. Due to the low cost of maintenance (PIs provide their own technicians to use the equipment), NI has not yet instituted fee for service in this facility. However, this may change as we look towards upgrading and adding equipment in the future.

Seminars and Symposia: Additional funds went to support travel/lodging/meals ($22,459), honoraria ($4,400), and auditorium rental ($1500) for the Neuroscience Seminar series, and for a joint symposium with the Urban Child Institute entitled: "New Initiatives for Optimizing Brain Development in Children" (**see Appendix 4**).

Research Projects: During FY 2011-2012 NI continued to pay $111,491 for several research projects originally initiated in 2010. These projects have all officially terminated as of September 2012.

Undergraduate Fellowships: NI supported three undergraduate Neuroscience Merit Fellows (total, $12,000) for summer research.

Travel Awards: $6,200 in travel awards for graduate students and travel support for faculty were awarded.

B. FY 2013. We will carryover $261,163 to the coming fiscal year, and have been appropriated $600,094 for a total of $861,257. Here is a breakdown of the major anticipated projects for FY2013:

Students: For the coming year, we have awarded matching funds for 6 graduate stipends to PIs with Neuroscience track graduate students. Mentors are located in the departments of Anatomy and Neurobiology, Neurology and Pharmacology.

Postdoctoral Support: We are providing matching funds for 7 postdoctoral fellows, at ~$15,000 each, for the coming year. The NI Mentors are located in the departments of Anatomy and Neurobiology, Neurology, Ophthalmology and Pharmacology.

Neuroscience Imaging Center: We will continue to pay the service contracts on the JEOL 2000 ($16,500), and laser replacement for the BioRad 2000 if necessary (~$10,000). Our current Neurolucida contract is good for two years. The new Zeiss 710 warranty terminates May of 2013, at which time we will have to pay a service contract of $19,000. In anticipation we have instituted a fee for service on the Zeiss. We

are currently looking into software maintenance contract for our Imaris Imaging Analysis workstation. Finally, we have learned that our excellent technical director of the Imaging Center, Yunming Hu, will be leaving Memphis as of Jan. 1, 2013. In order to make a smooth transition, we will be hiring her replacement within the next month, so the two will overlap ~two months.

Neuroscience Behavioral Core: We will continue to support the Behavorial Core in FY 2013, but expenditures are expected to be minimal. However should a need arise for additional equipment, or for a part-time assistant to help run behavioral studies, NI would consider additional funding assuming a fee for service program were initiated and approved.

NI Faculty: We will continue the administrative supplements provided to Drs. Armstrong, Reiner, and Elberger. We will consider offering a supplement to Dr. McDonald, head of the behavioral core, depending on the use of facility. However this would be no more than $5,000. Last FY, NI committed to the College of Medicine and to the Department of Anatomy and Neurobiology to help recruit into the Methodist Hospital Endowed Chair for Neuroscience vacated by Prof. Dan Goldowitz 4 years ago. This search failed to bring up a suitable candidate, and the Endowed Chair was given instead to NI co-director, Tony Reiner. NI had committed $500,000 to be spent for the first 4-5 years for this recruit. However, Dean Stern of the COM approved a search for two lower level positions, and this search generated several excellent candidates, two of whom have been offered a position in Anatomy and Neurobiology. NI will commit the $500,0000 to be split between these two candidates over the next 4-5 years, one of whom is expected to arrive on campus in January 2013, the other in July of 2013. In addition, NI and Anatomy and Neurobiology have initiated a partnership with NI member and head of the Center for Integrative and Translational Genomics to share seed money for these new recruits, and the Dean has given permission to recruit a third assistant professor for FY2014. The NI will use ~$100,000 seed money in FY2013, and approximately the same amount for FY2014-FY2018.

Research Projects and Bridge Funding. While our priority for FY2013 is assisting in NI hires, we will have funds to offer some bridge support for faculty trying to renew grants and others seeking pilot data for new projects. The exact amount will depend on the needs of the first faculty hire, expected here Jan. of 2013.

Seminar Series and Community Outreach: We will continue to fund the weekly Neuroscience Seminar series and will also sponsor a Neuroscience Symposium in the course of the academic year. We will continue to work with the Urban Child Institute to fund community outreach activities such as Brain Awareness Week and sponsor a symposium with them- this year's topic will focus on childhood obesity. We will fund the summer Undergraduate Neuroscience Merit Fellowships to Rhodes and Christian Brothers University students who are doing research projects in Neuroscience towards fulfilling their degree requirements. In addition, we will continue our practice of awarding additional undergraduate Merit fellowships to Memphians attending universities outside of Memphis, but who return to Memphis during summer vacation and who have an interest in Neuroscience.

Schedule 7

CENTERS OF EXCELLENCE/CENTERS OF EMPHASIS
ACTUAL, PROPOSED, AND REQUESTED BUDGET

Institution UT Health Science Center **Center** Neuroscience Institute

	FY 2011-12 Actual			FY 2012-13 Proposed			FY 2013-14 Requested		
	Matching	Appropr.	Total	Matching	Appropr.	Total	Matching	Appropr.	Total
Expenditures	820,490	758,106	**1,578,596**	817,246	861,257	**1,678,503**	841,763	630,099	**1,471,862**
Salaries									
Faculty	433,580	47,697	**481,277**	413,050	41,791	**454,841**	425,442	43,045	**468,486**
Other Professional	181,000	171,266	**352,266**	192,534	241,875	**434,409**	198,310	249,131	**447,441**
Clerical/ Supporting	0	72,283	**72,283**	0	41,871	**41,871**	0	43,127	**43,127**
Assistantships	86,936	178,431	**265,367**	87,500	99,500	**187,000**	90,125	102,485	**192,610**
Total Salaries	**701,516**	**469,677**	**1,171,193**	**693,084**	**425,037**	**1,118,121**	**713,877**	**437,788**	**1,151,665**
Longevity	2,300	2,195	**4,495**	3,100	2,747	**5,847**	3,193	2,829	**6,022**
Fringe Benefits	116,674	111,145	**227,819**	121,062	75,638	**196,700**	124,694	77,907	**202,601**
Total Personnel	**820,490**	**583,016**	**1,403,506**	**817,246**	**503,422**	**1,320,668**	**841,763**	**518,524**	**1,360,288**
Non-Personnel									
Travel	0	26,659	**26,659**	0	30,000	**30,000**	0	32,000	**32,000**
Software	0	9,000	**9,000**	0	5,000	**5,000**	0	1,000	**1,000**
Books & Journals	0	847	**847**	0	1,000	**1,000**	0	1,000	**1,000**
Supplies	0	111,080	**111,080**	0	78,835	**78,835**	0	83,835	**83,835**
Equipment	0	39,799	**39,799**	0	0	**0**	0	0	**0**
Maintenance	0	21,807	**21,807**	0	30,000	**30,000**	0	32,000	**32,000**
Scholarships	0	0	**0**	0	0	**0**	0	0	**0**
Consultants	0	4,400	**4,400**	0	5,000	**5,000**	0	5,000	**5,000**
Renovation	0	0	**0**	0	0	**0**	0	0	**0**
Other (Recoveries)	0	(38,502)	**(38,502)**	0	(42,000)	**(42,000)**	0	(43,260)	**(43,260)**
Startup	0		**0**	0	200,000	**200,000**	0	0	**0**
Bridge	0		**0**	0	50,000	**50,000**	0	0	**0**
	0		**0**	0	0	**0**	0	0	**0**
Total Non-Personnel	**0**	**175,090**	**175,090**	**0**	**357,835**	**357,835**	**0**	**111,575**	**111,575**
GRAND TOTAL	**820,490**	**758,106**	**1,578,596**	**817,246**	**861,257**	**1,678,503**	**841,763**	**630,099**	**1,471,862**
Revenue									
New State Appropriation		593,407	**593,407**		600,094	**600,094**		630,099	**630,099**
Carryover State Appropriation		425,862	**425,862**		261,163	**261,163**			**0**
New Matching Funds	820,490	0	**820,490**	817,246		**817,246**	841,763		**841,763**
Carryover from Previous Matching Funds	0	0	**0**			**0**			**0**
Total Revenue	**820,490**	**1,019,269**	**1,839,759**	**817,246**	**861,257**	**1,678,503**	**841,763**	**630,099**	**1,471,862**

III. EXTRAMURAL FUNDING OF NEUROSCIENCE FACULTY

The UT Neuroscience Institute remains one of the largest concentrated Neuroscience programs in the country and has achieved an international reputation as a preeminent center for Neuroscience in the United States. For FY2011-2012, as a Neuroscience department (all but one funded member is a Neuroscientist), Anatomy and Neurobiology (13 funded members) ranked ***12th among public university medical schools in NIH funding, and 26th overall (of 49).*** Other participating NI departments that are well ranked include Physiology (6 funded NI members), which was ranked ***9th among public medical schools and 16th overall*** (of 90), and Pharmacology (10 funded members), which was *ranked* ***36th and 57th,*** respectively (of 98) (Statistics from Blue Ridge Institute for Medical Research). The total annual grant dollars (total costs) currently held by faculty associated with the NI at UTHSC (*i.e.,* excluding affiliate members, such as St. Jude) is **$21,624,177.**

The research grants (current year total costs) currently held by individual faculty of the NI are listed by Principal Investigator in **Appendix 1**. Readers should note that this year we are reporting total costs instead of direct costs as these were the values given to us by the research office at UTHSC. We found it too difficult to get direct costs from the business managers of each department. In addition, please note that active grants that are in a no cost extension, but which often have funds, are not listed.

IV. HISTORY OF THE NEUROSCIENCE INSTITUTE

The Neuroscience Center of Excellence at UTHSC was established in 1985 and designated an accomplished Center of Excellence by the Tennessee Higher Education Commission in 1988. In 1998, the Neuroscience Center of Excellence was designated as the University of Tennessee Neuroscience Institute, with dedicated space in the Wittenborg, Link and Johnson buildings. The Neuroscience Center of Excellence award was designed to support graduate and postdoctoral education, to recruit and provide initial support to new neuroscience faculty, to renovate laboratory facilities, to purchase research equipment, to host symposia, a weekly seminar series, and to support community outreach programs such those associated with Brain Awareness Week. The Director from 1985-2002 was Dr. Steven T. Kitai. Dr. David Smith was named director from 2002-2006 (deceased, Sept. 2006), and Dr. William Armstrong has been director since 2006.

The program brings together neuroscience faculty members from the Departments of Anatomy and Neurobiology, Medicine, Molecular Sciences, Neurology, Neurosurgery, Ophthalmology, Pathology, Pediatrics, Pharmaceutical Sciences, Pharmacology, Physiology, Psychiatry, and Surgery, and in the Department of Biochemistry and Cellular and Molecular Biology at the University of Tennessee, Knoxville. Strong affiliations exist with Methodist University Hospital, Le Bonheur Children's Hospital, St. Jude's Children Hospital, the University of Memphis, Rhodes College, Christian Brother's University and the Urban Child Institute. The interdepartmental nature of the program and the collaborations it fosters provide the cross-

disciplinary environment necessary for high quality neuroscience research, training and patient care.

Page 2 above lists the members of the Executive Committee. This year Dr. Burt Sharp, former Chair of Pharmacology, stepped down due to illness and was replaced by Prof. Jeff Steketee from that department. The The Director and Co-Director frequently interact with Executive Committee members and consult with these members regarding research and postdoctoral awards. In these cases, applications are solicited and each application is read and ranked by at least 3 members of the committee. Final rankings are compiled by the Director and Co-Director and passed back to the Executive Committee for approval before funding.

V. FACULTY OF THE NEUROSCIENCE INSTITUTE

The Neuroscience Institute is currently comprised of 88 faculty members in several different departments on the UTHSC campus, including those with primary appointments at St. Jude Children's Research Hospital and at the University of Memphis and Christian Brothers University, and one faculty member at UT Knoxville. Faculties are listed with each department; those with primary appointments outside UTHSC or UTK are so indicated. * indicates new member.

Department of Anatomy and Neurobiology

William E. Armstrong, Ph.D., Professor and NI Director
John D. Boughter, Jr., Ph.D. Associate Professor
Joseph C. Callaway, Ph.D., Associate Professor
Angela Cantrell, Ph.D., Assistant Professor
Alessandra d'Azzo, Ph.D., Affiliated Professor (St. Jude)
Hong Wei Dong, Ph.D., Assistant Professor
Michael A. Dyer, Ph.D., Affiliated Professor (St. Jude)
Andrea J. Elberger, Ph.D., Professor
Matthew Ennis, Ph.D., Professor and Chair
Malinda E. C. Fitzgerald, Ph.D., Adjunct Professor (Christian Brothers Univ.)
Max Fletcher, Ph.D., Assistant Professor
Robert C. Foehring, Ph.D., Professor
Kristin Hamre, Ph.D., Associate Professor
Detlef Heck, Ph.D., Associate Professor
Scott Heldt, Ph.D., Assistant Professor
Paul Herron, Ph.D., Associate Professor
Marcia G. Honig, Ph.D., Professor

Eldridge F. Johnson, Ph.D., Professor

Hitoshi Kita, Ph.D., Professor

Cheng-Xiang Li, M.D., Assistant Professor

Lu Lu, Ph.D., Associate Professor

Peter J. McKinnon, Ph.D., Affiliated Associate Professor (St. Jude)

Guy Mittleman, Ph.D., Adjunct Associate Professor (Univ. Memphis)

James I. Morgan, Ph.D., Affiliated Professor (St. Jude)

Randall J. Nelson, Ph.D., Professor

Guillermo Oliver, Ph.D., Affiliated Associate Professor (St. Jude)

Melburn R. Park, Ph.D., Associate Professor

Anton J. Reiner, Ph.D., Professor and NI Co-Director

Reese S. Scroggs, Ph.D., Associate Professor

Richard J. Smeyne, Ph.D., Affiliated Associate Professor (St. Jude)

Michael Taylor, Ph.D., Affiliated Assistant Professor (St. Jude)

J. Paul Taylor, M.D., Ph.D., Affiliated Associate Professor (St. Jude)

Robert S. Waters, Ph.D., Professor

Robert W. Williams, Ph.D., UT-Oak Ridge National Laboratory Governor's Chair in Computational Genomics Professor

Stanislav Zahkarenko, Ph.D. Affiliated Associte Professor (St. Jude)

Jian Zuo, Ph.D., Affiliated Professor (St. Jude)

Department of Biochemistry and Cellular and Molecular Biology, UT Knoxville

Rebecca A. Prosser, Ph.D., Professor

Department of Medicine

Tai-June Yoo, M.D., Ph.D., Professor

Department of Molecular Sciences

Susan E. Senogles, Ph.D., Professor

Department of Neurology

Dominic M. Desiderio, Ph.D., Professor

Michael Jacewicz, M.D., Professor

Mark S. LeDoux, M.D., Ph.D., Professor

Michael C. Levin, M.D., Professor

Michael McDonald, Ph.D., Associate Professor

Thaddeus S. Nowak, Ph.D., Professor

Ronald F. Pfeiffer, M.D., Professor

William A. Pulsinelli, M.D., Ph.D., Semmes-Murphey Professor and Chair

Lawrence T. Reiter, Ph.D., Associate Professor

Department of Neurosurgery

Frederick Boop, M.D., Professor and Chair

Department of Ophthalmology

Edward Chaum, M.D., Ph.D., Plough Foundation Professor

Eldon E. Geisert, Ph.D., Professor

Alessandro Iannoccone, M.D., Associate Professor

Monica M. Jablonski, Ph.D., Associate Professor

Tonia S. Rex, Ph.D., Assistant Professor

Jena Steinle, Ph.D., Associate Professor

Dianna A. Johnson, Ph.D., Hiatt Professor

Department of Pathology

F. Curtis Dohan, Jr., M.D., Associate Professor

Department of Pediatrics, Pediatric Neurology and LeBonheur Children's Hospital

*Andrew Papanicolaou, Ph.D., Professor, Pediatrics, Le Bonheur

Kanwakheet J.S. Anand, M.D., Ph.D., Professor, Pediatrics, Le Bonheur

Masanori Igarashi, M.D., Associate Professor, Pediatric Neurology, Le Bonheur

Kathryn McVicar, M.D., Assistant Professor, Pediatric Neurology, Le Bonheur

Amy McGregor, M.D., Assistant Professor, Pediatric Neurology, Le Bonheur

Robin L. Morgan, M.D., Assistant Professor, Pediatric Neurology, Le Bonheur

Freedom F. Perkins, Jr., M.D., Assistant Professor, Pediatric Neurology, Le Bonheur
Massroor Pourcyrous, M.D., Professor, Pediatrics
James W. Wheless, M.D., Professor and Chief of Pediatric Neurology, Le Bonheur

Department of Pharmaceutical Sciences

Duane D. Miller, Ph.D., Van Vleet Professor and Chairman

Department of Pharmacy

Collin Hovinga, Pharm.D., Assistant Professor

Department of Pharmacology

Suleiman W. Bahouth, Ph.D., Professor
*Hao Chen, Ph.D., Assistant Professor
Alex M. Dopico, M.D., Ph.D., Professor
Francesca-Fang Liao, Ph.D., Associate Professor
Kafait U. Malik, Ph.D., Professor
Kazuko Sakata, Ph.D., Assistant Professor
Shannon G. Matta, Ph.D., Professor
Burt Sharp, M.D., Van Vleet Professor
Jeffery Steketee, Ph.D., Professor
Steven J. Tavalin, Ph.D., Associate Professor
Fu-Ming Zhou, M.D., Ph.D., Associate Professor

Department of Physiology

Ioannis Dragatsis, Ph.D., Associate Professor
Jonathan Jaggar, Ph.D., Professor
Charles W. Leffler, Ph.D., Professor
Kristen M.S. O'Connell, Ph.D., Assistant Professor
Helena Parfevona, Ph.D., Professor
Mitchell A. Watsky, Ph.D., Professor

Department of Psychiatry

Kenneth Sakauye, M.D., Professor and Vice Chair

Department of Surgery

Syamal Bhattacharya, Ph.D., Professor

University of Memphis

Ramin Homayouni, Ph.D., Adjunct Associate Professor, Neurology
Guy Mittleman, Ph.D., Adjunct Professor, Anatomy and Neurobiology

St. Jude Children's Hospital (see Departments Above for Affiliated Appointments)

Michael Dyer, Ph.D., Professor
Alessandra D'Azzo, Professor
Peter McKinnon, Ph.D., Professor
James Morgan, Ph.D., Professor
Guillermo Oliver, Ph.D., Associate Professor
Richard Smeyne, Ph.D., Associate Professor
Michael Taylor, Ph.D., Assistant Professor
J. Paul Taylor, M.D., Ph.D., Associate Professor
Stanislav Zakharenko, Ph.D., Associate Professor
Jian Zuo, Ph.D., Professor

VI. AREAS OF NEUROSCIENCE RESEARCH

The research programs of the faculty of NI are diverse, representing most areas of modern neuroscience research. Within the program are several strong areas of research focus, where in many instances basic scientists and clinical investigators interact to investigate the mechanisms of diseases of the nervous system. In 2002 participating faculty organized into eight research focus groups, within which there is considerable intellectual interaction and collaborative research. In spring of 2006, 3 of these focus groups were expanded to include a Translational component emphasizing interaction between clinical and basic research groups.

Neurological and Neurodegenerative Disorders

Neurological diseases include disorders of the nervous system arising from nervous system malfunction or degeneration. Among these are the movement disorders (which include Parkinson's disease, essential tremor, Huntington's disease, dystonia, myoclonus, Tourettes's syndrome, paroxysmal dyskinesias, drug-induced dyskinesias, restless legs syndrome, spinocerebellar ataxias, spasticity, multiple system atrophy, and progressive supranuclear palsy), dementing diseases (notably Alzheimer's), primary motor diseases (such as amyotrophic lateral sclerosis and multiple sclerosis), and diseases of neurotransmission abnormality (such as epilepsy). The integration of genetic, cellular, and physiological information will be required to unravel the pathophysiology of each disorder and improve therapeutics. Due to aging of our population, movement disorders and dementing diseases will place an enormous and increasing financial burden on society. Investigations by this group will play an important role in the breakthroughs needed to understand and treat these diseases. Current areas of focus include: cellular and network physiology of basal ganglia in the context of Parkinson's disease, neurobiology of neuronal dysfunction and death in Huntington's disease, and molecular biology of synaptogenesis in dystonia. Faculty also study the potential protective effects of hypothermia on cerebral ischemic insults, Alzheimer's disease, and molecular mimicry in immune-mediated neurological disease.

Faculty:

M. LeDoux (head)	*Neurology*	T. Nowak	*Neurology*
A. Cantrell	*Anat. & Neurobiology*	A. Papanicolaou	*Ped. Neurology/Le Bonheur*
I. Dragatsis	*Physiology*	R. Pfeiffer	*Neurology*
E. Geisert	*Ophthalmology*	W. Pulsinelli	*Neurology*
R. Homayouni	*U of Memphis*	A. Reiner	*Anat. & Neurobiology*
M. Jacewicz	*Neurology*	L. Reiter	*Neurology*
H. Kita	*Anat. & Neurobiology*	R. Smeyne	*Anat. & Neurobiology/St. Jude*
M. Levin	*Neurology*	R. Waters	*Anat. & Neurobiology*
F-F. Liao	*Pharmacology*	J. Wheless	*Ped. Neurology/Le Bonheur*
R. Nelson	*Anat. & Neurobiology*		

Excitable Properties of Neurons

Behavior, mentation and physiological homeostasis are all a function of neuronal activity in the nervous system. This activity can be encoded by membrane polarity or in the rates and patterns of neuronal action potentials. Information is passed among neurons through synaptic transmission. Whether a neuron fires at any given moment is determined by the interaction of intrinsic membrane properties with synaptic inputs. Research in this group focuses on these properties from several viewpoints. At the molecular level, studies determine the

genetic capacity for producing proteins related to specific ion channels and neurotransmitter receptors. Expression patterns of the proteins in classes of neurons impart a unique signature of ion channels and receptors. Electrophysiological recordings can reveal the properties of ionic currents underlying particular patterns of firing, the modulation of these currents by neurotransmitters, the precise properties of synaptic input, and the plasticity of neuronal activity. At a more global level, neuronal activity can be studied within an intact neuronal network and correlated with behavior. The common goal of this group is to understand how and why neuronal activity occurs in both normal tissue and in neurological disorders.

Faculty:

R. Foehring (head)	*Anat. & Neurobiology*	D. Heck	*Anat. & Neurobiology*
W. Armstrong	*Anat. & Neurobiology*	H. Kita	*Anat. & Neurobiology*
J. Callaway	*Anat. & Neurobiology*	R. Nelson	*Anat. & Neurobiology*
A. Cantrell	*Anat. & Neurobiology*	R. Scroggs	*Anat. & Neurobiology*
A. Dopico	*Pharmacology*	S. Tavalin	*Pharmacology*
M. Ennis	*Anat. & Neurobiology*	R. Waters	*Anat. & Neurobiology*

Sensory Information Processing

Sensory systems extract information from the environment and provide the nervous system an interface with the outside world. Understanding the way in which this information is represented in neuronal activity is the focus of this research group. To understand sensory processing, we need to address the genetic basis of sensory function, the coding of information by individual sensory neurons at several levels of the nervous system, from peripheral receptors to cerebral cortex, and the role of the environment in shaping the responsiveness of these neurons through mechanisms of neuronal plasticity. Interactions between somatosensory and motor cortices, the effects of early alcohol exposure on sensory and motor processing, the control over gustatory information processing by descending influences from limbic forebrain, the genetics of taste processing, the processing of nociceptive (pain) information, and synaptic processing in the olfactory bulb are all areas of research addressed by this group.

Faculty:

M. Ennis (head)	*Anat. & Neurobiology*	R. Nelson	*Anat. & Neurobiology*
J. Boughter	*Anat. & Neurobiology*	R. Scroggs	*Anat. & Neurobiology*
M. Fletcher	*Anat. & Neurobiology*	R. Waters	*Anat. & Neurobiology*
C.-X. Li	*Anat. & Neurobiology*		

Vision and Retina

We rely primarily on our sight to guide us through the world. Our eyes provide the major sensory input to the brain, accounting for one-third of the sensory axons entering the human nervous system. Understanding the normal function of the eye and the way this process is affected by disease is the primary interest of this group. Researchers are addressing the normal development of the eye as well as the genetic basis of function and disease. The current program reflects a comprehensive and synergistic approach to important fundamental questions of eye genetics and development and the application of this new strategy to the treatment of disease. These investigators seek to understand normal and abnormal ocular development and how genes control these events. There is an active program in the application of molecular techniques to the modulation of retinal cell growth and cellular responses to injury using gene therapy. Current areas of focus include prevention and treatment of eye diseases and disorders, eye genetics in development and childhood diseases, retinal degenerative diseases, anterior segment disorders, response of the retina and optic nerve to injury, and genetic control of eye development. The primary goal of the vision and retina research group is to provide a framework for effective communications between research laboratories effecting eventually the translation of basic research to clinical applications.

Faculty:

E. Geisert (head)	*Ophthalmology*	A. Reiner	*Anat. & Neurobiology*
E. Chaum	*Ophthalmology*	T. Rex	*Ophthalmology*
M. Dyer	*Anat. & Neurobiology/St. Jude*	J. Steinle	*Ophthalmology*
M. Fitzgerald	*Anat. & Neurobiology/CBU*	M. Watsky	*Physiology*
A. Iannaccone	*Ophthalmology*	R. Williams	*Anat. & Neurobiology*
M. Jablonski	*Ophthalmology*	J. Zuo	*Anat. & Neurobiology/St. Jude*
D. Johnson	*Ophthalmology*		

Neurogenetics and Development

This group is interested in gaining a deeper understanding of the origins of the impressive structural and functional complexity, diversity, and plasticity of the nervous system. Experimental and technical expertise of this group is broad, ranging from genetic and molecular analysis of the early stages of central and peripheral nervous system development to sophisticated functional assays of neuronal plasticity in response to environmental manipulations. The group is highly collaborative and includes a significant contingent of neuroscientists from St. Jude Children's Research Hospital (primarily the Departments of Developmental Neurobiology and Genetics). Current research tends to rely heavily on genetically defined lines of rodents.

Topics of this research interest include: control of cell cycling and cell death in the brain, control of axon outgrowth and neurotrophic interactions during neural development, the formation, elimination and stabilization of synapses, functional maturation and environmental/drug sensitivity of the developing nervous system, genetics of disease vulnerability and outcome, and mechanisms of cell migration in the developing brain.

Faculty:

R. Williams (head)	*Anat. & Neurobiology/Pediatrics*	P. McKinnon	*Anat. & Neurobiology/St. Jude*
J. Boughter	*Anat. & Neurobiology*	G. Mittleman	*Anat. & Neurobiology/U Memphis*
A. d'Azzo	*Anat. & Neurobiology/St. Jude*	J. Morgan	*Anat. & Neurobiology/St. Jude*
I. Dragatsis	*Physiology*	G. Oliver	*Anat. & Neurobiology/St. Jude*
A. Elberger	*Anat. & Neurobiology*	A. Reiner	*Anat. & Neurobiology*
K. Hamre	*Anat. & Neurobiology*	L. Reiter	*Neurology*
R. Homanyouni	*Neurology/U Memphis*	B. Sharp	*Pharmacology*
M. Honig	*Anat. & Neurobiology*	R. Smeyne	*Anat. & Neurobiology/St. Jude*
L. Lu	*Anat. & Neurobiology*	R. Waters	*Anat. & Neurobiology*

Mental and Addictive Disorders

Mental and addictive disorders are due to changes in normal brain function. This research group collaboratively explores changes in brain function that might explain mental disorders, such as depression and addiction, and drug-induced changes in brain function that may be responsible for relieving mental disorders or producing addiction. Research is currently being conducted using both *in vivo* and *in vitro* models. Molecular, cellular, neuroanatomical, neurophysiological, neurochemical, morphological and behavioral approaches are all being used to study the neuroscience of mental and addictive disorders. Research efforts are currently focused on depression and antidepressants and drugs of abuse, including cocaine, amphetamine, nicotine, ethanol and toluene. Several collaborative efforts currently exist within the group, including studies on drug effects on ion channels, drug-receptor adaptations, developmental neuroplasticity and interactions between stress and drugs.

Faculty:

B. Sharp (Head)	*Pharmacology*	S. Matta	*Pharmacology*
H. Chen	*Pharmacology*	K. Sakata	*Pharmacology*
A. Dopico	*Pharmacology*	J. Steketee	*Pharmacology*
A. Elberger	*Anat. & Neurobiology*	S. Tavalin	*Pharmacology*

K. Hamre	*Anat. & Neurobiology*	F. Zhou	*Pharmacology*
S. Heldt	*Anat. & Neurobiology*		

Neural Cell Signaling

The function, growth and survival of neural cells are regulated by extracellular and intracellular signals. One example is the release of neurotransmitter from a presynaptic neuron, which is sensed by the postsynaptic neuron via receptors that recognize specific neurotransmitter molecules. This information is relayed to the cell's interior by a series of elaborate and interdependent signaling intermediates and results in a change in the cell in response to its environment. This diverse group of researchers is investigating those processes that are collectively referred to as signal transduction using neural or neural-derived cell systems. Indeed, most drugs that are currently used in the management of neurological disorders, such as ADHD, depression, schizophrenia, Parkinson's disease and others, exert their effects on signaling components. The goal of this group is to understand the involvement of signal transduction in both the normal functioning of neural cells and those pathological changes that are manifested in neurological disorders. Current areas of emphasis include: G-protein-coupled receptor signaling and regulation, growth factor receptor signaling, apoptosis, cellular migration, and mechanisms of neuronal injury and repair.

Faculty:

S. Senogles (Head)	*Molecular Sciences*	D. Johnson	*Ophthalmology*
S. Bahouth	*Pharmacology*	M. LeDoux	*Neurology*
E. Chaum	*Ophthalmology*	K. Malik	*Pharmacology*
R. Foehring	*Anat. & Neurobiology*	S. Tavalin	*Pharmacology*
M. Jablonski	*Ophthalmology*	R. Waters	*Anat. & Neurobiology*
J. Jaggers	*Physiology*	T. Yoo	*Medicine*

Translational Neuroscience

The NI promotes three **Translational Neuroscience** focus groups.

Focus 1: Neurodegenerative Diseases (Leader, M. LeDoux, M.D., Ph.D., Neurology, UTHSC)

Human thought and behavior are a function of nervous system activity. Neurodegenerative diseases attack both, often simultaneously, and in the worst cases lead to years of debilitation and death, with the aged especially vulnerable. The substantial burden on the family as well as the health care system is obvious. Dissection of specific human neurological diseases in order to identify therapeutic targets and implement disease-modifying therapies requires expert clinical neurologists and neuroscientists with skill sets that cover the gamut from neurophysiology and neuropharmacology, to molecular neurobiology and neurogenetics. The

NI contains several strong areas of disease-specific research, where basic scientists and clinical investigators interact to investigate the mechanisms of relatively common sensory-motor disorders like Parkinson's disease. Concomitantly, clinical neuroscience research related to many of the movement disorders is robust. Thus, the framework is in place at UTHSC for a vigorous program of translational Neuroscience research in the area of neurodegenerative diseases.

Neurodegenerative disease impacts a significant percentage of the U.S. population, and in many disorders the occurrence increases with age. For example, Parkinson's disease currently affects ~1.5 million people in the U.S., but 1 in 100 people over the age of 65 are afflicted, with the average age of onset being 60 years (National Parkinson's Foundation; CDC). Although the national prevalence of Alzheimer's disease is ~1.5% (afflicting some 4 million people), the frequency increases to 3% for men and women between ages 65-74, and it is estimated that 50% of those reaching 85 may have the disease (CDC; NIMH)! Multiple sclerosis currently afflicts some 400,000 U.S. citizens, but Tennessee has a rate higher than the national average. Neuropathy (a.k.a., neuritis), a peripheral nervous system inflammation producing pain, loss of sensation, and/or loss of muscular control, may be the most common single nervous system disorder, as it also accompanies many diseases of non-neuronal primary origin. Most notably, neuropathy accompanies 80% of the cases of type II diabetes, a disease found in some 8 million Americans and in a disproportionately high percentage of Tennesseans. Most recently, investigators studying traumatic brain injury (TBI) have linked TBI sympoms and pathology to a variety of neurodegenerative disesases, especially Alzheimer's and Parkinson's disease. The NI has made a concerted effort to support TBI initiatives this year (see below).

This year, NI funded several investigators studying neurodegenerative disease or TBI: Ioannis Dragtasis ("Generation of a Mouse Model for Spastic Paraplegia 17"), Eldon Geisert ("Crystallin Network and Neuroprotection"), Andrea Elberger ("Novel Drug Effects on Traumatic Brain Injury"), Anton Reiner ("Pilot Studies for Head Traumatic Brain Injury"), Monica Jablonski ("Ocular Toxicity and Pharmacokinetics Studies of a Novel Drug and Nanoparticle Delivery System"), and Jena Steinle ("Mechanism of Actions of a Novel Beta-Adrenergic Receptor Agonist that Prevents/Reverses Diabetic Retinopathy"). In addition, we have approval from the College of Medicine to help hire 3 new neuroscientists, and two of the three top candidates are all studying neurodegenerative disease, including Parkinson's and Alzheimer's/Aging.

Translational Research Areas:

The primary efforts of NI faculty have been in the areas of Parkinson's disease, Alzheimer's disease, Huntington's disease, TBI, and multiple sclerosis. Presently there are clinical trials covering Parkinson's, Huntington's disease, dystonia, restless legs syndrome, neuropathy and multiple sclerosis in the Dept. of Neurology at UTHSC. In support of this clinical research, many basic scientists in the NI are studying the related brain areas, including neuroanatomists, neurophysiologists and neurogeneticists. Translational research

initially will focus on the genetic basis of disease and its susceptibility to treatment. Disease-associated DNA polymorphisms and their gene products will represent a strategic target for the group.

Focus 2: Brain, Mind and Behavior (Leader, Jeff Steketee, Ph.D., Pharmacology, UTHSC.)

The central nervous system is the target of the drugs that are abused by individuals at all ages. It is the reinforcing properties of these drugs that initially lead to abuse. Subsequently, long-term changes in brain chemistry and morphology take place, resulting in drug craving and severe disruption of normal behavior and social functioning. A translational approach to drug abuse research will foster interactions between basic and clinical investigators that engender a more powerful understanding of the impact of drugs of abuse on brain and behavior. Routine cooperation and collaboration between basic and clinical scientists will also result in the identification risk factors for abuse within subpopulations of Tennesseans, along with novel therapies that target high risk groups.

Memphis is no exception to the national trend in drug abuse and its co-morbid disorders (e.g., depression). Compared to 5 of its 8 neighboring states, Tennessee has higher rates of illicit drug use by its entire population (National Household Survey on Drug Abuse, 1999 and 2000). The association between depression and drug abuse is shown based on national figures. The high level of drug abuse amongst Tennesseans 12 years of age or older involves a large number of individuals: 286,000 persons per month used various illicit drugs (e.g., cocaine, marijuana), of which 48,000 were teens between 12 and 17 years of age. In addition, one million three hundred thirteen thousand (1,313,000) Tennesseans, age 12 or older, used tobacco – a known gateway to the use of illicit drugs. Of these, 78,000 teens used tobacco products. On a national scale, the interaction between illicit drug abuse and depression is demonstrated by the markedly increased prevalence of substance abuse among all individuals aged 12 or older who suffered a major depressive episode during 2004: 28.8% of those who suffered a major depressive episode used illicit drugs compared to 13.8% of those who did not experience a major depressive episode. Moreover, the prevalence of heavy alcohol use or cigarette smoking was higher in those who suffered a major depressive episode (alcoholism 9.2% vs. 6.9%; cigarette smoking 25.5% vs. 15.1%). In addition, we have approval from the College of Medicine to help hire 3 new neuroscientists, and one of the three top candidates is studying the genetics of schizophrenia, and another is studying the effects of ethanol on the neurons involved in Parkinson's disease.

Translational Research Areas:

- Drug abuse and co-morbid disorders

A major goal of this focus is the development of new definitions for clinical subtypes that depend on specific neurochemical, genetic and brain imaging patterns in patients, along with accurate behavioral profiling of antecedent history and response to intervention utilizing specific agents in clinical trials. These studies will entail reciprocal interactions between basic and clinical investigators, along with critical support from core

facilities for genotyping (i.e. ID of single nucleotide polymorphisms, repeats, inversions, translocations, etc.) of probands and multigenerational families. fMRI imaging facilities will be critical in order to gain insight into brain dysfunction and its response to drug trials. Basic scientists will apply molecular, electrophysiological, neurochemical, behavioral and fMRI imaging technologies in animal models to understand fundamental aspects of the interaction between drugs of abuse and co-morbid disorders. Many of these interactions are based on known clinical observations, although novel clinical data, which further refine the hypotheses of basic neuroscientists, will undoubtedly derive from meticulous, high resolution, multi-parameter clinical studies. Our existing electrophysiological, neurochemical and behavioral equipment, facilities and faculty expertise in these areas are strengths of UTHSC. Existing genetic models along with novel knock-ins of homologous human mutations in mice will be powerful arrows in the quiver of basic scientists. This will require molecular expertise for the development of suitable genetic constructs and reliable, committed core expertise to generate, breed, validate and house recombinant mice. Adolescents are especially vulnerable to dependence on drugs of abuse, and this dependence is often a lifelong struggle. Therefore, initially, these studies will focus on adolescents in both human populations and animal models.

- Vulnerability to, and developmental effects of drug abuse

Vulnerability to drug abuse is little understood, but certainly varies with age, as do the effects of drugs of abuse on brain function. Both vulnerability to abuse and drug effects may in turn reflect age-dependent alterations in neuronal connectivity and neuron function within the brain regions and circuits that subserve the associative learning and reinforcing properties of drugs and the response to environmental stressors and co-stimuli associated with drug seeking behavior. Thus, basic and clinical collaborations will identify biological markers of vulnerability to drug abuse in human populations and animal models of drug exposure initiated within the following time periods: gestation, adolescence, young adult, and geriatric. These studies will utilize the core fMRI imaging and genotyping technologies, along with the range of approaches mentioned in the foregoing paragraph.

Focus 3: Brain Development (Leader, Rob Williams, Ph.D., Anatomy & Neurobiology, UTHSC)

Understanding brain development is key to understanding adult cognition and behavior. Developmental dysfunctions can occur through inheritance, through pre- and perinatal trauma or toxicity, or even from the lack of meaningful social interaction during early life. Disorders with a strong clinical base (e.g., LeBonheur, Boling Center) include autism, learning disabilities, attention deficit disorders and epilepsy. Basic research ranges from genetic and molecular analysis of the early stages of central and peripheral nervous system development, to sophisticated functional assays of neuronal plasticity in response to environmental manipulations. We also anticipate considerable overlap with the Drug Abuse focus group as relates to brain development (see above). The group is highly collaborative and includes a significant contingent of neuroscientists from St. Jude Children's Research Hospital (primarily the Departments of Developmental Neurobiology and Genetics) and

the University of Memphis. The genetics aspect in particular has received worldwide recognition in providing the Mouse Brain Library as well as other shared, web-based data sources. Last but not least, both clinicians and researchers in this area have strong ties to the Urban Child Institute to lead us out of the parochial realm of a medical school to be engaged and enriched by multidisciplinary approaches that focus on children aged 9 months to 3 years.

Translational Research Areas:

- Autism

Autism and associated autism spectrum disorders (ASDs) have received a major focus from funding agencies and represent an exciting window into understanding higher brain function. ASDs are brain development disorders characterized by abnormal social interactions, communication abilities, patterns of interests, and patterns of behavior. Whereas NIH lists frank autism prevalence at about 0.1%, according to the National Autism Association, 1 in 150 children have an ASD. To date, researchers have found several genes associated with ASDs. Fortunately for UT, the study of ASDs has a strong clinical component at the Boling Center and UT Pediatrics. There is a core of basic scientists within the NI interested in ASDs, covering behavioral, genetic and neuronal developmental aspects of animal models. We have the potential to develop strong collaborations with the Univ. of Memphis and Vanderbilt University.

- Pediatric Epilepsy

Epilepsy is a relatively common disorder affecting ~1% of the U.S. populace (Epilepsy Foundation; Center for Disease Control). More striking is that some 10% of the population will suffer a seizure during their lifetime. Characterized by uncontrolled brain seizure activity, epilepsy can have multiple origins (genetic, trauma) and a spectrum of seizure types. For children, the first year of life carries the highest risk, where seizures can be damaging and life threatening. Childhood epilepsy (~ ½ of the epilepsy cases nationwide) is more likely to be associated with genetic origins compared to adults, where stroke and accidents play greater roles. Epilepsy also targets minorities and those of lower socio-economic status with greater frequency. While in many cases seizures are well controlled with medication, a significant number of children are resistant to medical treatment, and other treatments carry significant side effects. "Designer drugs" for epilepsy provide increased hope of a better quality of life for many young patients with epilepsy. Neurologists and Neurosurgeons at Le Bonheur are investigating anti-seizure medications not yet on the market, and will be using state of the art magnetoencephalography to assess drug actions on human brain activity. This work could benefit from translational interactions as basic researchers discover the mechanisms of actions of anti-epileptic drugs and help refine compounds to more precisely target seizure activity while avoiding debilitating side effects. Additional neurophysiological investigation of excised, epileptic tissue would help uncover the mechanisms underlying epileptic foci.

VII. FACULTY PUBLICATIONS

The Neuroscience faculty at UTHSC is consistently productive, both in terms of peer-reviewed publications and participation in the national neuroscience community. Their competitiveness for extramural funding is the strongest possible measure of the faculty's excellence, as it reflects not only the quality of their research and publications, but also their national and international reputations. Lists of 1) peer-reviewed journal publications during the last academic year, as cited in PubMed, and 2) presentations at the 2011 meeting of the Society for Neuroscience in Washington, D.C., are presented in **Appendix 2**. These 212 PubMed-cited publications do not include the many chapters, reviews and other articles written by NI faculty. NI faculty members are indicated in **bold** in **Appendix 2.**

VIII. GRADUATE AND POSTDOCTORAL TRAINING

The Graduate education at UTHSC has moved away from department-based graduate programs to a single Integrated Biomedical Sciences Program (IBSP) for students in the health sciences. The students matriculate into this integrated program, but within the IBSP, each student chooses one of a number of tracks, of which Neuroscience is one. Students who enter the graduate program are eligible for predoctoral stipends and a waiver of tuition. NI funds matching level stipends for the third and fourth year for students in the Neuroscience Track. UTHSC has agreed to pay all IBS stipends prior to placement in labs, during which time they take coursework and do research rotations.

Students in the Neuroscience track take a sequence of several graduate core courses. In the first year, students enroll in Neuroscience Seminar, Neuroscience Student Symposium, Functional Neuroanatomy, and one of three courses offered in alternate years- students must take two of these three courses: Cellular Neuroscience, Behavioral Neuroscience or Developmental and Molecular Neurobiology. Students must also take a Statistics class, either at UTHSC or University of Memphis. A wide variety of additional courses are available to Neuroscience graduate students on the UTHSC campus, including courses in biochemistry, physiology, pharmacology, histology, and genetics.

In addition to their coursework, graduate students register for 3-4 laboratory rotations during the first year of graduate study in order to help them choose a research mentor. They typically then enter a laboratory during their second year and begin to acquire the specialized training they will need to complete their doctoral dissertations. The Ph.D. degree is granted through the College of Graduate Health Sciences. The degree requires a minimum of six semesters of graduate work and normally requires from four-six years to complete.

During the past academic year, NI supported matching stipends for 6 students. In addition 9 postdoctoral fellows were supported with matching funds. Two graduate students previously supported by the NI were

awarded the Ph.D. this past year. NI has taken a more active role in the national recruitment efforts for the graduate program (see Goals below and **Appendix 4**).

IX. NEUROSCIENCE SEMINARS AND SYMPOSIA

During the 2011-2012 academic year, the NI sponsored the weekly Neuroscience Seminar Series, hosting 28 seminars. Of these, 23 neuroscientists from outside UTHSC and 5 within the NI presented their recent research findings to UT faculty and students. The NI seminar series serves as the basis for a graduate course, Neuroscience Seminar (ANAT 821), which is attended by all neuroscience track IPBS graduate students and within which they read papers by and meet with the visiting scientists. This seminar program is vital to the Neuroscience Track of the Graduate Program and to the entire UT neuroscience community, serving to keep our faculty and students abreast of recent developments and, perhaps even more important, to showcase our strengths to national and international leaders in neuroscience research visiting our campus. NI also assists in the Student Seminar course (course director William Armstrong), where students give seminars and receive critical feedback from their colleagues. A complete list of FY 2011-2012 seminar speakers and their topics is provided in Appendix 3.

NI continued its long-standing collaboration with the Urban Child Institute for a symposium on **"New Initiatives for Optimizing Brain Development in Children".** This symposium had 185 attendees (primarily those involved with care of infants to preK children) and received news coverage in the Commercial Appeal and the University Record (**Appendix 4**). Speakers were Dan Goldowitz, Ph.D. **("The Malleable Brain: In Good Times and Bad")** and Clyde Hertzman, M.D. ("**A New Method For Measuring Social And Cognitive Development Leads To New Initiatives For Child Development"**), both from the University of British Columbia, Vancouver, BC, Canada. The NI also partnered with the Urban Child Institute, the CANDLE study group, and the Department of Preventive Medicine on a day-long conference that preceded these talks entitled ***"Social Determinants of Cognitive Development"***. This event featured 4 outside speakers and six local speakers, including NI members Dr. Rob Williams and Dr. Andrew Papanicolaou. A flyer for this event is also shown in **Appendix 4**.

X. GOALS OF THE INSTITUTE AND RECENT ACCOMPLISHMENTS

Four long-range goals of the UT Neuroscience Institute were established in 1985 and set to promote excellence in Neuroscience research, education and patient care at UTHSC. In the past 4 years we have made a concerted effort to promote Neuroscience at UTHSC, providing funds for numerous clinical and basic science research projects, and funding postdocs in NI labs.

Goal 1. Augment our already strong research efforts in Neuroscience by a) recruitment of new faculty, b) renovation of facilities, c) acquisition of equipment, d) developing major programmatic activities, and e) creating a focal point to promote the exchange of information among our research faculty.

1a. Faculty recruitment. We added no new recruits to NI this past year. However we are now partnering with the College and Medicine and Anatomy and Neurobiology with a recruitment to fill the vacant Methodist Hospital Endowed Chair in Neuroscience. NI will commit $500,000 over 5 years toward the seed/salary package to a successful recruit. The ad for this recruitment is being developed and should go out in late September 2012.

1b. Renovations. NI has designated space in the Neuroscience Imaging Center (3rd floor Link Building) and an Administrative Suite (426 Wittenborg building) containing a conference room, 4 offices and a common room. ***In September of 2011 we also established the Neuroscience Behavioral Core (http://www.uthsc.edu/neuroscience/behavioral-core/index.php).*** NI partnered with UTHSC Executive Vice Chancellor's office in renovating and preparing this space.

1c. Acquisition of equipment/Imaging Center. In the past, NI has contributed matching funds for multi-user equipment grants, including those obtained from NIH for an electron microscope, for two confocal microscopes, for a computerized light microscope for three-dimensional neuronal reconstructions, and a high resolution digital camera attachment for the electron microscope, all are located in the Neuroscience Imaging Core and are maintained and supervised by a dedicated Technical Director (Yunming Hu) provided by the NI. The web site for the Imaging Center is constantly refreshed: (http://www.uthsc.edu/neuroscience/imaging-center/index.php?doc=m_content.inc) and features on line scheduling. This year we upgraded the digital imaging acquisition system for the JEOL 2000, including new capture board, computer and software.

1d. Developing major programmatic activities. Several areas of research focus exist within the NI and are consolidated into seven research groups. These areas include: 1) Neurological and Neurodegenerative Disorders, 2) Vision and Retina, 3) Neurogenetics, Development and Evolution, 4) Sensory Information Processing, 5) Excitable Properties of Neurons, 6) Mental and Addictive Disorders and 7) Neural Cell Signaling. These areas of focus provide for interaction among faculty in different departments and promote collaborative research activities, focused journal clubs, and other programmatic interactions conducive to interdisciplinary neuroscience research and training. The details of this organization are provided above.

NI has embarked on a mission to support the acquisition of programmatic grants by supporting Research Project grants, and to further clinical neuroscience research on campus. This past year we funded two projects

on Traumatic Brain Injury, which led to several grant applications to NIH and the DOD. NI support grants to Jena Steinle, Eldon Geisert and Tonia Rex for eye research in the Department of Ophthalamology led directly to the recent acquisition of NIH, DOD and NEI grants.

1e. Creating a focal point to promote the exchange of information among our research faculty. There are several avenues for the exchange of information:

1) Over 200 posters describing the interdisciplinary Graduate and Postdoctoral Program in Neuroscience are distributed yearly to undergraduate institutions around the country (**see Appendix 4**) .

2) The NI Neuroscience Seminar series is a major mechanism for interaction among neuroscience faculty and students and brings outstanding neuroscientists from around the world to the UTHSC campus. During the past year, there were 28 seminars: 23 by visiting neuroscientists and 5 by UTNI faculty. Announcements are mailed to all participating faculty and students and are posted at various points throughout the UTHSC campus and a list of speakers is shown in **Appendix 3**.

3) There are several web servers maintained by NI or by NI faculty. The main NI site provides information on the NI and is a recruitment tool to attract first-rate neuroscience students and faculty. This site, at http://www.uthsc.edu/neuroscience/ now includes all of the services offered by the Neuroscience Imaging Core, the Behavioral Core, a list of NI supported research projects, recenting external funding of NI members, the Neuroscience Undergraduate Merit Scholars, Neuroscience Track students, and many other items. Other servers are run by NI member and Governor's Chair, Rob Williams and offer Neuroscience faculty worldwide an avenue to present their research findings and search neurogenetic data, and is used daily by more than 100 scientists throughout the world. The servers may be found at: http://www.nervenet.org, http://www.genenetwork.org/, http://www.mbl.org/, http://www.complextrait.org/, and include the GeneNetwork, Mouse Brain Library, Complex Trait Analysis, Virtual Microscopy, Web QTL Project, among others.

4) Ms. Fleming also maintains 3 servers for NI members. One server is for file exchange for users of the Imaging Center. All images are now digitally acquired from our confocal and electron microscopes, and these can be uploaded to this site by users, stored for a month, and downloaded at their convenience during that period. We also maintain a server for archiving all of our NI business, and a third server is maintained for the department of Anatomy and Neurobiology, which contains the largest single group of neuroscientists on campus.

5) NI maintains online scheduling calendars for the NI Imaging Center, Behavioral Core, and two conference rooms.

Goal 2. Promote education and research training in Neuroscience at the predoctoral (including undergraduate and graduate students, dental, medical and other professional students and minority students) and postdoctoral

(including Ph.D.s, interns and residents) levels of students at UT and other Tennessee institutions.

2a. Training for underprivileged students continues to be active and supported by NI neuroscientists and their laboratories through funds from the state of Tennessee, the college of Pharmacy, and Rust College. NI involvement comes primarily under the **Prescience Program** (part of a Summer Research Scholars Program administered by UTHSC graduate college), which provides financial support for summer research internships, and is administered by NI member Prof. E. J. Johnson. The **Prescience Program** provides basic science career exposure (research laboratory apprentice-preceptorship) and basic science skills reinforcement activity for scholarly oriented high school and college minority students. Students are paired with an undergraduate apprentice with a Ph.D. or M.D. biomedical scientist preceptor in a one-to-one relationship. This association and environment are designed to inform the student of the undergraduate prerequisites and essential course work that are required to pursue doctoral studies and to inform them of the demands and relevance of communication skills, mathematics, and science to the conduct of biomedical research.

2b. This year marks the seventh year for awarding ***Undergraduate Neuroscience Merit Scholarships*** to outstanding undergraduates at Rhodes College, Christian Brothers University (CBU) and students at other undergraduate institutions with Neuroscience programs who return home to Memphis in the summertime. The Rhodes and CBU scholars work on independent projects for their undergraduate thesis. The scholars (and mentors) for 2012 were Kate Stewart of Rhodes College (Dr. Scott Heldt), Lydia Hyatt of CBU (Dr. Max Fletcher), and Colleen Valdez of CBU (Dr. Larry Reiter). The mentors are in Neurology, and Anatomy and Neurobiology.

2c. In 2011 -2012 NI supported the stipends of 6 students. ***We continue to support the recruitment of graduate students into the Neuroscience Track of Interdisciplinary Program for Biomedical Sciences by creating and circulating a flyer to 200 different undergraduate biology, psychology, and neuroscience programs nationwide.*** A copy of the flyer can be found in **Appendix 4.** We recently pledged matching funds for another 6 Neuroscience Track students for FY 2012-2013. NI provides a conference room for many activities, including student classes. Students engage our outside speakers each week, both in scientific meetings as part of the Seminar Class, but socially as well. Students are included in faculty lunches with outside speakers, as are postdocs. Students are also encouraged to pick one of the outside speakers each year.

2d. In 2011-2012 NI supported matching funds for 9 postdoctoral students, and have committed to 5 postdocs for FY 2012-2013.

Goal 3: Hasten the application of the latest and most promising scientific information to the clinical

treatment of neurological disorders (*e.g.*, Parkinson's disease, Alzheimer's disease, stroke, spinal cord injury, neurotrauma, brain tumors, cognitive disorders, drug addiction, and multiple sclerosis) by integrating educational and research programs.

3a. The Neuroscience Seminar series and Symposia encourage participation by the faculty, and collaborative research activities, especially those between basic scientists and clinical faculty. Several of the research focus areas of the NI are devoted primarily to study of the basic biology of human disease, including the groups for Neurological and Neurodegenerative Disorders, Neuro-oncology, Vision and Retina, and Mental and Addictive Disorders. This aim was addressed by our Neuroscience seminar series (**Appendix 3**) and the Urban Child annual symposia (**Appendices 3, 4**), which are detailed above.

3b. Research Projects funded by NI. During 2011-2012 the NI and its Executive Committee continued programmatic support of Neuroscience Research on campus. Proposals were solicited and awarded on merit after review by the executive committee and some outside reviewers. Proposals that continued in the past fiscal year utilized $111,491 of the original $331,380 allocated 1-2 years ago to 13 different scientists from 7 different departments.

-**Basic Science**. Projects with continued funding this past FY (with original amount in parentheses).

Anatomy and Neurobiology/Pharmaceutical Science
-Andrea Elberger/Bob Moore "Novel Drug Effects on Traumatic Brain Injury" ($30,000)
-Tony Reiner "Pilot Studies for Head Traumatic Brain Injury" ($50,000)

Ophthalmology
-Jena Steinle "Mechanism of Actions of a Novel Beta-Adrenergic Receptor Agonist that Prevents/Reverses Diabetic Retinopathy" ($30,000)
-Eldon Geisert "Crystallin Network and Neuroprotection" ($30,000)
-Monica Jablonski "Ocular Toxicity and Pharmacokinetics Studies of a Novel Drug and Nanoparticle Delivery System" ($30,000)

Pediatrics/LeBonheur/Neurology
-Kathryn McVicar/Larry Reiter "Biomarker Discovery in Children with Autism plus Familial Autoimmune History" ($25,000)

Pharmacology
-Steve Tavalin "New Pathways Controlling Ionotropic Glutamate Receptors" ($20,000)

Physiology
Ioannis Dragatsis "Generation of a Mouse Model for Spastic Paraplegia 17" ($30,000)

-**Clinical Research.** Included were the continued funding of two clinical pilot project lines for patient-based research on children **(infant epilepsy biomarkers, and autism biomarkers).** These two clinical projects were matched by COM. Dr. Massroor Poucyrous, M.D., Professor of Pediatrics, finished her second year of

funding. Kathyrn McVicar, Assistant Professor of Pediatrics, finished her final year of funding for her project on autism.

-**Neurotrauma Research**. NI actively supports traumatic brain injury research, and recently awarded a development project on Traumatic Brain Injury to NI co-director Dr. Tony Reiner, who is working in collaboration with the Department of Ophthalamology on neuroprotective drugs effective in concussive injury, and to Andrea Elberger and Bob Moore, who are working with Pharmaceutical Sciences to develop neuroprotective drugs in the cannabinoid family. Both researchers are using an air cannon designed in the Department of Ophthalamology in order to deliver precise concussive head blows, mimicking explosion induced concussions. These projects officially terminated this summer, and have led to grant submissions to NIH and DOD.

-**Postdoctoral Research Awards.** The NI approved matching funds on a competitive basis for 9 postdoctoral fellows or research associates for FY 2011-2012. These awards are $15,000-$20,000 each. We will fund 7 postdocs in FY 2012-2013 at the same level.

Goal 4: Interact with the faculty of other UT campuses and neighboring undergraduate institutions

Some NI faculty are involved in some large multi-institutional grant programs, involving a number of universities (listed above). There is considerable collaboration between NI faculty on the UTHSC campus and investigators at St. Jude Children's Research Hospital and at the University of Memphis.

In addition to research collaborations, we continue to sponsor the Neuroscience Seminar Series on the UTHSC campus, which is often attended by faculty and students from other Memphis institutions, and our faculty are involved in workshops and seminars at other institutions and at national meetings. Our Translational Neuroscience Symposia, such as the "**Brain Trauma Symposium: Sports Concussions: The Hidden Risks"** symposium in April of 2011, bring together clinical and basic research scientists from our various local sites and outside of UTHSC.

As mentioned previously, the NI continues its community interaction with Urban Child Institute with a community forum during Brain Awareness Week at the Urban Child Institute. This program, entitled **"New Initiatives for Optimizing Brain Development in Children"** was directed toward parents, teachers, and other professionals involved in the care and early instruction of children (**Appendix 4**). The program was organized by NI member Dr. Paul Herron, and was hosted by NI Director William E. Armstrong. Two talks were featured, one by Dan Goldowitz, Ph.D. **("The Malleable Brain: In Good Times and Bad")** and the other by Clyde Hertzman, M.D. ("**A New Method For Measuring Social And Cognitive Development Leads To New Initiatives For Child Development"**), both from the University of British Columbia, Vancouver, BC, Canada. Also as indicated above, the NI partnered with the Urban Child Institute, the CANDLE study group, and the Department of Preventive Medicine on a day-long conference that preceded these talks entitled ***"Social Determinants of Cognitive Development"*** **(Appendix 4).**

APPENDIX 1

External Funding of Neuroscience Institute Faculty

FY 2010-2011

P.I.	*Project Name*	*Agency*	*Project Period*	*FY 2012 Total Cost*
Armstrong, W.E.	Electrophysiological Correlates of Vasopressin Release R01-NS23941-20A1	NIH-NINDS	7/1/2011-6/30/2012	$354,040
Bahouth, S.	PKA targeting: A Novel Mechanism for GPCR rResensitization USPHS R01-HL05848-04	NIH-HLB	12/1/2011-11/30/2012	$329,670
Bahouth, S.	PKA targeting: A Novel Mechanism for GPCR rResensitization USPHS R01-HL05848-04S	NIH-HLB	3/1/2012-2/1/2013	$36,630
Boughter, J.	Sensory Coding in Taste USPHS Grant DC-000353-27	NIH/ NIDCD	7/1/2011-6/30/2012	$273,992
Chaum, E.d	Proprietary Study	Private Industry	11/09/2011-7/31/2012	$44,718
Chaum, E.	Proprietary Study	Private Industry	1/9/2012	$21,900
Chaum, E.	Proprietary Study	Private Industry	1/9/2012	$13,020
Chaum, E.	Proprietary Study	Private Industry	1/22/2011-1/21/2012	$173,745
Chaum, E.	Proprietary Study	Private Industry	8/31/2011	$2,527
Chaum, E.	Proprietary Study	Private Industry	1/11/2011-12/31/2012	$3,200
Chaum, E.	Iris Biometric Data Collection	DOE - UT-Battelle - Oak Ridge National Laboratory	11/28/2011-12/02/2012	$15,000
Chaum, E.	Automated Screening of Diabetic Retinopathy by Content-1 R01 EY017065-06	NIH - NEI	7/1/2011-6/30/2012	$704,923
Chen, H.	ARRA - Insular cortex and reinstatement of nicotine seeking behavior R21 DA026894-02	NIH - NIDA	6/01/2011-5/31/2012	$148,000
Desiderio, D.	Proprietary Study	Private Sponsor	6/01/2010-12/31/2013	$1,068,000

Dopico, A.M.	Ethanol Actions on SLO Channels From Arteries VS Brain-5 R37 AA11560-14	NIH - NI AAA	7/1/2011-6/30/2012	$340,193
Dopico, A.M.	Vasodilation Via Selective Pharmacological Targeting Of Bk Channel Beta1 Subunits R01-HL104631-02	NIH - NI AAA	6/1/2011-11/30/2012	$387,087
Dragatsis, I.	Role of NGF in Familiar Dysautonomia-1 R07 NS061842-04	NIH-NINDS	4/1/2011-3/31/2012	$312,988
Dragatsis, I.	Generation Of A Mouse Model For Progressive Supranuclear Palsy 5R03NS071207-02	NIH-NINDS	5/1/2012-4/30/2013	$74,959
Dragatsis, I.	Proprietary Study	Dysautonomia Foundation, Inc.	3/15/2012-2/28/2014	$94,500
Ennis, M.	Metabotropic Glutamate Receptors in the Olfactory Bulb USPHS 5R01DC003195-15	NIH-NIDCD	1/1/2011-12/31/2012	$293,454
Fletcher, M.	InVivo Optical Imaging of Experience-Induced Olfactory Bulb Glomerular Plasticity R01- 5 R03 DC009853-04	NIH- NIDCD	2/1/2011-1/31/2012	$141,831
Fletcher, M.	Pew Scholar in Biomedical Sciences	Pew Charitable Trusts	7/11/2011-6/30/2012	$60,000
Foehring, R.C.	Slowly Inactivating K+ Channels in Neocortical Pyramidal Cells-1 R01 NS044163-09	NIH-NINDS	7/1/2011-6/30/2012	$312,988
Geisert, E.	Modulators of Retinal Injury R01-EY017841-04	NIH-NEI	9/1/2010-8/31/2011	$365,000
Hamre, K.	Gender And Genetic Effects On Sleep:Wake Parameters Following Ethanol Exposure-1 R21AA017718-01A2	NIH - NI AAA	8/1/2011-7/31/2012	$177,903
Hamre, K.	Mapping Cerebellar Development in Time and Space R01-HD052472-05S1	NIH - NICHD	4/1/2011-6/30/2012	$25,000
Hamre, K.	INIA: Mouse Resources Core AA-016666	NIH - NICHD	2/1/2011-1/31/2012	$67,351
Heck, D. H.	Cerebellar Modulation of Frontal Cortical Function-NS063009	NIH-NINDS-U of Memphis	3/1/2012-2/28/2013	$88,038

Heck, D. H.	CNCNS: Cerebella Cortico-Nuclear Interactions-R01-NS067201	NIH-NINDS-Emory University	9/1/2010-8/30/2011	$128,375
Heck, D. H.	Manipulation and imaging of synchronous population activity in the neocortex ER21 NS077281-01	NIH/NINDS	8/15/2011-7/12/2012	$220,792
Heck, D. H.	Coordination Of Orofacial And Respiratory Movements R01 NS060887-04	NIH/NINDS	3/1/2012-2/28/2013	$317,275
Heldt, S.A.	The Role of Amygdala GABAergic Transmission in Fear and Anxiety-7 R21 MH086727-03	NIH-NIMH	4/1/2012-3/31/2013	$168,567
Iannaccone, A	ARRA-Auto-Antibodies as serum biomarkers for age-related macular degeneration R21-EY018416-02	NIH - NEI	8/1/2011-7/31/2012	$185,000
Iannaccone, A.	A Phase II, Multi-Site, Randomized, Placebo-Controlled Trial Of Oral Valproic Acid For Retinitis Pigmentosa	National Neurovision Research Clinical Trial	4/17/2012-4/16/2013	$811,948
Iannaccone, A.	2012 Research to Prevent Blindness - Physician Scientist Award	Research to Prevent Blindness	6/15/2012-6/14/2013	$100,000
Jablonski, M.	Genetic Modulation of Glaucoma-R01-EY021200-02	NIH - NEI	1/1/2012-12/31/2012	$374,897
Jablonski, M.	A Novel Drug and Nanoparticle Delivery System for the Treatment of Age-related Macular Degeneration: Toxicity and Pharmacokinetics Studies	Univ. Tenn. Research Foundation	1/1/2011-12/31/2011	$15,000
Jaggar, J.	Calcium channels in arterial smooth muscle cells-1 R01 HL094378-03	NIH - NHLBI	4/1/2011-3/31/2012	$370,000
Jaggar, J.	Calcium signaling in cerebral arteries-1 R01 HL067061-10	NIH - NHLBI	4/1/2012-3/31/2013	$325,215
Jaggar, J.	Arterial Smooth Muscle Chloride Channels-5R01HL110347-02	NIH - NHLBI	7/15/2011-6/30/2012	$370,000
Jaggar, J.	Arterial Smooth Muscle Chloride Channels-5R01HL110347-01S	NIH - NHLBI	2/6/2012-6/30/2012	$25,230

Johnson, D.	Core Grant for Vision Research P30-EY13080-10S1	NIH - NEI	9/1/2010-8/31/2011	$124,911
Kita, H.	Synaptic Transmissions in the Basal Ganglia-1 R01 NS057236-04	NIH-NINDS	4/1/2011-3/31/2012	$250,390
Kita, H.	Rhythmicity and Synchrony in the Basal Ganglia-1 P50-NS047085	NIH-NINDS	8/1/2011-7/31/2012	$210,149
LeDoux, M. S.	The Role of THAP1 in Dystonia-1 R01 NS069936-01A1	NIH-NINDS	8/01/2011-7/31/2012	$317,275
LeDoux, M. S.	Proprietary study	Private sponsor	11/1/2011	$20,000
LeDoux, M. S.	Clinical and Genetic Studies of African American Patients with Dystonia	Mayo Clinic	6/27/2012	$30,000
LeDoux, M. S.	Proprietary study	Private Sponsor	6/27/2012	$300
LeDoux, M. S.	Proprietary study	Private Sponsor	8/23/2011	$12,000
LeDoux, M. S.	In-Solution Capture and Massively-Parallel Sequencing of TOR1A in Primary Dystonia	Tyler's Hope for a Dystonia Cure Inc	1/25/12	$40,000
LeDoux, M. S.	Proprietary study	Private Sponsor	5/14/2012	$247,248
LeDoux, M. S.	Proprietary study	Private Sponsor	5/14/2012	$123,316
LeDoux, M. S.	Proprietary study	Private Sponsor	6/26/2012	$65,000
LeDoux, M. S.	Proprietary study	Private Sponsor	6/28/2012	$102,510
LeDoux, M. S.	THAP1 Sequence Variants in Primary Dystonia	Emory University	9/1/2009-11/30/2011	$44,000
Leffler, C. W.	Control of Neonatal Circulation-R01 HL034059-27	NIH - NHLBI	4/1/2011-3/31/2012	$377,288
Leffler, C. W.	Hydrogen Sulfide in Newborn Cerebral Circulation R01- HL042851-21	NIH - NHLBI	8/1/2011-7/31/2012	$246,510
Liao, F.-F.	PTEN, Cell Cycle and Neurofibrillary Degemeration-5 R01 AG031893-05	NIH-NIA	4/1/2012-3/31/2013	$288,712

Liao, F.-F.	Novel Regulation Of BACE1 By Nitrosative And Metabolic Stresses 11RG-11-204030	Alzheimer's Association	9/1/2011-8/30/2012	$70,864
Liao, F.-F.	New Roles for sAPPs in Neuroprotection and Neurogenesis R01 NS054880-06	NIH-NIDS	4/1/2010-3/31/2012	$320,109
Malik, K.	Angiotensins, Prostaglandins-Adrenergic Interactions 5 R01-HL01934-37	NIH-HLBI	4/1/2012-3/31/2013	$555,694
Malik, K.	Ecosanoids-Induced Vascular Growth During Injury R01-HL079109-06	NIH-HLBI	4/1/2012-3/31/2013	$399,162
McDonald, M.	Gd3s Knockdown to Improve Cognitive And Motor Deficits In Models Of Parkinsonism R01-NS065063-04	NIH-NINDS	2/1/2012-1/31/2013	$317,275
McDonald, M.	GD3 Synthase Gene Therapy To Improve Memory And Prevent Neurodegeneration R01- AG040230-01	NIH-NIA	9/1/2011-8/31/2012	$303,400
McDonald, M.	Dietary Glycomacropeptide (GMP) For Neuroprotection And Cognitive Enhancement R21- AG041935-01	NIH-NIA	3/15/2012-28/02/2013	$211,920
McDonald, M.	ARRA-Chronic sialidase effects on amyloid aggregation and assosicated pathology	NIH-NIA	9/1/2010-8/31/2011	$460,676.00
Miller, D.	Treatment with KZ-41 and OTP promotes wound healing in a radiation combined injury R33-AI080534-04	NIH-NIAID	9/01/2011-8/31/2012	$365,599
Nelson, R.	Modulation of Primate Somatosensory Cortical Responses NS036860-14	NIH-NINDS	4/1/2011-3/31/2012	$258,694
Nowak, T.	Genetics Of Stroke Vulnerability In Mice R21 NS066166-02	NIH-NINDS	7/12011-6/30/2012	$187,500
Nowak, T.	Genetics Of Stroke Vulnerability In Mice R21 NS066166-02S1	NIH-NINDS	7/12011-6/30/2012	$22,460

Nowak, T.	Eliminating Anesthesia Confounds in Experimental Stroke R21 NS077039-02	NIH-NINDS	9/12011-8/31/2012	$187,500
O'Connell, K.	Cell Biology of Cardiac Kv Channels USPHS HL087591-05	NIH-HLBI	2/1/2011-1/31/2012	$246,510
Parfenova, H.	Heme Oxygenase And Cerebral Vascular Injury USPHS HL099655-08	NIH-HLBI	6/1/2012-5/31/2013	$366,300
Parfenova, H.	Cerebrovascular Stress and Circulating Endothelial Cells USPHS NS063936-03	NIH-NINDS	2/1/2011-1/31/2012	$317,275
Pfeiffer, R.	Clinical trial - Parkinson's	Private Sponsor	5/1/2011-11/29/2011	$57,840
Pfeiffer, R.	Proprietary study	Private Sponsor	4/30/2012	$96,740
Pfeiffer, R.	The Department of Neuorlogy Grand Rounds	Solstice Neurosciences/ US WorldMeds, LLC	1/18/2012	$1,500
Pfeiffer, R.	Proprietary study	Private Sponsor	5/1/2011-11/30/2011	$7,494
Pfeiffer, R.	Proprietary study	Private Sponsor	11/30/2011	$36,285
Pfeiffer, R.	Proprietary study	Private Sponsor	1/19/2010-3/13/2013	$25,617
Pourcyrous, M.	Proprietary study	Yale University	6/1/2012	$1,000
Reiner, A.	Neural Control of Choroidal Blood Flow USPHS Grant EY-005298-25	NIH-NEI	4/1/2012-3/31/2013	$374,688
Reiner, A.	Organization of The Cortical Projection to the Basal Ganglia USPHS Grant NS-057722-05	NIH-NINDS	3/1/2012-2/28/2013	$312,988
Reiner, A.	Pattern of Thalamostriatal Injury in HD deduced from Mutant Mice	CHDI, Inc.	3/15/2011-3/14/2012	$80,777
Reiter, L.	Proteomics in Drosophila to Identify Autism Candidate Substrates of Ube3a R01-NS059902-03S1	NIH-NINDS	9/1/2011-8/31/2013	$313,159
Reiter, L.	Tooth Pulp As A Source For Neuronal Precursor Cells To Study Neurogenetic Disorders R21-NS075709-01	NIH-NINDS	4/01/2012-3/31/2013	$187,344

Reiter, L.	Construction Of A Tet Responsive Ube3a Over-Expression Transgenic Mouse Model	Dup 15q Alliance	2/14/2012	$40,000
Rex, T.	RPB Career Development Award	Research to Prevent Blindness	4/01/2012-3/31/2013	$50,000
Rex, T.	Treatment Of Traumatic Vision Loss In New Mouse Model Of Blast Injury-W81XWH-10-1-0528	US ARMY MEDICAL RES, MCMR-AAA-VACQUISITIO N ACTIVITY	9/1/2010-8/31/2013	$246,283
Rex, T.	Novel Therapy and Mechanisms in Glaucoma R01-EY022349-01	NIH-NEI	4/01/2012-3/31/2013	$374,688
Steinle, J.	Pre-Clinical Testing of Isoproterenol Eye Drops for NPDR	Juvenile Diabetes Foundation	4/15/2010-5/15/2011	$202,081
Steinle, J.	Compound 49b Prevents Diabeticretinopathy Through IGFBP3	Juvenile Diabetes Foundation	7/01/2011-6/30/2013	$165,000
Steinle, J.	Novel topical Therapy for Diabetic Retinopathy using Beta-Adrenergic Receptor Agonist	Molecular Design International	1/1/2011-12/31/2013	$40,428
Steinle, J.	Beta-Adrenergic Agonists Used to Treat and Prevent Blindness in Diabetic Patients	University of Tennessee Research Foundation	4/15/2010-7/15/2011	$15,000
Steinle, J.	Beta-Andrenergic Receptor Agonists Inhibit Diabetic Retinopathy	International Retinal Research Foundation	8/10/2010-9/1/2011	$62,000
Steinle, J.	Topical Therapy for Diabetic Retinopathy	Oxnard Foundation	1/11/2011-12/31/2013	$165,000
Steketee, J.	Cortical Mechanisms of Cocaine Sensitization R01-DA023215-04	NIH-NIDA	6/1/2012-5/31/2013	$284,249
Tavalin, S.	Mechanisms Controlling AMPA Receptor Subunit Composition R01-NS076637-01	NIH-NINDS	6/1/2012-3/31/2013	$262,428
Watsky, M.	Vitamin D Metabolism And Function In The Cornea And Anterior Segment R01-EY021747-01A1	NIH-NEI	5/01/2012-4/30/2013	$374,792

Wheless, J.	Pediatric therapy study	Private Sponsor	2/1/2012	$6,895
Williams, R.	Systems Genetic of Alcohol and Stress Effects on CNS-5 U01 AA13499-11	NIH - NI AAA	2/1/2012-1/31/2013	$232,295
Williams, R.	INIA: BioInformatics Core CNS-5 U01 AA016662-06	NIH - NI AAA	2/01/2012-1/31/2013	$196,254
Zhou, F.M.	Regulation of Basal Ganglia Output Neurons USPHS NS058850-04	NIH-NINDS	09/01/11 08/31/12	$269,231
Zhou, F.M.	TRPC3 Channel Mediates 5HTC Receptor-Induced Excitation of in Substantia Nigra Reticulata R03-NS076960-02	NIH-NINDS	09/01/2011-08/31/12	$75,000
Zhou, F.M.	Non-Transporter cocaine mechanisms in dopamine system R01 DA021194-04	NIH-NIDA	7/1/2011-6/30/2012	$283,298
Zuo, J.	Confocol Microscope For Investigation Of Hearing Restoration In Mouse Models	Department of Navy	6/15/2012-5/31/2013	$350,320
Total				**$21,624,177**

APPENDIX 2

Faculty Publications and Society for Neuroscience Presentations

FY 2010-2011

1) Peer-reviewed publications for 2011-2012 (cited in PubMed):

Adamolekun B, Afra P, **Boop FA** (2011) False lateralization of seizure onset by scalp EEG in neocortical temporal lobe epilepsy. *Seizure* 20:494-499.

Adamus G, Brown L, Schiffman J, **Iannaccone A** (2011) Diversity in autoimmunity against retinal, neuronal, and axonal antigens in acquired neuro-retinopathy. *J Ophthalmic Inflamm Infect* 1:111-121.

Adebiyi A, McNally EM, **Jaggar JH** (2011) Vasodilation induced by oxygen/glucose deprivation is attenuated in cerebral arteries of SUR2 null mice. *Am J Physiol Heart Circ Physiol* 301:H1360-1368.

Berde CB, Walco GA, Krane EJ, **Anand KJ,** Aranda JV, Craig KD, Dampier CD, Finkel JC, Grabois M, Johnston C, Lantos J, Lebel A, Maxwell LG, McGrath P, Oberlander TF, Schanberg LE, Stevens B, Taddio A, von Baeyer CL, Yaster M, Zempsky WT (2012) Pediatric analgesic clinical trial designs, measures, and extrapolation: report of an FDA scientific workshop. *Pediatrics* 129:354-364.

Besing RC, Hablitz LM, Paul JR, Johnson RL, **Prosser RA**, Gamble KL (2012) Neuropeptide Y-induced phase shifts of PER2::LUC rhythms are mediated by long-term suppression of neuronal excitability in a phase-specific manner. *Chronobiol Int* 29:91-102.

Bhutta AT, Schmitz ML, Swearingen C, James LP, Wardbegnoche WL, Lindquist DM, Glasier CM, Tuzcu V, Prodhan P, Dyamenahalli U, Imamura M, Jaquiss RD, **Anand KJ** (2012) Ketamine as a neuroprotective and anti-inflammatory agent in children undergoing surgery on cardiopulmonary bypass: a pilot randomized, double-blind, placebo-controlled trial. *Pediatr Crit Care Med* 13:328-337.

Bista M, Smithson D, Pecak A, Salinas G, Pustelny K, Min J, Pirog A, Finch K, Zdzalik M, Waddell B, Wladyka B, Kedracka-Krok S, **Dyer MA**, Dubin G, Guy RK (2012) On the mechanism of action of SJ-172550 in inhibiting the interaction of MDM4 and p53. *PLoS One* 7:e37518.

Blatteis CM (2012) Age-dependent changes in temperature regulation - a mini review. *Gerontology* 58:289-295.

Boboila C, Oksenych V, Gostissa M, Wang JH, Zha S, Zhang Y, Chai H, Lee CS, Jankovic M, Saez LM, Nussenzweig MC, **McKinnon PJ,** Alt FW, Schwer B (2012) Robust chromosomal DNA repair via alternative end-joining in the absence of X-ray repair cross-complementing protein 1 (XRCC1). *Proc Natl Acad Sci U S A* 109:2473-2478.

Bongiovanni A, Romancino DP, Campos Y, Paterniti G, Qiu X, Moshiach S, Di Felice V, Vergani N, Ustek D, **d'Azzo A** (2012) Alix protein is substrate of Ozz-E3 ligase and modulates actin remodeling in skeletal muscle. *J Biol Chem* 287:12159-12171.

Boop FA (2011) Brain tumors. *J Neurosurg Pediatr* 8:133-134; discussion 134.

Boop FA (2011) Brainstem gliomas. *J Neurosurg Pediatr* 8:537-538; discussion 538.

Boop FA (2011) Repeat surgery for residual ependymoma. *J Neurosurg Pediatr* 8:244-245; discussion 245.

Boop FA (2012) Editorial: programmable shunts versus nonprogrammable shunts. *J Neurosurg Pediatr* 9:461; discussion 461.

Borkowski BJ, Cheema Y, Shahbaz AU, **Bhattacharya SK**, Weber KT (2011) Cation dyshomeostasis and cardiomyocyte necrosis: the Fleckenstein hypothesis revisited. *Eur Heart J* 32:1846-1853.

Boughter JD, Jr., Mulligan MK, St John SJ, Tokita K, Lu L, Heck DH, **Williams** RW (2012) Genetic control of a central pattern generator: rhythmic oromotor movement in mice is controlled by a major locus near Atp1a2. *PLoS One* 7:e38169.

Brager **A, Prosser RA**, Glass JD (2011) Acamprosate-responsive brain sites for suppression of ethanol intake and preference. *Am J Physiol Regul Integr Comp Physiol* 301:R1032-1043.

Brager AJ, **Prosser RA**, Glass JD (2011) Circadian and acamprosate modulation of elevated ethanol drinking in mPer2 clock gene mutant mice. *Chronobiol Int* 28:664-672.

Brager AJ, Ruby CL, **Prosser RA**, Glass JD (2011) Acute ethanol disrupts photic and serotonergic circadian clock phase-resetting in the mouse. *Alcohol Clin Exp Res* 35:1467-1474.

Breier JI, Juranek J, **Papanicolaou AC** (2011) Changes in maps of language function and the integrity of the arcuate fasciculus after therapy for chronic aphasia. *Neurocase* 17:506-517.

Brigman JL, Powell EM, **Mittleman G**, Young JW (2012) Examining the genetic and neural components of cognitive

flexibility using mice. *Physiol Behav*., Jan. 4, Epub ahead of print.

Buharalioglu CK, Korkmaz B, Cuez T, Sahan-Firat S, Sari AN**, Malik KU**, Tunctan B (2011) Piroxicam reverses endotoxin-induced hypotension in rats: contribution of vasoactive eicosanoids and nitric oxide. *Basic Clin Pharmacol Toxicol* 109:186-194.

Buharalioglu CK, Song CY, Yaghini FA, Ghafoor HU, Motiwala M, Adris T, Estes AM, **Malik KU** (2011) Angiotensin II-induced process of angiogenesis is mediated by spleen tyrosine kinase via VEGF receptor-1 phosphorylation. *Am J Physiol Heart Circ Physiol* 301:H1043-1055.

Bukiya AN, Singh AK, Parrill AL, **Dopico AM** (2011) The steroid interaction site in transmembrane domain 2 of the large conductance, voltage- and calcium-gated potassium (BK) channel accessory beta1 subunit. *Proc Natl Acad Sci U S A* 108:20207-20212.

Bukiya AN, Vaithianathan T, Kuntamallappanavar G, Asuncion-Chin M, **Dopico AM** (2011) Smooth muscle cholesterol enables BK beta1 subunit-mediated channel inhibition and subsequent vasoconstriction evoked by alcohol. *Arterioscler Thromb Vasc Biol* 31:2410-2423.

Burr JS, Jenkins TL, Harrison R, Meert K, **Anand KJ**, Berger JT, Zimmerman J, Carcillo J, Dean JM, Newth CJ, Willson DF, Sanders RC, Jr., Pollack MM, Harvill E, Nicholson CE (2011) The Collaborative Pediatric Critical Care Research Network Critical Pertussis Study: collaborative research in pediatric critical care medicine. *Pediatr Crit Care Med* 12:387-392.

Caciotti A, Garman SC, Rivera-Colon Y, Procopio E, Catarzi S, Ferri L, Guido C, Martelli P, Parini R, Antuzzi D, Battini R, Sibilio M, Simonati A, Fontana E, Salviati A, Akinci G, Cereda C, Dionisi-Vici C, Deodato F, d'Amico A, **d'Azzo A**, Bertini E, Filocamo M, Scarpa M, di Rocco M, Tifft CJ, Ciani F, Gasperini S, Pasquini E, Guerrini R, Donati MA, Morrone A (2011) GM1 gangliosidosis and Morquio B disease: an update on genetic alterations and clinical findings. *Biochim Biophys Acta* 1812:782-790.

Caldecott KW, Bohr VA, **McKinnon PJ** (2011) 3rd International Genome Dynamics in Neuroscience Conference: "DNA repair and neurological disease". *Mech Ageing Dev* 132:353-354.

Cao Y, Maran SK, Dhamala M, Jaeger D, **Heck DH** (2012) Behavior-related pauses in simple-spike activity of mouse Purkinje cells are linked to spike rate modulation. *J Neurosci* 32:8678-8685.

Cao Y, Roy S, Sachdev RN, **Heck DH** (2012) Dynamic correlation between whisking and breathing rhythms in mice. *J Neurosci* 32:1653-1659.

Carcillo JA, Dean JM, Holubkov R, Berger J, Meert KL, **Anand KJ**, Zimmerman J, Newth CJ, Harrison R, Burr J, Willson DF, Nicholson C (2012) The randomized comparative pediatric critical illness stress-induced immune suppression (CRISIS) prevention trial. *Pediatr Crit Care Med* 13:165-173.

Cheema Y, Sherrod JN, Zhao W, Zhao T, Ahokas RA, Sun Y, Gerling IC, **Bhattacharya SK**, Weber KT (2011) Mitochondriocentric pathway to cardiomyocyte necrosis in aldosteronism: cardioprotective responses to carvedilol and nebivolol. *J Cardiovasc Pharmacol* 58:80-86.

Cheema Y, Zhao W, Zhao T, Khan MU, Green KD, Ahokas RA, Gerling IC**, Bhattacharya SK**, Weber KT (2012) Reverse remodeling and recovery from cachexia in rats with aldosteronism. *Am J Physiol Heart Circ Physiol* 303:H486-495.

Chen H, Liu Z, Gong S, Wu X, Taylor WL, **Williams RW, Matta SG, Sharp BM** (2011) Genome-Wide Gene Expression Profiling of Nucleus Accumbens Neurons Projecting to Ventral Pallidum Using both Microarray and Transcriptome Sequencing. *Front Neurosci* 5:98.

Chen H, **Sharp BM, Matta SG**, Wu Q (2011) Social interaction promotes nicotine self-administration with olfactogustatory cues in adolescent rats. *Neuropsychopharmacology* 36:2629-2638.

Chen J, Li CM, Wang J, Ahn S, Wang Z, Lu Y, Dalton JT, **Miller DD**, Li W (2011) Synthesis and antiproliferative activity of novel 2-aryl-4-benzoyl-imidazole derivatives targeting tubulin polymerization. *Bioorg Med Chem* 19:4782-4795.

Cheung NK, Zhang J, Lu C, Parker M, Bahrami A, Tickoo SK, Heguy A, Pappo AS, Federico S, Dalton J, Cheung IY, Ding L, Fulton R, Wang J, Chen X, Becksfort J, Wu J, Billups CA, Ellison D, Mardis ER, Wilson RK, Downing JR, **Dyer MA** (2012) Association of age at diagnosis and genetic mutations in patients with neuroblastoma. *JAMA* 307:1062-1071.

Choi DS, Park JO, Jang SC, Yoon YJ, Jung JW, Choi DY, Kim JW, Kang JS, Park J, Hwang D, Lee KH, Park SH, Kim YK, **Desiderio DM**, Kim KP, Gho YS (2011) Proteomic analysis of microvesicles derived from human colorectal cancer ascites. *Proteomics* 11:2745-2751.

Cignacco EL, Sellam G, Stoffel L, Gerull R, Nelle M, **Anand KJ**, Engberg S (2012) Oral sucrose and "facilitated tucking" for repeated pain relief in preterms: a randomized controlled trial. *Pediatrics* 129:299-308.

Conklin HM, Ashford JM, Howarth RA, Merchant TE, **Ogg RJ**, Santana VM, Reddick WE, Wu S, Xiong X (2012) Working Memory Performance among Childhood Brain Tumor Survivors. *J Int Neuropsychol Soc*:1-10.

Coopersmith CM, Wunsch H, Fink MP, Linde-Zwirble WT, Olsen KM, Sommers MS, **Anand KJ**, Tchorz KM, Angus DC, Deutschman CS (2012) A comparison of critical care research funding and the financial burden of critical illness in the United States. *Crit Care Med* 40:1072-1079.

Coss CC, Bauler M, Narayanan R, **Miller DD**, Dalton JT (2012) Alanine aminotransferase regulation by androgens in non-hepatic tissues. *Pharm Res* 29:1046-1056.

Coss CC, Jones A, Parke DN, Narayanan R, Barrett CM, Kearbey JD, Veverka KA, **Miller DD**, Morton RA, Steiner MS, Dalton JT (2012) Preclinical characterization of a novel diphenyl benzamide selective ERalpha agonist for hormone therapy in prostate cancer. *Endocrinology* 153:1070-1081.

De Falco M, Manente L, Lucariello A, Baldi G, Fiore P, Laforgia V, Baldi A, **Iannaccone A**, De Luca A (2012) Localization and distribution of wolframin in human tissues. *Front Biosci* (Elite Ed) 4:1986-1998.

Devisetti K, Karnowski TP, Giancardo L, Li Y, **Chaum E** (2011) Geographic atrophy segmentation in infrared and autofluorescent retina images using supervised learning. *Conf Proc IEEE Eng Med Biol Soc* 2011:3958-3961.

Dewire MD, Beltran C, **Boop FA**, Helton KJ, Ellison DW, McKinnon PJ, Gajjar A, Pai Panandiker AS (2012) Radiation Therapy and Adjuvant Chemotherapy in a Patient With a Malignant Glioneuronal Tumor and Underlying Ataxia Telangiectasia: A Case Report and Review of the Literature. *J Clin Oncol*. Epub ahead of print.

Dhanushkodi A, **McDonald MP** (2011) Intracranial V. cholerae sialidase protects against excitotoxic neurodegeneration. *PLoS One* 6:e29285.

Dietrich P, Yue J, E S, **Dragatsis I** (2011) Deletion of exon 20 of the Familial Dysautonomia gene Ikbkap in mice causes developmental delay, cardiovascular defects, and early embryonic lethality. *PLoS One* 6:e27015.

Dong C, Rovnaghi CR, **Anand KJ** (2012) Ketamine alters the neurogenesis of rat cortical neural stem progenitor cells*. Crit Care Med 40:2407-2416.

Du X, **Elberger AJ,** Matthews DB, **Hamre KM** (2012) Heterozygous deletion of NR1 subunit of the NMDA receptor alters ethanol-related behaviors and regional expression of NR2 subunits in the brain. *Neurotoxicol Teratol* 34:177-186.

Dwivedi N, Michael C, Lew DB, Arnold S, **Igarashi M**, Bertorini T, Thompson JW, Myers LK, Brown ML (2012) A fatal presentation of dermatomyositis with facial swelling. *Int J Pediatr Otorhinolaryngol* 76:745-749.

Ferguson SA, Ward WL, Paule MG, Hall RW, **Anand KJ** (2012) A pilot study of preemptive morphine analgesia in preterm neonates: effects on head circumference, social behavior, and response latencies in early childhood. Neurotoxicol Teratol 34:47-55.

Fletcher ML (2011) Analytical processing of binary mixture information by olfactory bulb glomeruli. *PLoS One* 6:e29360.

Fletcher ML (2012) Olfactory aversive conditioning alters olfactory bulb mitral/tufted cell glomerular odor responses. *Front Syst Neurosci* 6:16.

Frye RE, Liederman J, Hasan KM, Lincoln A, Malmberg B, McLean J, 3rd, **Papanicolaou A** (2011) Diffusion tensor quantification of the relations between microstructural and macrostructural indices of white matter and reading. *Hum Brain Mapp* 32:1220-1235.

Fucke T, Suchanek D, Nawrot MP, Seamari Y, **Heck DH**, Aertsen A, Boucsein C (2011) Stereotypical spatiotemporal activity patterns during slow-wave activity in the neocortex. *J Neurophysiol* 106:3035-3044.

Gao FB, **Taylor JP** (2012) RNA-binding proteins in neurological disease. *Brain Res* 1462:1-2.

Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Garg S, Tobin KW, Jr., **Chaum E** (2012) Exudate-based diabetic macular edema detection in fundus images using publicly available datasets. *Med Image Anal* 16:216-226.

Giancardo L, Meriaudeau F, Karnowski TP, Li Y, Tobin KW, Jr., **Chaum E** (2011) Microaneurysm detection with radon transform-based classification on retina images. *Conf Proc IEEE Eng Med Biol Soc* 2011:5939-5942.

Glass JD, Brager AJ, Stowie AC, **Prosser RA** (2012) Cocaine modulates pathways for photic and nonphotic entrainment of the mammalian SCN circadian clock. *Am J Physiol Regul Integr Comp Physiol* 302:R740-750.

Gotoh M, Fujiwara Y, Yue J, Liu J, Lee S, Fells J, Uchiyama A, Murakami-Murofushi K, Kennel S, Wall J, Patil R, Gupte R, Balazs L, **Miller DD**, Tigyi GJ (2012) Controlling cancer through the autotaxin-lysophosphatidic acid

receptor axis. *Biochem Soc Trans* 40:31-36.

Guan D, Higgs MH, Horton LR, Spain WJ, **Foehring RC** (2011) Contributions of Kv7-mediated potassium current to sub- and suprathreshold responses of rat layer II/III neocortical pyramidal neurons. *J Neurophysiol* 106:1722-1733.

Hasan KM, Molfese DL, Walimuni IS, Stuebing KK, **Papanicolaou AC**, Narayana PA, Fletcher JM (2012) Diffusion tensor quantification and cognitive correlates of the macrostructure and microstructure of the corpus callosum in typically developing and dyslexic children. *NMR Biomed*. Epub ahead of print.

Hines-Beard J, Marchetta J, Gordon S, **Chaum E, Geisert EE, Rex TS** (2012) A mouse model of ocular blast injury that induces closed globe anterior and posterior pole damage. *Exp Eye Res* 99:63-70.

Hu H, Gomero E, Bonten E, Gray JT, Allay J, Wu Y, Wu J, Calabrese C, Nienhuis A, **d'Azzo A** (2012) Preclinical dose-finding study with a liver-tropic, recombinant AAV-2/8 vector in the mouse model of galactosialidosis. *Mol Ther* 20:267-274.

Hua C, Merchant TE, Gajjar A, Broniscer A, Zhang Y, Li Y, Glenn GR, Kun LE, **Ogg RJ** (2012) Brain tumor therapy-induced changes in normal-appearing brainstem measured with longitudinal diffusion tensor imaging. *Int J Radiat Oncol Biol Phys* 82:2047-2054.

Iannaccone A, Neeli I, Krishnamurthy P, Lenchik NI, Wan H, Gerling IC, Desiderio DM, Radic MZ (2012) Autoimmune biomarkers in age-related macular degeneration: a possible role player in disease development and progression. *Adv Exp Med Biol* 723:11-16.

Jacobson SG, Cideciyan AV, Ratnakaram R, Heon E, Schwartz SB, Roman AJ, Peden MC, Aleman TS, Boye SL, Sumaroka A, Conlon TJ, Calcedo R, Pang JJ, Erger KE, Olivares MB, Mullins CL, Swider M, Kaushal S, Feuer WJ, **Iannaccone A**, Fishman GA, Stone EM, Byrne BJ, Hauswirth WW (2012) Gene therapy for leber congenital amaurosis caused by RPE65 mutations: safety and efficacy in 15 children and adults followed up to 3 years. *Arch Ophthalmol* 130:9-24.

Jadhao CS, Bhatwadekar AD, Jiang Y, Boulton ME, **Steinle JJ**, Grant MB (2012) Nerve growth factor promotes endothelial progenitor cell-mediated angiogenic responses. *Invest Ophthalmol Vis Sci* 53:2030-2037.

Jaeger D, **Kita H** (2011) Functional connectivity and integrative properties of globus pallidus neurons. *Neuroscience* 198:44-53.

Jang H, Boltz D, McClaren J, Pani AK, Smeyne M, Korff A, Webster R, **Smeyne RJ** (2012) Inflammatory effects of highly pathogenic H5N1 influenza virus infection in the CNS of mice. *J Neurosci* 32:1545-1559.

Jennings BL, Anderson LJ, Estes AM, Fang XR, Song CY, Campbell WB, **Malik KU** (2012) Involvement of cytochrome P-450 1B1 in renal dysfunction, injury, and inflammation associated with angiotensin II-induced hypertension in rats. *Am J Physiol Renal Physiol* 302:F408-420.

Jennings BL, Anderson LJ, Estes AM, Yaghini FA, Fang XR, Porter J, Gonzalez FJ, Campbell WB, **Malik KU** (2012) Cytochrome P450 1B1 contributes to renal dysfunction and damage caused by angiotensin II in mice. *Hypertension* 59:348-354.

Jerome J, **Foehring RC, Armstrong WE,** Spain WJ, **Heck DH** (2011) Parallel optical control of spatiotemporal neuronal spike activity using high-speed digital light processing. *Front Syst Neurosci* 5:70.

Jerome J, **Heck DH** (2011) The age of enlightenment: evolving opportunities in brain research through optical manipulation of neuronal activity. *Front Syst Neurosci* 5:95.

Jha S, Dong B, **Sakata K** (2011) Enriched environment treatment reverses depression-like behavior and restores reduced hippocampal neurogenesis and protein levels of brain-derived neurotrophic factor in mice lacking its expression through promoter IV. *Transl Psychiatry* 1:e40.

Jiang Y, Zhang Q, Soderland C**, Steinle JJ** (2012) TNFalpha and SOCS3 regulate IRS-1 to increase retinal endothelial cell apoptosis. *Cell Signal* 24:1086-1092.

Jiao Y, **Lu L, Williams RW, Smeyne RJ** (2012) Genetic dissection of strain dependent paraquat-induced neurodegeneration in the substantia nigra pars compacta. *PLoS One* 7:e29447.

Jiao Y, Zhang J, Yan J, Stuart J, Gibson G, Lu L, **Williams RW**, Wang YJ, Gu W (2011) Differential gene expression between wild-type and Gulo-deficient mice supplied with vitamin C. *Genet Mol Biol* 34:386-395.

Jiao Y, Zhang Z, Zhang C, Wang X, **Sakata K**, Lu B, Sun QQ (2011) A key mechanism underlying sensory experience-dependent maturation of neocortical GABAergic circuits in vivo. *Proc Natl Acad Sci U S A* 108:12131-12136.

Joglekar MV, Ware J, Xu J, **Fitzgerald M**E, Gartner TK (2012) Platelets, glycoprotein Ib-IX, and von Willebrand

factor are required for FeCl(3)-induced occlusive thrombus formation in the inferior vena cava of mice. *Platelets*, Epub ahead of print.

Kanu A, **Leffler CW** (2011) Arachidonic acid- and prostaglandin E2-induced cerebral vasodilation is mediated by carbon monoxide, independent of reactive oxygen species in piglets. *Am J Physiol Heart Circ Physiol* 301:H2482-2487.

Karnowski TP, Aykac D, Giancardo L, Li Y, Nichols T, Tobin KW, Jr., **Chaum E** (2011) Automatic detection of retina disease: robustness to image quality and localization of anatomy structure. *Conf Proc IEEE Eng Med Biol Soc* 2011:5959-5964.

Katyal S, **McKinnon PJ** (2011) Disconnecting XRCC1 and DNA ligase III. *Cell Cycle* 10:2269-2275.

Keryer G, Pineda JR, Liot G, Kim J, **Dietrich P**, Benstaali C, Smith K, Cordelieres FP, Spassky N, Ferrante RJ, **Dragatsis I**, Saudou F (2011) Ciliogenesis is regulated by a huntingtin-HAP1-PCM1 pathway and is altered in Huntington disease. *J Clin Invest* 121:4372-4382.

Kita H, Kita T (2011) Cortical stimulation evokes abnormal responses in the dopamine-depleted rat basal ganglia. J *Neurosci* 31:10311-10322.

Kita H, Kita T (2011) Role of Striatum in the Pause and Burst Generation in the Globus Pallidus of 6-OHDA-Treated Rats. *Front Syst Neurosci* 5:42.

Kita T, **Kita H** (2012) The subthalamic nucleus is one of multiple innervation sites for long-range corticofugal axons: a single-axon tracing study in the rat. *J Neurosci* 32:5990-5999.

Kivlehan F, Garay F, Guo J, **Chaum E**, Lindner E (2012) Toward Feedback-Controlled Anesthesia: Voltammetric Measurement of Propofol (2,6-Diisopropylphenol) in Serum-Like Electrolyte Solutions. *Anal Chem*. Epub ahead of print.

Klimo P, Jr., Thompson CJ, Ragel BT, **Boop FA** (2011) Antibiotic-impregnated shunt systems versus standard shunt systems: a meta- and cost-savings analysis. *J Neurosurg Pediatr* 8:600-612.

Klionsky DJ, Abdalla FC, Abeliovich H, Abraham RT, Acevedo-Arozena A, Adeli K, Agholme L, Agnello M, Agostinis P, Aguirre-Ghiso JA, Ahn HJ, Ait-Mohamed O, Ait-Si-Ali S, Akematsu T, Akira S, Al-Younes HM, Al-Zeer MA, Albert ML, Albin RL, Alegre-Abarrategui J, Aleo MF, Alirezaei M, Almasan A, Almonte-Becerril M, Amano A, Amaravadi R, Amarnath S, Amer AO, Andrieu-Abadie N, Anantharam V, Ann DK, Anoopkumar-Dukie S, Aoki H, Apostolova N, Auberger P, Baba M, Backues SK, Baehrecke EH, Bahr BA, Bai XY, Bailly Y, Baiocchi R, Baldini G, Balduini W, Ballabio A, Bamber BA, Bampton ET, Banhegyi G, Bartholomew CR, Bassham DC, Bast RC, Jr., Batoko H, Bay BH, Beau I, Bechet DM, Begley TJ, Behl C, Behrends C, Bekri S, Bellaire B, Bendall LJ, Benetti L, Berliocchi L, Bernardi H, Bernassola F, Besteiro S, Bhatia-Kissova I, Bi X, Biard-Piechaczyk M, Blum JS, Boise LH, Bonaldo P, Boone DL, Bornhauser BC, Bortoluci KR, Bossis I, Bost F, Bourquin JP, Boya P, Boyer-Guittaut M, Bozhkov PV, Brady NR, Brancolini C, Brech A, Brenman JE, Brennand A, Bresnick EH, Brest P, Bridges D, Bristol ML, Brookes PS, Brown EJ, Brumell JH, Brunetti-Pierri N, Brunk UT, Bulman DE, Bultman SJ, Bultynck G, Burbulla LF, Bursch W, et al. (2012) Guidelines for the use and interpretation of assays for monitoring autophagy. *Autophagy* 8:445-544.

Korff A, Pfeiffer B, Smeyne M, Kocak M, Pfeiffer RF, **Smeyne RJ** (2011) Alterations in glutathione S-transferase pi expression following exposure to MPP+ -induced oxidative stress in the blood of Parkinson's disease patients. Parkinsonism Relat Disord 17:765-768.

Langmaier J, Garay F, Kivlehan F, **Chaum E**, Lindner E (2011) Electrochemical quantification of 2,6-diisopropylphenol (propofol). *Anal Chim Acta* 704:63-67.

Lanson NA, Jr., Maltare A, King H, Smith R, Kim JH, **Taylor JP**, Lloyd TE, Pandey UB (2011) A Drosophila model of FUS-related neurodegeneration reveals genetic interaction between FUS and TDP-43. *Hum Mol Genet* 20:2510-2523.

Lavado A, **Oliver G** (2011) Six3 is required for ependymal cell maturation. *Development* 138:5291-5300.

LeDoux MS (2012) Dystonia: phenomenology. *Parkinsonism Relat Disord* 18 Suppl 1:S162-164.

LeDoux MS, Xiao J, Rudzinska M, Bastian RW, Wszolek ZK, Van Gerpen JA, Puschmann A, Momcilovic D, Vemula SR, Zhao Y (2012) Genotype-phenotype correlations in THAP1 dystonia: molecular foundations and description of new cases. *Parkinsonism Relat Disord 18:414-425.*

Lee Y, Shull ER, Frappart PO, Katyal S, Enriquez-Rios V, Zhao J, Russell HR, Brown EJ, **McKinnon PJ** (2012) ATR maintains select progenitors during nervous system development. *EMBO* J 31:1177-1189.

Leffler CW, Parfenova H, Jaggar JH (2011) Carbon monoxide as an endogenous vascular modulator. *Am J Physiol*

Heart Circ Physiol 301:H1-H11.

Lehman A, Mattman A, Sin D, Pare P, Zong Z, **d'Azzo A**, Campos Y, Sirrs S, Hinek A (2012) Emphysema in an adult with galactosialidosis linked to a defect in primary elastic fiber assembly. *Mol Genet Metab* 106:99-103.

Li CM, Chen J, Lu Y, Narayanan R, Parke DN, Li W, Ahn S, **Miller DD**, Dalton JT (2011) Pharmacokinetic optimization of 4-substituted methoxybenzoyl-aryl-thiazole and 2-aryl-4-benzoyl-imidazole for improving oral bioavailability. *Drug Metab Dispos* 39:1833-1839.

Li F, Ryu BY, Krueger RL, **Heldt SA**, Albritton LM (2012) Targeted entry via somatostatin receptors using a novel modified retrovirus glycoprotein that delivers genes at levels comparable to those of wild-type viral glycoproteins. *J Virol* 86:373-381.

Li HK, Horton M, Bursell SE, Cavallerano J, Zimmer-Galler I, Tennant M, Abramoff M, **Chaum E**, Debuc DC, Leonard-Martin T, Winchester M, Lawrence MG, Bauman W, Gardner WK, Hildebran L, Federman J (2011) Telehealth practice recommendations for diabetic retinopathy, second edition. *Telemed J E Health* 17:814-837.

Li Y, Karnowski TP, Tobin KW, Giancardo L, Morris S, Sparrow SE, Garg S, Fox K, **Chaum E** (2011) A health insurance portability and accountability act-compliant ocular telehealth network for the remote diagnosis and management of diabetic retinopathy. *Telemed J E Health* 17:627-634.

Liang GH, Xi Q, **Leffler CW, Jaggar JH** (2012) Hydrogen sulfide activates Ca(2)(+) sparks to induce cerebral arteriole dilatation. *J Physiol* 590:2709-2720.

Liu K, **Steketee JD** (2011) Repeated exposure to cocaine alters medial prefrontal cortex dopamine D(2)-like receptor modulation of glutamate and dopamine neurotransmission within the mesocorticolimbic system. *J Neurochem* 119:332-341.

Lu H, Li L, Watson ER, **Williams RW, Geisert EE, Jablonski MM, Lu L** (2011) Complex interactions of Tyrp1 in the eye. *Mol Vis* 17:2455-2468.

Lu L, Xue Y, **Steketee JD**, Rebec GV, Sun W (2012) Regulation of cocaine-induced reinstatement by group II metabotropic glutamate receptors in the ventral tegmental area. *Psychopharmacology* (Berl) 220:75-85.

Lu Y, Chen J, Janjetovic Z, Michaels P, Tang EK, Wang J, Tuckey RC, Slominski AT, Li W, **Miller DD** (2012) Design, synthesis, and biological action of 20R-hydroxyvitamin D3. *J Med Chem* 55:3573-3577.

Lu Y, Li CM, Wang Z, Chen J, Mohler ML, Li W, Dalton JT, **Miller DD** (2011) Design, synthesis, and SAR studies of 4-substituted methoxylbenzoyl-aryl-thiazoles analogues as potent and orally bioavailable anticancer agents. *J Med Chem* 54:4678-4693.

Majounie E, Traynor BJ, Chio A, Restagno G, Mandrioli J, Benatar M, Taylor JP, Singleton AB (2012) Mutational analysis of the VCP gene in Parkinson's disease. Neurobiol Aging 33:209 e201-202.

Mammen AL, Mahoney JA, St Germain A, Badders N, **Taylor JP**, Rosen A, Spinette S (2011) A novel conserved isoform of the ubiquitin ligase UFD2a/UBE4B is expressed exclusively in mature striated muscle cells. *PLoS One* 6:e28861.

Martins RA, Davis D, Kerekes R, Zhang J, Bayazitov IT, Hiler D, Karakaya M, Frase S, Gleason S, **Zakharenko SS**, Johnson DA, **Dyer MA** (2011) Retinoblastoma (Rb) regulates laminar dendritic arbor reorganization in retinal horizontal neurons. *Proc Natl Acad Sci U S A* 108:21111-21116.

McEvoy J, Flores-Otero J, Zhang J, Nemeth K, Brennan R, Bradley C, Krafcik F, Rodriguez-Galindo C, Wilson M, Xiong S, Lozano G, Sage J, Fu L, Louhibi L, Trimarchi J, Pani A, **Smeyne R**, Johnson D, **Dyer MA** (2011) Coexpression of normally incompatible developmental pathways in retinoblastoma genesis. *Cancer Cell* 20:260-275.

McKinnon PJ (2012) ATM and the molecular pathogenesis of ataxia telangiectasia. *Annu Rev Pathol* 7:303-321.

Meacham RK, **Boughter JD**, Jr., Sebelik ME (2012) Ultrasound-Guided Fine-Needle Aspiration of the Tongue Base: A Cadaver Feasibility Study. *Otolaryngol Head Neck Surg*. Epub ahead of print.

Messing A, Li R, Naidu S, **Taylor JP**, Silverman L, Flint D, van der Knaap MS, Brenner M (2012) Archetypal and new families with Alexander disease and novel mutations in GFAP. *Arch Neurol* 69:208-214.

Miyairi I, Ziebarth J, Laxton JD, Wang X, van Rooijen N, **Williams RW**, Lu L, Byrne GI, Cui Y (2012) Host genetics and Chlamydia disease: prediction and validation of disease severity mechanisms. *PLoS One* 7:e33781.

Mohler ML, Coss CC, Duke CB, 3rd, Patil SA, **Miller DD**, Dalton JT (2012) Androgen receptor antagonists: a patent review (2008-2011). *Expert Opin Ther* Pat 22:541-565.

Morgan MA, **Morgan JI** (2012) Pcp4l1 contains an auto-inhibitory element that prevents its IQ motif from binding to calmodulin. *J Neurochem* 121:843-851.

Mozhui K, **Lu L**, **Armstrong WE**, **Williams** RW (2012) Sex-specific modulation of gene expression networks in murine hypothalamus. *Front Neurosci* 6:63.

Mozhui K, Wang X, Chen J, Mulligan MK, Li Z, Ingles J, Chen X, Lu L, **Williams RW** (2011) Genetic regulation of Nrnx1 expression: an integrative cross-species analysis of schizophrenia candidate genes. *Transl Psychiatry* 1:e25.

Mulligan MK, Wang X, Adler AL, Mozhui K, Lu L, **Williams RW** (2012) Complex control of GABA(A) receptor subunit mRNA expression: variation, covariation, and genetic regulation. *PLoS One* 7:e34586.

Nambu A, Chiken S, Shashidharan P, Nishibayashi H, Ogura M, Kakishita K, Tanaka S, Tachibana Y, **Kita H,** Itakura T (2011) Reduced pallidal output causes dystonia. *Front Syst Neurosci* 5:89.

Narayanan D, Adebiyi A, **Jaggar JH** (2012) Inositol trisphosphate receptors in smooth muscle cells. *Am J Physiol Heart Circ Physiol* 302:H2190-2210.

Nelson RJ (2011) Response to Protocol Review scenario: should no good deed go unpunished? *Lab Anim* (NY) 40:338-339.

Pai Panandiker AS, Merchant TE, Beltran C, Wu S, Sharma S, **Boop FA**, Jenkins JJ, Helton KJ, Wright KD, Broniscer A, Kun LE, Gajjar A (2012) Sequencing of local therapy affects the pattern of treatment failure and survival in children with atypical teratoid rhabdoid tumors of the central nervous system. *Int J Radiat Oncol Biol Phys* 82:1756-1763.

Panjala SR, Jiang Y, Kern TS, Thomas SA, **Steinle JJ** (2011) Increased tumor necrosis factor-alpha, cleaved caspase 3 levels and insulin receptor substrate-1 phosphorylation in the beta(1)-adrenergic receptor knockout mouse. *Mol Vis* 17:1822-1828.

Parfenova H, Leffler CW, Basuroy S, Liu J, Fedinec AL (2012) Antioxidant roles of heme oxygenase, carbon monoxide, and bilirubin in cerebral circulation during seizures. *J Cereb Blood Flow Metab* 32:1024-1034.

Parfenova H, Tcheranova D, Basuroy S, Fedinec AL, Liu J, **Leffler CW** (2012) Functional role of astrocyte glutamate receptors and carbon monoxide in cerebral vasodilation response to glutamate. *Am J Physiol Heart Circ Physiol* 302:H2257-2266.

Passaro AD, Rezaie R, Moser DC, Li Z, Dias N**, Papanicolaou AC** (2011) Optimizing estimation of hemispheric dominance for language using magnetic source imaging. *Brain Res* 1416:44-50.

Patil SA, Patil R, **Miller DD** (2011) Microwave-assisted synthesis of medicinally relevant indoles. Curr Med Chem 18:615-637.

Pearlman M, Frye R, Butler I, **Papanicolaou AC**, Castillo E, Slopis J (2011) Patterns of electromagnetic activity recorded from neoplastic tissue. *J Neurooncol* 105:445-449.

Pfeiffer RF (2011) Wilson's disease. *Handb Clin Neurol* 100:681-709.

Pfeiffer RF (2012) Autonomic dysfunction in Parkinson's disease. Expert Rev Neurother 12:697-706.

Puschmann A, Xiao J, Bastian RW, Searcy JA**, LeDoux MS**, Wszolek ZK (2011) An African-American family with dystonia. *Parkinsonism Relat Disord* 17:547-550.

Reiner A, Del Mar N, Zagvazdin Y, Li C, **Fitzgerald ME** (2011) Age-related impairment in choroidal blood flow compensation for arterial blood pressure fluctuation in pigeons. *Invest Ophthalmol Vis Sci* 52:7238-7247.

Reiner A, Dragatsis I, Dietrich P (2011) Genetics and neuropathology of Huntington's disease. *Int Rev Neurobio*l 98:325-372.

Reiner A, Yang M, Cagle MC**, Honig MG** (2011) Localization of cerebellin-2 in late embryonic chicken brain: implications for a role in synapse formation and for brain evolution. *J Comp Neurol* 519:2225-2251.

Rezaie R, Simos PG, Fletcher JM, Cirino PT, Vaughn S, **Papanicolaou AC** (2011) Temporo-parietal brain activity as a longitudinal predictor of response to educational interventions among middle school struggling readers. J Int Neuropsychol Soc 17:875-885.

Rezaie R, Simos PG, Fletcher JM, Cirino PT, Vaughn S, **Papanicolaou AC** (2011) Engagement of temporal lobe regions predicts response to educational interventions in adolescent struggling readers. Dev Neuropsychol 36:869-888.

Rezaie R, Simos PG, Fletcher JM, Juranek J, Cirino PT, Li Z, Passaro AD, **Papanicolaou AC** (2011) The timing and strength of regional brain activation associated with word recognition in children with reading difficulties. Front Hum Neurosci 5:45.

Rezaie R, Simos PG, **Papanicolaou AC**, Castillo EM, Moser DC, Passaro AD, Fletcher JM (2011) Time course of electromagnetic activity associated with detection of rare events. *Neuroreport* 22:136-140.

Rogers TD, Dickson PE, **Heck DH, Goldowitz D, Mittleman G**, Blaha CD (2011) Connecting the dots of the cerebro-cerebellar role in cognitive function: neuronal pathways for cerebellar modulation of dopamine release in the prefrontal cortex. *Synapse* 65:1204-1212.

Rong Y, Wei P, Parris J, Guo H, Pattarini R, Correia K, Li L, Kusnoor SV, Deutch AY, **Morgan JI** (2012) Comparison of Cbln1 and Cbln2 functions using transgenic and knockout mice. *J Neurochem* 120:528-540.

Rouchka EC, Flight RM, **Homayouni R** (2011) Proceedings of the Tenth Annual UT-ORNL-KBRIN Bioinformatics Summit 2011. *BMC Bioinformatics* 12 Suppl 7:A1.

Roy S, Bryant JL, Cao Y, **Heck DH** (2011) High-precision, three-dimensional tracking of mouse whisker movements with optical motion capture technology. *Front Behav Neurosci* 5:27.

Roy S, Heinrich K, Phan V, Berry MW, **Homayouni R** (2011) Latent Semantic Indexing of PubMed abstracts for identification of transcription factor candidates from microarray derived gene sets. *BMC Bioinformatics* 12 Suppl 10:S19.

Roy S, Zhao Y, Allensworth M, Farook MF, **LeDoux MS, Reiter LT, Heck DH** (2011) Comprehensive motor testing in Fmr1-KO mice exposes temporal defects in oromotor coordination. *Behav Neurosci* 125:962-969.

Rutledge MR, Farah V, Adeboye AA, Seawell MR**, Bhattacharya SK**, Weber KT (2012) Parathyroid Hormone, A Crucial Mediator of Pathologic Cardiac Remodeling in Aldosteronism. Cardiovasc *Drugs Ther*. Epub ahead of print.

Sacks HS, Fain JN, Cheema P, **Bahouth SW**, Garrett E, Wolf RY, Wolford D, Samaha J (2011) Depot-specific overexpression of proinflammatory, redox, endothelial cell, and angiogenic genes in epicardial fat adjacent to severe stable coronary atherosclerosis. *Metab Syndr Relat Disord* 9:433-439.

Sadasivan S, Pond BB, Pani AK, Qu C, Jiao Y, **Smeyne** RJ (2012) Methylphenidate exposure induces dopamine neuron loss and activation of microglia in the basal ganglia of mice. *PLoS One* 7:e33693.

Samak G, Narayanan D, **Jaggar JH**, Rao R (2011) CaV1.3 channels and intracellular calcium mediate osmotic stress-induced N-terminal c-Jun kinase activation and disruption of tight junctions in Caco-2 CELL MONOLAYERS. *J Biol Chem* 286:30232-30243.

Santos-Villalobos H, Karnowski TP, Aykac D, Giancardo L, Li Y, Nichols T, Tobin KW, Jr., **Chaum E** (2011) Statistical characterization and segmentation of drusen in fundus images. *Conf Proc IEEE Eng Med Biol Soc* 2011:6236-6241.

Savchenko VL, **Boughter JD**, Jr. (2011) Regulation of neuronal activation by Alpha2A adrenergic receptor agonist. *Neurotox Res* 20:226-239.

Schneider SA, Marshall KE, Xiao J, **LeDoux MS** (2012) JPH3 repeat expansions cause a progressive akinetic-rigid syndrome with severe dementia and putaminal rim in a five-generation African-American family. *Neurogenetics* 13:133-140.

Scoles HA, Urraca N, Chadwick SW, **Reiter LT**, Lasalle JM (2011) Increased copy number for methylated maternal 15q duplications leads to changes in gene and protein expression in human cortical samples. *Mol Autism* 2:19.

Scroggs RS (2011) Up-regulation of low-threshold tetrodotoxin-resistant Na+ current via activation of a cyclic AMP/protein kinase A pathway in nociceptor-like rat dorsal root ganglion cells. *Neuroscience* 186:13-20.

Shaheen M, Cheema Y, Shahbaz AU, **Bhattacharya SK**, Weber KT (2011) Intracellular calcium overloading and oxidative stress in cardiomyocyte necrosis via a mitochondriocentric signal-transducer-effector pathway. *Exp Clin Cardiol* 16:109-115.

Sharp BM, Chen H, Gong S, Wu X, Liu Z, Hiler K, Taylor WL**, Matta SG** (2011) Gene expression in accumbens GABA neurons from inbred rats with different drug-taking behavior. *Genes Brain Behav 10:*778-788.

Shires CB, **Boughter JD**, Sebelik ME (2011) Sphenopalatine artery ligation: a cadaver anatomic study. *Otolaryngol Head Neck Surg* 145:494-497.

Shires CB, Saputra JM, King L, Thompson JW, **Heck DH**, Sebelik ME, **Boughter JD, Jr.** (2012) Histopathological and Postoperative Behavioral Comparison of Rodent Oral Tongue Resection: Fiber-Enabled CO2 Laser versus Electrocautery. *Otolaryngol Head Neck Surg*. Epub ahead of print.

Simos PG, **Papanicolaou AC**, Castillo EM, Juranek J, Cirino PT, Rezaie R, Fletcher JM (2011) Brain mechanisms for reading and language processing in spina bifida meningomyelocele: a combined magnetic source- and structural magnetic resonance imaging study. *Neuropsychology* 25:590-601.

Simos PG, Rezaie R, Fletcher JM, Juranek J, **Papanicolaou AC** (2011) Neural correlates of sentence reading in children with reading difficulties. *Neuroreport* 22:674-678.

Singh AK, McMillan J, Bukiya AN, Burton B, Parrill AL, **Dopico AM** (2012) Multiple cholesterol recognition/interaction amino acid consensus (CRAC) motifs in cytosolic C tail of Slo1 subunit determine cholesterol sensitivity of Ca2+- and voltage-gated K+ (BK) channels. *J Biol Chem* 287:20509-20521.

Slominski AT, Zmijewski MA, Skobowiat C, Zbytek B, Slominski RM, **Steketee JD** (2012) Sensing the environment: regulation of local and global homeostasis by the skin's neuroendocrine system. *Adv Anat Embryol Cell Biol* 212:v, vii, 1-115.

Smyrnis N, Mylonas DS, Rezaie R, Siettos CI, Ventouras E, Ktonas PY, Evdokimidis I, **Papanicolaou AC** (2012) Single-trial magnetoencephalography signals encoded as an unfolding decision process. *Neuroimage* 59:3604-3610.

Srinivasan RS, **Oliver G** (2011) Prox1 dosage controls the number of lymphatic endothelial cell progenitors and the formation of the lymphovenous valves. *Genes Dev* 25:2187-2197.

Stefan H, Nakasato N, **Papanicolaou AC** (2012) *Magnetoencephalography*. *Handb Clin Neurol* 107:347-358.

Steinle JJ, Zhang Q, Thompson KE, Toutounchian J, Yates CR, Soderland C, Wang F, Stewart CF, Haik BG, Williams JS, Jackson JS, Mandrell TD, Johnson D, Wilson MW (2012) Intra-ophthalmic artery chemotherapy triggers vascular toxicity through endothelial cell inflammation and leukostasis. *Invest Ophthalmol Vis Sci* 53:2439-2445.

Sullivan TA**, Geisert EE**, Hines-Beard J, **Rex TS** (2011) Systemic adeno-associated virus-mediated gene therapy preserves retinal ganglion cells and visual function in DBA/2J glaucomatous mice. *Hum Gene Ther* 22:1191-1200.

Sullivan TA, **Geisert EE**, Templeton JP, **Rex TS** (2012) Dose-dependent treatment of optic nerve crush by exogenous systemic mutant erythropoietin. *Exp Eye Res* 96:36-41.

Tachibana Y, Iwamuro H, **Kita H**, Takada M, Nambu A (2011) Subthalamo-pallidal interactions underlying parkinsonian neuronal oscillations in the primate basal ganglia. *Eur J Neurosci* 34:1470-1484.

Takeda Y, Zhao L, **Jacewicz M, Pulsinelli WA, Nowak TS, Jr.** (2011) Metabolic and perfusion responses to recurrent peri-infarct depolarization during focal ischemia in the Spontaneously Hypertensive Rat: dominant contribution of sporadic CBF decrements to infarct expansion. *J Cereb Blood Flow Metab* 31:1863-1873.

Teruyama R, Sakuraba M, Kurotaki H, **Armstrong WE** (2011) Transient receptor potential channel m4 and m5 in magnocellular cells in rat supraoptic and paraventricular nuclei. *J Neuroendocrinol* 23:1204-1213.

Teruyama R, Sakuraba M, Wilson LL, Wandrey NE, **Armstrong WE** (2012) Epithelial Na(+) sodium channels in magnocellular cells of the rat supraoptic and paraventricular nuclei. *Am J Physiol Endocrinol Metab* 302:E273-285.

Thomas-Gatewood C, Neeb ZP, Bulley S, Adebiyi A, Bannister JP, Leo MD, **Jaggar JH** (2011) TMEM16A channels generate Ca(2)(+)-activated Cl(-) currents in cerebral artery smooth muscle cells. *Am J Physiol Heart Circ Physiol* 301:H1819-1827.

Timmer KM, **Steketee JD** (2012) Examination of a role for metabotropic glutamate receptor 5 in the medial prefrontal cortex in cocaine sensitization in rats. *Psychopharmacology* (Berl) 221:91-100.

Tokita K, Yamamoto T, **Boughter JD**, Jr. (2012) Gustatory neural responses to umami stimuli in the parabrachial nucleus of C57BL/6J mice. *J Neurophysiol* 107:1545-1555.

Toledo CA, **Reiner A**, Patel RS, Vitale AW, Klein JM, Dalsania BJ, **Fitzgerald ME** (2011) Immunohistochemical localization of AMPA-type glutamate receptor subunits in the nucleus of the Edinger-Westphal in embryonic chick. *Neurosci Lett* 498:199-203.

Tong Y, Ha TJ, Liu L, Nishimoto A, **Reiner A, Goldowitz D** (2011) Spatial and temporal requirements for huntingtin (Htt) in neuronal migration and survival during brain development. *J Neurosci* 31:14794-14799.

Tsiaras V, Simos PG, Rezaie R, Sheth BR, Garyfallidis E, Castillo EM, **Papanicolaou AC** (2011) Extracting biomarkers of autism from MEG resting-state functional connectivity networks. *Comput Biol Med* 41:1166-1177.

Usenovic M, Tresse E, Mazzulli JR, **Taylor JP**, Krainc D (2012) Deficiency of ATP13A2 leads to lysosomal dysfunction, alpha-synuclein accumulation, and neurotoxicity. *J Neurosci* 32:4240-4246.

Villalobos C**, Foehring RC**, Lee JC, Andrade R (2011) Essential role for phosphatidylinositol 4,5-bisphosphate in the expression, regulation, and gating of the slow afterhyperpolarization current in the cerebral cortex. *J Neurosci* 31:18303-18312.

Walker RJ, Anderson NM, **Bahouth S, Steinle JJ** (2012) Silencing of insulin receptor substrate-1 increases cell death

in retinal Muller cells. *Mol Vis* 18:271-279.
Walker RJ, Anderson NM, Jiang Y, **Bahouth S, Steinle JJ** (2011) Role of beta-adrenergic receptor regulation of TNF-alpha and insulin signaling in retinal Muller cells. *Invest Ophthalmol Vis Sci* 52:9527-9533.
Waln O**, Ledoux MS** (2011) Blepharospasm plus Cervical Dystonia with Predominant Anterocollis: A Distinctive Subphenotype of Segmental Craniocervical Dystonia? *Tremor Other Hyperkinet Mov* (N Y) 2011.
Wang L, **Armstrong WE** (2012) Tonic regulation of GABAergic synaptic activity on vasopressin neurones by cannabinoids. *J Neuroendocrinol* 24:664-673.
Wang X, Mozhui K, Li Z, Mulligan MK, Ingels JF, Zhou X, Hori RT**, Chen H**, Cook MN, **Williams** RW, Lu L (2012) A promoter polymorphism in the Per3 gene is associated with alcohol and stress response. *Transl Psychiatry* 2:e73.
Wang XD, Freeman NE, Patil R, Patil SA, Mitra S, Orr WE, Abner CW, Yates CR, **Miller DD**, **Geisert EE** (2012) EDL-291, a novel isoquinoline, presents antiglioblastoma effects in vitro and in vivo. *Anticancer Drugs* 23:494-504.
Wang Z, Chen J, Wang J, Ahn S, Li CM, Lu Y, Loveless VS, Dalton JT, **Miller DD**, Li W (2012) Novel Tubulin Polymerization Inhibitors Overcome Multidrug Resistance and Reduce Melanoma Lung Metastasis. *Pharm Res*. Epub ahead of print.
Wangler MF, **Reiter LT**, Zimm G, Trimble-Morgan J, Wu J, Bier E (2011) Antioxidant proteins TSA and PAG interact synergistically with Presenilin to modulate Notch signaling in Drosophila. *Protein Cell* 2:554-563.
Wei P, Blundon JA, Rong Y, **Zakharenko SS, Morgan JI** (2011) Impaired locomotor learning and altered cerebellar synaptic plasticity in pep-19/PCP4-null mice. *Mol Cell Biol* 31:2838-2844.
Wei P, Pattarini R, Rong Y, Guo H, Bansal PK, Kusnoor SV, Deutch AY, Parris J, **Morgan JI** (2012) The Cbln family of proteins interact with multiple signaling pathways. *J Neurochem* 121:717-729.
Wilson MW, Haik BG, **Dyer MA** (2011) Superselective intraophthalmic artery chemotherapy: what we do not know. *Arch Ophthalmol* 129:1490-1491.
Wilson MW, Jackson JS, Phillips BX, Buchanan J, Frase S, Wang F, **Steinle JJ**, Stewart CF, Mandrell TD, Haik BG, Williams JS (2011) Real-time ophthalmoscopic findings of superselective intraophthalmic artery chemotherapy in a nonhuman primate model. *Arch Ophthalmol* 129:1458-1465.
Wu G, Broniscer A, McEachron TA, Lu C, Paugh BS, Becksfort J, Qu C, Ding L, Huether R, Parker M, Zhang J, Gajjar A, **Dyer MA**, Mullighan CG, Gilbertson RJ, Mardis ER, Wilson RK, Downing JR, Ellison DW, Zhang J, Baker SJ (2012) Somatic histone H3 alterations in pediatric diffuse intrinsic pontine gliomas and non-brainstem glioblastomas. *Nat Genet* 44:251-253.
Xi Q, Tcheranova D, Basuroy S, **Parfenova H, Jaggar JH, Leffler CW** (2011) Glutamate-induced calcium signals stimulate CO production in piglet astrocytes. *Am J Physiol Heart Circ Physiol* 301:H428-433.
Xiao J, Uitti RJ, Zhao Y, Vemula SR, Perlmutter JS, Wszolek ZK, Maraganore DM, Auburger G, Leube B, Lehnhoff K, **LeDoux MS** (2012) Mutations in CIZ1 cause adult onset primary cervical dystonia. *Ann Neurol* 71:458-469.
Xue Y, **Steketee JD**, Sun W (2012) Inactivation of the central nucleus of the amygdala reduces the effect of punishment on cocaine self-administration in rats. *Eur J Neurosci* 35:775-783.
Yin J, Thomas F, Lang JC, **Chaum E** (2011) Modulation of oxidative stress responses in the human retinal pigment epithelium following treatment with vitamin C. *J Cell Physiol* 226:2025-2032.
Youngsoo L, Katyal S, Downing SM, Zhao J, Russell HR, **McKinnon PJ** (2012) Neurogenesis requires TopBP1 to prevent catastrophic replicative DNA damage in early progenitors. *Nat Neurosci* 15:819-826.
Zeng K, Thompson KE, Presley CS, **Miller DD**, Yates CR (2011) Preclinical pharmacokinetics of the radiomitigator KZ-41 in rats. *Xenobiotica* 41:1006-1012.
Zhang J, Benavente CA, McEvoy J, Flores-Otero J, Ding L, Chen X, Ulyanov A, Wu G, Wilson M, Wang J, Brennan R, Rusch M, Manning AL, Ma J, Easton J, Shurtleff S, Mullighan C, Pounds S, Mukatira S, Gupta P, Neale G, Zhao D, Lu C, Fulton RS, Fulton LL, Hong X, Dooling DJ, Ochoa K, Naeve C, Dyson NJ, Mardis ER, Bahrami A, Ellison D, Wilson RK, Downing JR, **Dyer MA** (2012) A novel retinoblastoma therapy from genomic and epigenetic analyses. *Nature* 481:329-334.
Zhang Q, Guy K, Pagadala J, Jiang Y, Walker RJ, Liu L, Soderland C, Kern TS, Ferry R, Jr., He H, Yates CR, **Miller DD**, **Steinle JJ** (2012) Compound 49b prevents diabetes-induced apoptosis through increased IGFBP-3 levels. *Invest Ophthalmol Vis Sci* 53:3004-3013.
Ziebarth JD, Cook MN, Wang X, **Williams** RW, Lu L, Cui Y (2012) Treatment- and population-dependent activity

patterns of behavioral and expression QTLs. *PLoS One* 7:e31805.
Zigmond MJ, Cameron JL, Hoffer BJ, **Smeyne RJ** (2012) Neurorestoration by physical exercise: moving forward. *Parkinsonism Relat Disord* 18 Suppl 1:S147-150.
Zou P, Helton KJ, Smeltzer M, Li CS, Conklin HM, Gajjar A, Wang WC, Ware RE, **Ogg RJ** (2011) Hemodynamic responses to visual stimulation in children with sickle cell anemia. *Brain Imaging Behav* 5:295-306.

2) Presentations at the 2011 *Society for Neuroscience* meeting (Washington, D.C.)

Algeciras, M. E., Ding, D., Serra, H., Levy, R. B., **Bhattacharya, S. K.** Biochemical and immunological characterization of activated astrocytes. *Neuroscience Abstract*, 2011.
Blaha, C. D., Rogers, T. D., Spight, V., **Heck, D.,** Goldowitz, D., **Mittleman, G.** Fragile X syndrome mutation (FMR1) results in a shift in modulatory control of cortical dopamine release by two distinct cerebellar-prefrontal cortex pathways: Relevance to the Autism disconnection hypothesis. *Neuroscience Abstract*, 2011.
Brager, A. J., **Prosser, R. A.,** Glass, J. D. Disruption of circadian timing by cocaine action in the mesolimbic reward pathway. *Neuroscience Abstract*, 2011.
Callaway, H. M., **Li, C. X.,** Vemulapalli, S., **Waters, R. S.** Forelimb amputation delays acquisition of skilled reaching movements in adult rats. *Neuroscience Abstract*, 2011.
Cao, Y., Maran, S., Jaeger, D., **Heck, D.** Functional connectivity and representation of respiration in the cerebellum: Spike rate modulation vs. spike timing. *Neuroscience Abstract*, 2011.
Chen, H., **Matta, S. G.,** Liu, Z., Gong, S., Taylor, W. L., **Williams, R. W.,** Hiler, K. A., **Sharp, B. M.** RNA-seq of ventral tegmental area in five inbred strains of adolescent rats with differential nicotine self-administration profiles. *Neuroscience Abstract*, 2011.
Chen, H., **Matta, S. G.,** Liu, Z., Gong, S., Taylor, W. L., **Williams, R. W.,** Hiler, K. A., **Sharp, B. M.** RNA-seq of nucleus accumbens shell in five inbred strains of adolescent rats with differential nicotine self-administration profiles. *Neuroscience Abstract*, 2011.
Deng, Y., Wong, T., **Reiner, A. J.** Preferential Loss of Thalamostriatal over Corticostriatal Terminals early in lifespan of Q140 Huntington’s disease knock-in mice. *Neuroscience Abstract*, 2011.
Dickson, P. E., Miller, M. M., Rogers, T. D., Clardy, E. L., **Blaha, C. D., Mittleman, G.** Effects of adolescent nicotine exposure on adult intravenous cocaine self-administration in male C57BL/6J mice: Testing the nicotine gateway hypothesis. *Neuroscience Abstract*, 2011.
Douglas, J., Groover, C. J., Gardner, L. A., **Levin, M. C.** Autoimmunity and neurodegeneration: What is the mechanism that triggers neuronal cell death? *Neuroscience Abstract*, 2011.
Fitzgerald, M. E. The advantage of collaborations in the development of a neuroscience international summer research program in Brasil . *Neuroscience Abstract*, 2011.
Ghoshal, S., **Williams, R. W., Homayouni, R.** Gene network analysis reveals insights into the function of APP interacting mitochondrial protein NIPSNAP1. *Neuroscience Abstract*, 2011.
Groover, C. J., Gardner, L., **Levin, M. C.** Defects in homocysteine metabolism play a role in the pathogenesis of multiple sclerosis. *Neuroscience Abstract*, 2011.
Heldt, S. A., Wright, B. T., Smith, R. A. Tolerance and withdrawal effects of zolpidem in mice given chronic zolpidem treatment. *Neuroscience Abstract*, 2011.
Heyer, M. P., Pani, A. K., **Smeyne, R. J.,** Feng, G. Normal midbrain dopaminergic neuron development and function in miR-133b mutant mice. *Neuroscience Abstract*, 2011.
Jha, S., Dong, B., **Sakata, K.** Enriched environment treatment reverses depression-like behavior and restores reduced hippocampal neurogenesis and protein levels of brain-derived neurotrophic factor in mice lacking its expression through promoter IV. *Neuroscience Abstract*, 2011.
Jones, B. C., Jellen, L. C., Unger, E. L., Earley, C. J., Allen, R. P., **Lu, L., Williams, R. W.,** Wang, X., Rousseau, S. Iron deficiency up-regulates dopamine-related genes in the ventral midbrain in inbred mice. *Neuroscience Abstract*, 2011.
Kozicz, T. L., Bittencourt, J.C., May, P. J., **Reiner, A.,** Gamlin, P. D. R., Fitzgerald, M. E. C., Palkovits, M., Horn, A. K. E., Ryabinnin, A. E., Toledo, C. A. B. The edinger-westphal nucleus: a historical,

structural and functional perspective on a dichotomous terminology. *Neuroscience Abstract*, 2011.

Lavado, A. J., **Oliver, G.** Six3 is required for ependymal cell maturation

Lee, S., Shin, Y., Mainali, S., Clark, D., Gotuzzo, E., **Levin, M. C.** Potential contribution of ABO blood group transferase to the risk of developing HTLV-1 associated neurological disease. *Neuroscience Abstract*, 2011.

Lindsay, J. H., Glass, J. D., **Prosser, R.** Rapid tolerance of alcohol and its impact on glutamate phase shifting of the circadian clock. *Neuroscience Abstract*, 2011.

Liu, Y., Denton, J. M., **Nelson, R. J.** Neuronal activity in monkey primary motor cortex reflects task-demands during preparation for visually guided wrist movements.

Liu, K., **Steketee, J. D.** Modulation of adenylyl cyclase in media prefrontal cortex effects on cocaine-induced sensitization. *Neuroscience Abstract*, 2011.

McKimm, E., Corkill, B., Rogers, T. D., **Heck, D. H.,** Goldowitz, D., **Blaha, C. D.** Cerebellar Purkinje cell loss results in a shift in glutamatergic strength between two distinct cerebellar-prefrontal cortex pathways involved in modulating cortical dopamine release: Relevance to the Autism disconnection hypothesis. *Neuroscience Abstract*, 2011.

Molina-Calavita, M., Godin, J. D., Colombo, K., Keryer, G., Zala, D., Charrin, B. C., Dietrich, P., Volvert, M. L., Guillemot, F., **Dragatsis, I.,** Bellaiche, Y., Saudou, F., Nguyen, L., Humbert, S., , Huntington's is required for mitotic spindle orientation

Mrak, R., Griffin, S. T., Barger, S., Aboud, O., Jones, R., **Boop, F.** APOE genotype governs Alzheimer neuropathologies in epilepsy. *Neuroscience Abstract*, 2011.

Nagayama, S., Kikuta, S., **Fletcher, M. L.,** Chen, W. R. Odor representation of individual neurons within a single olfactory glomerular module. *Neuroscience Abstract*, 2011.

Philip, V. M., Bubier, J., **Mittleman, G.,** Chesler, E. J. Integrative functional genomics in the Ontological Discovery Environment reveals Rab3b as a candidate gene for cocaine sensitization in mice. *Neuroscience Abstract*, 2011.

Prosser, R. A., Brager, A. J., Glass, J. D. Cocaine treatments in vitro modulate the mouse mammalian circadian clock. *Neuroscience Abstract*, 2011.

Qiao, S., **Homayouni, R.** Dab2IP regulates laminar organization in the mammalian brain

Ramshur, J. T., Fortune, T. D., **Li, C. X.,** Vemulapalli, S., Curry, A., **Waters, R. S.** Layer V neurons in forelimb barrel field cortex are modulated by input from homotopic sites in contralateral cortex; an in-vivo intracellular recording and labeling study. *Neuroscience Abstract*, 2011.

Reiner, A. J., Deng, Y., Wang, H., Lafferty, D. C., Del Mar, N., **Sakata, K.,** Wang, B., **Liao, F. F.** Striatal neuroprotection in R6/2 mice by the Group 2 metabotropic glutamate receptor agonist LY379268 may be mediated by the BDNF-Akt pathway. *Neuroscience Abstract*, 2011.

Reiter, L. Identification of candidate proteins and transcripts involved in both 15q duplication autism and Angelman syndrome. *Neuroscience Abstract*, 2011.

Rogers, T. D., Spight, V., **Heck, D. H.,** Goldowitz, D., **Mittleman, G., Blaha, C. D.** Cerebellar Purkinje cell loss results in a shift in modulatory control of cortical dopamine release by two distinct cerebellar-prefrontal cortex pathways: Relevance to the Autism disconnection hypothesis. *Neuroscience Abstract*, 2011.

Roy, S., Cao, Y., Sagot, B., **Heck, D. H.** Correlation between respiratory and exploratory whisking movements in mice is a function of whisking frequency. *Neuroscience Abstract*, 2011.

Sable, H. J., Rogers, T. D., Fielding, J. R., Meyer, A. E., Miller, M. M., Nelms, J. L., Ward, M. A., **Mittleman, G., Blaha, C. D.** Cocaine-induced dopamine efflux in the nucleus accumbens in rats perinatally exposed to polychlorinated biphenyls. *Neuroscience Abstract*, 2011.

Sagot, B., **Blaha, C. D., Mittleman, G.,** Goldowitz, D., **Heck, D. H.** Cerebellar modulation of frontal cortical activity in the mouse: Lateralization, spatial extent and time course

Selandipalayam, S. M., Cao, Y., **Heck, D. H.,** Jaeger, D. Modeling slow rate fluctuations and rhythmic modulation in the cerebellar cortico-nuclear pathway. *Neuroscience Abstract*, 2011.

Shepherd, K. R., Miller, G. W., Jiao, Y., **Smeyne, R. J.** Differences in antioxidant response enzymes glutathione peroxidase and glutathione s-transferase is associated with strain sensitivity to MPTP. *Neuroscience Abstract*, 2011.

Summers, K. C., **Steketee, J. D.** A role for sensitization in reinstatement of drug-seeking behavior. *Neuroscience Abstract*, 2011.

Taherbhoy, S., Stinnett, P. Z., Hua, C. H., Merchant, T. E., Gajjar, A., **Ogg, R. J.** Altered brain activation patterns in response to orthographic and phonologic tasks in pediatric medulloblastoma patients during treatment and follow-up. *Neuroscience Abstract*, 2011.

Wang, J., Adeosun, S., Jiao, Y., Henry, S., Hill, R., Zheng, B., Hou, X., Pani, A., Kyle, P., Bigler, S., Farley, J., Stockmeier, C., Paul, I., Brinton, R. D., **Smeyne, R.** Increasing endogenous neurogenesis using neurosteroids: A novel therapeutic strategy to treat Parkinson's disease. *Neuroscience Abstract*, 2011.

Yamada, Y., Peterson, C. B., **Prosser, R.** Copper and tetrathiomolybdate shift suprachiasmatic nucleus activity rhythms in vitro. *Neuroscience Abstract*, 2011.

Yin, L., **Lu, L.,** Jones, B. C. Dopamine, oxygen and iron homeostasis might be involved in paraquat neurotoxicity in mice. *Neuroscience Abstract*, 2011.

Yu, G., **Sharp, B. M.** Nicotine self-administration differentially modulates stress-induced neuronal activation in the limbic stress-integrative pathway. *Neuroscience Abstract*, 2011.

APPENDIX 3

Neuroscience Seminar Speakers

FY 2011-2012

THE NEUROSCIENCE INSTITUTE
UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

NEUROSCIENCE SEMINAR SERIES
SCHEDULE

FALL 2011

Stan Franklin, Ph.D. September 13, 2011
Host: Detlef Heck, Ph.D.
W. Harry Feinstone Interdisciplinary Research Professor
Department of Computer Science
Fedex Institute of Technology
University of Memphis

Title: "Mind According to the LIDA Model, and its Relation to Brains"

Larry Reiter, Ph.D. September 20, 2011
Associate Professor
Department of Neurology
UTHSC

Title: "Biochemical and Electrophysiological Effects of Changing UBE3A levels in Drosophila

Regina M. Sullivan, Ph.D. September 27, 2011
Host: Scott Heldt, Ph.D.
Research Professor
Department of Child and Adolescent Psychiatry
Developmental Behavioral Neurobiologist
Nathan S. Kline Institute for Psychiatric Research
New York University Langone Medical Center

Title: "Neurobiology of Infant Attachment and Fear Suppression: Lessons from an Animal Model"

Ronald G. Gregg, Ph.D. October 4, 2011
Host: Eldon Geisert, Ph.D.
Professor and Chairman
Department of Biochemistry and Molecular Biology
University of Louisville

Title: "What Might Blind Mice Tell Us About Neuronal Signal Transduction in the Retina?"

Stephen C. Fowler, Ph.D. October 11, 2011
Host: Anton Reiner
Professor
Department of Pharmacology and Toxicology
Senior Scientist
Life Span Institute
University of Kansas

Title: "Mouse Behavioral Phenotyping with a Force-plate Actometer: Translational Perspectives on Fragile X Syndrome, Krabbe's Disease, and Huntington's Disease"

Grazyna Adamus, Ph.D. October 18, 2011
Host: Alessandro Iannaccone, Ph.D.
Professor
Ocular Immunology Lab
Casey Eye Institute
Oregon Health and Science University

Title: "Advances in the Immunology of Retinal Degeneration"

Ronald L. Schnaar, Ph.D. October 25, 2011
Host: Michael McDonald, Ph.D.
Professor
Departments of Pharmacology and Neuroscience
The Johns Hopkins School of Medicine

Title: "Myelin-associated Glycoprotein and Brain Gangliosides: Partners in Axon-myelin Interactions"

Robert W. Williams, Ph.D. November 1, 2011
Professor
Department of Anatomy and Neurobiology
UTHSC

Title: "Systems Neuroscience and Genetics: Bridging from Behavior to Basepair"

Abraham Palmer, Ph.D. November 8, 2011
Host: Robert W. Williams, Ph.D.
Assistant Professor
Department of Human Genetics
University of Chicago

Title: "Behavioral Genetics Studies in Mice: New Populations, New Tools and the Identification of a Novel Endogenous GABAergic Agonist"

Rajesh C. Miranda, Ph.D. November 29, 2011
Host: Kristin Hamre
Associate Professor
Department of Neuroscience and Experimental Therapeutics

Texas A&M Health Science Center

Title: "MicroRNA Programming of Fetal Neural Stem Cell Maturation: Uncovering Novel Mechanisms of Fetal Growth and Ethanol Teratology"

Oleg Favorov, Ph.D. December 6, 2011
Host: Robert Waters, Ph.D.
Research Associate Professor
Department of Biomedical Engineering
The University of North Carolina at Chapel Hill

Title: "Algorithmic Simplicity of Structural and Functional Complexity of Neocortical Layer 4"

Timothy B. Rowe, Ph.D. December 13, 2011
Host: Robert Foehring, Ph.D.
Professor
Department of Geological Sciences
The University of Texas at Austin

Title: "Fossil Evidence on Origin of the Mammalian Brain"

NEUROSCIENCE SEMINAR SERIES
SCHEDULE

Spring 2012

Ricardo Araneda, Ph.D. January 24, 2012
Host: Matt Ennis, Ph.D.
Assistant Professor
Department of Biology
University of Maryland

Title: "Neuromodulation in the Olfactory Bulb and Odor Processing"

Matthew Farrer, Ph.D. January 31, 2012
Host: Mark LeDoux, M.D., Ph.D.
Professor
Department of Medical Genetics
Canada Excellence Research Chair in Neurosciences
Senior Scientist
Brain Research Centre
University of British Columbia

Title: "Molecular Pathogenesis of Parkinson's Disease"

Reese Scroggs, Ph.D. February 7, 2012
Associate Professor
Department of Anatomy and Neurobiology
UTHSC

Title: "Serotonergic Modulation of Low-threshold Tetrodotoxin-resistant Sodium Current in Rat Nociceptors"

JoAnne McLaurin, Ph.D. February 14, 2012
Host: Michael McDonald, Ph.D.
Professor
Department of Laboratory Medicine and Pathobiology
University of Toronto

Title: "Scyllo-inositol, a Potential Treatment for Alzheimer's Disease"

David J. Solecki , Ph.D. February 21, 2012
Host: Kristin Hamre, Ph.D.
Assistant Member
Department of Developmental Neurobiology
St. Jude Children's Research Hospital

Title: "Siah Regulation of the PAR Complex Controls Neuronal Cell Adhesion during Germinal Zone Exit"

Peter Hedera, M.D., Ph.D, FACMG February 28, 2012
Host: Mark LeDoux, M.D., Ph.D.
Associate Professor
Department of Neurology
Vanderbilt University Medical Center

Title: "Hereditary Spastic Paraplegia – Many Genes, How Many Pathways?"

Streamson Chua, Jr., M.D., Ph.D. March 6, 2012
Host: Ioannis Dragatsis, Ph.D.
Professor
Departments of Medicine and Neuroscience
The Albert Einstein College of Medicine of Yeshiva University

Title: "Neuronal Network Regulating Feeding and Metabolism"

Joe Hollyfield, Ph.D. March 20, 2012
Host: Tonia Rex, Ph.D.
Chairman
Department of Ophthalmic Research
Llura and Gordon Gund Professor of Ophthalmology Research
Cole Eye Institute
Cleveland Clinic Lerner College of Medicine

Title: "The Link Between Oxidative Damage, Inflammation, and Age-related Macular Degeneration"

Stephen Dewey, Ph.D. March 27, 2012
Host: Kristin Hamre, Ph.D.
Co-Director
Laboratory of Molecular and Behavioral Neuroimaging
Center for Neurosciences
Feinstein Institute for Medical Research

Title: "Effects of Drugs of Abuse on the Human Brain"

Preston Garraghty, Ph.D. April 3, 2012
Host: Robert Waters, Ph.D.
Professor
Department of Psychological and Brain Sciences
Indiana University Bloomington

Title: "Plasticity and Metaplasticity in Adult Primate Somatosensory System"

Stella M. Papa, M.D. April 10, 2012
Host: Fu-Ming Zhou, Ph.D.
Assistant Professor
Department of Neurology
Emory University

Title: "Progressive Dysfunction of Striatal Neurons in Parkinson's Disease"

Mark A. Stopfer, Ph.D. April 17, 2012
Host: Kazuko Sakata, Ph.D.
Investigator
Laboratory of Cellular and Synaptic Neurophysiology
Porter Neuroscience Research Center
NICHD

Title: "Roles of Olfactory Receptor Neurons in Establishing Neural Codes for Odors"

Jeffrey S. Diamond, Ph.D. April 24, 2012
Host: Robert Foehring, Ph.D.
Senior Investigator
Synaptic Physiology Section
Porter Neuroscience Research Center
NINDS

Title: "Specialized Synapses Compute Visual Information in the Retina"

Peter G. Smith, Ph.D. May 1, 2012
Host: Jena Steinle, Ph.D.
Professor
Department of Molecular and Integrative Physiology
Co-Director
Kansas Intellectual and Developmental Disabilities Research Center
Founding Director
Institute for Neurological Disorders
University of Kansas Medical Center

Title: "Peripheral Nervous System Plasticity and Chronic Pain"

Robert Nicholls, D.Phil. May 8, 2012
Host: Larry Reiter, Ph.D.
Professor
Division of Medical Genetics
Department of Pediatrics
Children's Hospital of Pittsburgh of UPMC
University of Pittsburgh School of Medicine
Department of Human Genetics
University of Pittsburgh School of Public Health

Title: "Molecular Neurogenetics of Prader-Willi Syndrome and Hereditary Spastic Paraplegias"

Muna Naash, Ph.D. May 15, 2012
Host: Monica Jablonski, Ph.D.
Professor
Department of Cell Biology
Director
Cell Biology Graduate Program
The University of Oklahoma College of Medicine

Title: "Nanoparticle-mediated Gene Supplementation Therapy for Inherited Retinal Dystrophies"

APPENDIX 4

Neuroscience News, Events and Graduate Training Flyer

FY 2011-2012

The 2nd Annual

CANDLE Brain Awareness Week Conference

Social Determinants of Cognitive Development

Thursday, March 22, 2012
The Urban Child Institute: 600 Jefferson Avenue, Memphis TN 38105

Objectives:
Examine how behaviors and environments influence cognitive development in early childhood, with implications at the individual and population level.
Looking ahead: The assessment of social determinants of educational achievement in long term follow-up of the CANDLE cohort.

7:30 Breakfast (provided)

7:55 Welcome
Gene Cashman, MS, President and CEO of The Urban Child Institute

8:00 The CANDLE Study: Overview
Frances Tylavsky, Dr.P.H., Professor, Preventive Medicine, UTHSC, PI CANDLE Study

8:30 Maternal care and environmental influences: Molecular mechanisms on stress indices
Michael Meaney, PhD, Professor, Departments of Psychiatry and Neurology and Neurosurgery, McGill University

9:45 The role of magnetoencephalography (MEG) in basic research and early child development
Andrew Papanicolaou, PhD, Professor and Chief of Clinical Neurosciences, Department of Pediatrics, UTHSC

10:00 Genetic components of Socialization: Animal Studies, implications for CANDLE research agenda
Robert Williams, PhD, Professor, Department of Anatomy and Neurobiology, UTHSC

10:15 Break

10:30 Maternal and child determinants of socioemotional development: The CANDLE Study
Frederick Palmer, MD, Shainberg Professor of Developmental Pediatrics, UTHSC

10:45 Social gradients in brain development: Population based approaches and findings
Clyde Hertzman, MD, Professor, School of Population and Public Health, University British Columbia

12:00 Lunch (provided)

12:15 Social gradients in Memphis and neighborhood risks: Applications for The CANDLE Study
Phyllis Betts, PhD, Professor, Criminology and Criminal Justice, University of Memphis

12:30 **Social work's perspective on cognitive development**
Terri Combs-Orme, PhD, Professor, Social Work, UT Knoxville

12:45 Ethnic racial socialization: Implications for early child development
Sha'Kema Blackmon, PhD, Professor, Counseling Educational Psychology and Research Department, University of Memphis

1:00-2:30 Discussion/ Summary
Moderated by Dan Goldowitz, PhD, Department of Medical Genetics, University of British Columbia

Please RSVP by March 8th, 2012 to Debra Jackson: djackso9@uthsc.edu (901) 448-8220

the CANDLE study
http://www.candlestudy.org

THE NEUROSCIENCE INSTITUTE
UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER
http://www.uthsc.edu/

THE URBAN CHILD INSTITUTE
http://www.theurbanchildinstitute.org

THE NEUROSCIENCE INSTITUTE
UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

THE URBAN CHILD INSTITUTE

Brain Awareness Night

"New Initiatives for Optimizing Brain Development in Children"

Thursday, March 22, 2012

A Presentation for the General Public

The Urban Child Institute **600 Jefferson Avenue**
5:30-6:30pm Refreshments **6:30-8:30pm Presentations**

SPEAKERS

Dr. Daniel Goldowitz, Ph.D

Professor, Medical Genetics and the Centre of Medicine and Therapeutics, University of British Columbia

"The Malleable Brain: In Good Times and Bad"

During early development of the fetus and baby, special events at critical times occur to form a functioning brain. Environmental influences are very significant during this period, for better or worse. This talk will discuss how these factors play out in an organ that is highly plastic.

Dr. Clyde Hertzman, MD

Director, Human Early Learning Partnership, University of British Columbia

"A New Method for Measuring Social and Cognitive Development Leads to New Initiatives for Child Development"

Although parents want to do what is best for their children, high quality nurturance is hard for families to provide on their own and requires help from society at all levels. Accordingly, Dr. Hertzman has developed a tool that provides information on physical, social-emotional, and language-cognitive development of children across whole populations as they transition from pre-school to school. Results have led to dozens of new initiatives for early childhood development. This talk will discuss this new tool and implementation of new initiatives and pilot programs at local and national levels.

Professional training hours (CEUs) will be provided by the UT Neuroscience Institute. For more information, contact Dr. Paul Herron, Neuroscience Institute (901-448-5824)
Space is limited.

Please pre-register with Susan M. Day, The Urban Child Institute (901-385-4242) SDay@TheUrbanChildInstitute.org
Attendance is free.

Coffee Break: Brewery to reopen The Belle

The Commercial Appeal
Posted August 11, 2011 at midnight

Discuss Print A A A

The Belle, a 39-year-old special-events venue attached to the Blues City Brewery, will mark its grand reopening from 6 to 10 p.m. Saturday.

Maxx Management LLC, owned by Jammie Johnson, will operate the Belle Ballroom and Texas Deck for private functions, including weddings, anniversaries, receptions and dances.

The riverboat-themed hospitality facility at 5241 E. Raines opened in 1972 as the Schlitz Belle and later operated as the Stroh's Belle and Coors Belle. It has been known simply as The Belle since 2006.

The reopening comes as La Crosse, Wis.-based City Brewing restarts the brewery.

Memphis: No. 1 U.S. hub

Memphis remained the No. 1 logistics, distribution and shipping hub in 2011 rankings by Business Facilities magazine.

"Memphis has an unsurpassed combination of air, rail, land and water shipping possibilities," said Jack Rogers, editor in chief. "When it absolutely, positively has to get there, it usually goes through Memphis."

The magazine said the city repeated as first-place finisher in part because of FedEx world headquarters and its status as "North America's premier, perhaps its only, aerotropolis."

Following Memphis in the rankings were Chicago, Houston, Los Angeles, New Orleans, Port Authority of New York/New Jersey, Philadelphia, Mobile, Charleston, S.C. and Savannah, Ga.

Eye research gets grant

A University of Tennessee Health Science Center researcher has won a $495,000 grant to study eye damage in diabetic patients.

Jena J. Steinle, associate professor in the university's departments of ophthalmology and anatomy and neurobiology, won the three-year grant from Juvenile Diabetes Research Foundation.

The grant will be used to develop a topical treatment for diabetic retinopathy for clinical trials.

PEOPLE

Carl Getto, MD

Carl Getto, MD, became chief medical officer for the Regional Medical Center as well as the associate dean for Clinical Affairs in the College of Medicine. The position is a cooperative bridge between hospital administration and medical staffs. Dr. Getto graduated from Loyola University Stritch School of Medicine in Chicago, Ill., and completed his residencies at the University of Colorado Medical Center. He also holds a masters in management from the Kellogg School of Business at Northwestern University. Prior to accepting this new position, Dr. Getto served as the senior vice president of Medical Affairs at the University of Wisconsin Hospital and Clinics, Madison, Wis. His professional associations include organizations and initiatives focused on patient-centered care, quality and medical education. His medical specialty is psychiatry.

Dick Gourley, PharmD

Dick Gourley, PharmD, dean of the UT College of Pharmacy, stepped down from his post of more than 22 years to serve as interim president of the University of Tennessee Research Foundation (UTRF). The foundation is a nonprofit organization that encourages an entrepreneurial culture, contributes to state and regional economic development, and promotes research and education to benefit the people of Tennessee and beyond. As the new interim president, he will manage the budget and financial operations, as well as work with constituents on each of the university's campuses and related institutions. One major item on Dr. Gourley's agenda is the recruitment of new associates, especially in Knoxville. There will be a retreat for all of the UTRF staff in November to discuss the new goals for the institution over the next year and a half including finding new initiatives to fund maturation grants.

Carissa Jamison, MSN-CNL

Carissa Jamison, MSN-CNL, a Robert Wood Johnson Foundation (RWJF) New Careers in Nursing scholarship recipient, is featured on the Web site with her scholarship-winning essay. The program provides scholarships of $10,000 each to more than 1,500 college graduates without nursing degrees who are enrolled in accelerated baccalaureate and master's nursing programs. Jamison's essay brings to light the patience and empathy necessary to succeed in the health care field. Jamison was a member of the inaugural Nursing class of the Clinical Nurse Leader program, which graduated in May 2011.

Wafa Khasawneh, MS, a doctoral nursing student in the College of Nursing, is one of six individuals nationwide to receive a three-to five-year doctoral fellowship award from the Southern Regional Education Board. Her doctoral work focuses on identifying strategies that support and promote breastfeeding for the health of both the mother and baby. Khasawneh's goal is to be exposed to high-quality scientific research and education and share information about promoting mother-child health through breastfeeding practices within the scientific and health care communities.

Wafa Khasawneh, MS

The Southern Regional Education Board is a nonprofit, nonpartisan organization that works with 16 member states to improve public pre-K through 12 and higher education.

Cesar Migliorati, DDS, PhD, has been named chair of the Department of Biologic and Diagnostic Sciences in the College of Dentistry. Dr. Migliorati is internationally known for his work in oral cancer and bisphosphonate research. He has been an outstanding asset to the college since his arrival in 2009. The news comes following Dr. Migliorati's recent post as the new chair of the Bone Complications study group for the Multinational Association of Supportive Care in Cancer and International Society of Oral Oncology.

Cesar Migliorati, DDS, PhD

Andrzej Slominski, MD, PhD, professor of Pathology and director of the Dermatopathology Fellowship Program and Skin Cancer Division of the UT Center for Cancer Research, was elected secretary of the International Federation of Pigment Cell Societies (IFPCS).

Andrzej Slominski, MD, PhD

The IFPCS consists of four regional scientific societies devoted to the study of various aspects of pigment cells. The organization is responsible for the publication *Pigment Cell and Melanoma Research*. IFPCS organizes the International Pigment Cell Conference, which will next be held in Bordeaux, France.

GRANTS

Congratulations to the following UTHSC team members who have recently received grants totaling more than $5,000. The Grants List is compiled from information provided by the Office of Research Administration.

Kevin Creamer, BS
NIH-National Institute on Aging
"Chromatin Remodeling Complex in the Spreading of Silent Heterochromatin"
$94,812
Dispersed over: 3 years

Meiyun Fan, PhD
National Cancer Institute
"Molecular Mechanism of ID1 Function in Advanced Breast Cancer"
$707,988
Dispersed over: 3 years

Detlef Heck, PhD
NIH-National Institute of Neurological Disorders and Stroke
"Manipulation and Imaging of Synchronous Population Activity in the Neocortex"
$368,792
Dispersed over: 2 years

Steven Laizure, PharmD
NIH-National Institute of General Medical Service
"Inhibitor of Cardoxylesterase Metabolism by Ethanol"
$299,584
Dispersed over: 2 years

Ronald Laribee, PhD
National Cancer Institute
"Epigenetic Regulation by Target of Rapamycin (TOR) Signaling"
$358,377
Dispersed over: 2 years

Micheal Patrick McDonald, PhD
NIH-National Institute of Aging
"GD3 Synthase Gene Therapy to Improve Memory and Prevent Neural Degeneration"
$910,200
Dispersed over: 3 years

Thaddeus Nowak, PhD
NIH-National Institute of Neurological Disorders and Stroke
"Elimination Anesthesia Confounds in Experimental Stroke"
$397,004
Dispersed over: 2 years

Frederick B. Palmer, MD
Health Resources and Services Administration/Maternal and Child Health Bureau
"Leadership Education in Neurodevelopmental Disabilities (LEND)"
$4,666,191
Dispersed over: 5 years

Anton Reiner, PhD
NIH-National Eye Institute
"Neural Control Choroidal Blood Flow"
$1,498,438
Dispersed over: 4 years

Andrzej Slominski, MD, PhD
NIH – National Institute of Arthritis and Musculoskeletal and Skin Diseases
"Role of Exogenous Melatonin in Skin Biology"
$1,662,408
Dispersed over: 5 years

Kenichi Tokita, PhD
NIH-National Institute on Deafness and Other Communications Disorders
"The Role of the Thalamus in Taste Processing"
$444,000
Dispersed over: 3 years

Junling Wang, PhD
NIH-National Institute on Aging
"Health Implications of MTM Eligibility Criteria"
$888,742
Dispersed over: 3 years

Teresa Waters, PhD
Agency for Healthcare Research and Quality, Department of Health and Human Services
"Responses to Medicare's Nonpayment for Preventable Hospital Complications"
$793,056
Dispersed over: 2 years

Fu-Ming Zhou, PhD, MD
NIH-National Institute of Neurological Disorders and Stroke
"TRPC3 Channel Mediates 5-HT2C Receptor Excitation in Substance Nigra Reticulate"
$74,792
Dispersed over: 1 year

PEOPLE

Bradley Boucher, PharmD

Bradley A. Boucher, PharmD, professor of Clinical Pharmacy and associate professor of Neurosurgery, received the American College of Clinical Pharmacy (ACCP) 2011 Clinical Practice Award. This prestigious award honors those who have demonstrated exceptional leadership in the development of innovative clinical pharmacy services and sustained excellence in service delivery.
In 1984, Dr. Boucher joined UTHSC and started a critical care pharmacy practice in the intensive care unit of the Elvis Presley Memorial Trauma Center, Regional Medical Center at Memphis, where he still practices today. During his career, he has developed a Critical Care/Nutrition Support Pharmacy Residency Program, training critical care pharmacy fellows and 48 critical care pharmacy residents. The prestigious award was presented during the opening general session of the ACCP 2011 Annual Meeting.

Lawrence M. Brown, PhD, PharmD

Lawrence M. Brown, PhD, PharmD, chair and director of Graduate Studies in the Health Outcomes and Policy Research Division in the College of Pharmacy, and research director at the UT Center for Medication Therapy Management, received the Medallion of the Association by the Hungarian Private Pharmacists Association (MOSZ) at its Annual Meeting in Siofok, Hungary. The award recognizes Dr. Brown's eight years of work with Hungarian community pharmacists to advance the practice of pharmacy in Hungary. The Medallion of the Association is the second-highest award given by MOSZ, with Dr. Brown being the first non-Hungarian to receive this honor.

Patricia Cunningham, DNSc

Patricia Cunningham, DNSc, PMHNP/CNS-BC, FNP-BC, APN, associate professor in the College of Nursing, received the 2011 American Psychiatric Nurses Association (APNA) Award for Excellence in Practice – Advanced Practice Registered Nurse category. Dr. Cunningham, who also serves as the Psychiatric Mental Health Nursing Option coordinator at UTHSC, was nominated by her peers and selected by an APNA committee. Dr. Cunningham is certified as an adult psychiatric/mental health clinical nurse specialist through the American Nurses Credentialing Center. She also holds certifications as a psychiatric family nurse practitioner and a family nurse practitioner. In addition to her roles at UTHSC, she volunteers with the Tennessee Public Safety Network to serve the Shelby County Sheriff's Office with critical incident stress debriefing. She has been an integral part of the College of Nursing since 1992.

James Eason, MD

James Eason, MD, program director of the Methodist University Hospital Transplant Institute and professor in the Department of Surgery, was honored by the West Tennessee Chapter of the Cystic Fibrosis Foundation at the annual Breath of Life Gala. Dr. Eason is an alum of UTHSC Medical School and has been part of the faculty since 2006. In 2009, he completed the successful liver transplant of Apple CEO Steve Jobs. Dr. Eason has led the Transplant Institute into a nationally recognized Center for Excellence for liver and kidney transplants.

Jonathan Jaggar, PhD

Jonathan Jaggar, PhD, professor of Physiology, was named to the Meury W. Bronstein Chair of Excellence in Cardiovascular Physiology. The prestigious honor is named for Dr. Bronstein, internist and cardiologist at Baptist Hospital for more than 50 years, and a 30-year professor at UTHSC. The honorary chair title was established for him in 1987, and was formerly occupied by Aviv Hassid, PhD. Dr. Jaggar's research focuses on mechanisms regulating the diameter of small arteries and arterioles that modulate systemic blood pressure and organ blood flow. He has written and published more than 60 articles and is on the editorial board of the *American Journal of Physiology*. Dr. Jaggar will use funds from the endowed professorship for cardiovascular research.

Diane Todd Pace, PhD

Diane Todd Pace, PhD, FNP-BC, NCMP, CCD, FAANP, assistant dean for Practice in the College of Nursing and director of University Health Services, was elected president-elect for the North American Menopause Society (NAMS) at the 2011 annual scientific meeting in Washington, D.C.
NAMS is North America's leading nonprofit organization dedicated to promoting the health and quality of life of all women during midlife and beyond through an understanding of menopause and healthy aging. The organization is recognized as the preeminent resource on all aspects of menopause to both health care providers and the public. The multidisciplinary membership of 2,000 leaders in the field includes clinical and basic science experts from medicine, nursing, sociology, psychology, nutrition, anthropology, epidemiology, pharmacy, and education. Dr. Pace is the first nurse practitioner to be elected to this leadership role and will serve as NAMS president for 2012-2013. Dr. Pace has been a member of NAMS since 1996. In 2011, she also passed the national Health Information Technology Clinician/Practitioner Consultant Certification Exam, which assesses competency of clinicians seeking to demonstrate proficiency in health IT workforce roles.

Carrie Plummer, MSN

PhD student **Carrie Plummer, MSN, ANP**, was awarded one of 15 national John A. Hartford Academic Geriatric Nursing Predoctoral Scholarships. Plummer will use the two-year, $100,000 scholarship to obtain new competencies in gerontological nursing research, leadership and education. Her research focuses on community-based accumulation of home medications and their associated adverse health outcomes for older adults. Her advisor is Veronica Engle, PhD, GNP, FGSA, FAAN, professor in the College of Nursing.

New Bookstore Manager

Just in time for a new semester of textbook buying, there is a new face in charge of the University Bookstore. Charles Burck was recently appointed manager of the UTHSC Bookstore. Prior to accepting his new position, Burck was inventory manager at the Troy University bookstore in Alabama and previously was cash office supervisor at the University of Mississippi bookstore in Oxford, Miss.

GRANTS

Congratulations to the following UTHSC team members who have recently received grants totaling more than $5,000. The Grants List is compiled from information provided by the Department of Research Administration.

Hassan Almoazen, PhD
UT Research Foundation
"Transdermal Delivery of Trace Elements by Nanoemulsion Technology as an Alternative to Parenteral Delivery"
$15,000
Dispersed over: 1 year

James Dale, MD
NIH - National Institute of Allergy and Infectious Diseases
"Vaccine Prevention of Group A Streptococcal Infections"
$315,000
Dispersed over: 5 years

Denis DiAngelo, PhD
UT Research Foundation
"Dynamic Back Support System"
$15,000
Dispersed over: 1 year

Monica Jablonski, PhD
UT Research Foundation
"A Novel Drug and Nanoparticle Delivery System for the Treatment of Age-related Macular Degeneration Toxicity and Pharmacokinetics Studies"
$15,000
Dispersed over: 1 year

Michio Kurosu, PhD
UT Research Foundation
"Novel Electron Transport Inhibitors for MDR-Gram Positive Bacterial Infections: In Vivo Study"
$15,000
Dispersed over: 1 year

Robert Maxwell, MD
NIH - National Trauma Institute
"Methicillin-Resistant Staphylococcus aureus in a Trauma Population: Does Decolonization Prevent Infection?"
$180,000
Dispersed over: 1 year

Andreas Schwingshackl, MD
The Le Bonheur Club
Winner - Bea Gerber Award
$5,000
Dispersed over: 1 year

PEOPLE

Jonathan Jaggar, PhD

Jonathan Jaggar, PhD, professor, Maury W. Bronstein Chair of Excellence in the Department of Physiology, has been named chair of the Hypertension and Microcirculation (HM) Study Section for the National Institutes of Health (NIH). As part of the position, he will oversee applications involving basic and applied aspects of cardiovascular regulation with a focus on the physiology of blood pressure regulation, the pathogenesis of hypertension and microcirculation. Dr. Jaggar has written and published more than 60 articles, and is on the editorial board of the *American Journal of Physiology*. His NIH appointment will run from June 2012 until May 2014.

Lisa K. Jennings, PhD

Lisa K. Jennings, PhD, professor, director of the Vascular Biology Center of Excellence and director of the Cardiovascular Clinical Research Consortium was honored with the Initiative Award by the Women of Achievement of Memphis. The annual awards event recognizes women who have made Memphis and Shelby County better through their lives and accomplishments. Dr. Jennings has published more than 110 peer-reviewed articles and is currently on the scientific review board for the National Heart, Lung, and Blood Institute, a division of NIH. She was also featured in the recent CNBC show "Package Wars" episode about FedEx.

Jon McCullers, MD

Jon McCullers, MD, was named chair of the Department of Pediatrics and Pediatrician-in-Chief at Le Bonheur Children's Hospital. Dr. McCullers has been a full member of the St. Jude Children's Research Hospital faculty and has served as an adjunct professor at UTHSC for many years. His primary research has focused on finding interactions between viral and bacterial infections in children. Dr. McCullers is the primary investigator for a $3.2 million grant from the Centers for Disease Control and Prevention researching Etiology of Pneumonia in the Community, to determine both the incidence and cause of community-acquired pneumonia in hospitalized children. He is also a Fellow of the Infectious Diseases Society of America and serves on the IDSA Pandemic Task Force, advising the U. S. government on issues pertaining to bioterrorism and the threat of severe acute respiratory infection outbreaks. He succeeds Russell Chesney, MD, who has served as chair since 1988.

Alumni Affairs Welcomes

Jada Williams

Jada Williams, BA, has been named director of Annual Giving for the Health Science Center. She has worked for the UT System for 35 years, with 26 of those years in the Office of Alumni Affairs and Annual Giving for UT Knoxville. Although a native of East Tennessee, Williams moved to Memphis in October 2011 to assume her current position. She earned her bachelor's degree in English at UT Knoxville. Her primary responsibilities include the creation, production and oversight of annual solicitations for each of the college funds and the general campus fund.

Michelle Nixon, MBA

Michelle Nixon, MBA, has joined the Office of Alumni and Giving as an assistant director. Her new position will focus on student and young alumni programming. Prior to joining UTHSC, Nixon worked as a marketing consultant for ServiceMaster.

GRANTS

Congratulations to the following UTHSC team members who have recently received grants totaling more than $5,000.

The Grants List is compiled from information provided by the Department of Research Administration.

James Bailey, MD
BlueCross BlueShield of Tennessee
"Tennessee Ambulatory QI Needs Assessment Survey"
$20,000
Dispersed over: 1 year

Thomas Curry, MD
U.S. Army Medical Research
"Nanofiber-based Bone Repair Device for Limb Salvage"
$873,964
Dispersed over: 1 year

Harry Courtney, PhD
NIH - National Institute of Allergy and Infectious Diseases
"Role of M-related Protein and IgG Interactions in Virulence of S. pyogenes"
$126,000
Dispersed over: 2 years

Karen Hasty, PhD
NIH - National Institute of Arthritis and Musculoskeletal and Skin Disease
"Early Detection and Treatment of OA"
$378,187
Dispersed over: 2 years

Roderick Hori, PhD
U. S. Army Medical Research Acquisition Activity
"Delineation of Methyl-DNA Binding Protein Interactions in the Prostate Cancer Genome"
$112,266
Dispersed over: 1 year

Michael McDonald, PhD
NIH - National Institute on Aging
"Dietary Glycomacropeptide for Neuroprotection and Cognitive Enhancement"
$399,420
Dispersed over: 2 years

Lawrence Reiter, PhD
NIH - National Institute of Neurological Disorders and Stroke
"Tooth Pulp as a Source for Neuronal Precursor Cells to Study Neurogenetic Disorder"
$412,344
Dispersed over: 2 years

Tonia Rex, PhD
NIH - National Eye Institute
"Novel Therapy and Mechanisms in Glaucoma"
$1,874,688
Dispersed over: 5 years

Mitchell Watsky, PhD
NIH - National Eye Institute
"Vitamin D Metabolism and Function in the Cornea and Anterior Segment"
$1,499,792
Dispersed over: 4 years

Robert W. Williams, PhD
NIH - National Institute on Alcohol Abuse and Alcoholism
"Systems Genetics of Alcohol Response and Stress Effects in CNS"
$2,142,745
Dispersed over: 5 years

Happy Birthday Dr. Boling!

On Feburary 19, Edward J. Boling, EdD, turned 90! Dr. Boling served as UT System president from 1970 to 1988. His tenure was the longest term of any UT president in the university's history.

Under Dr. Boling's leadership, the university saw expanded enrollment and physical growth, particularly on the Knoxville campus. Dr. Boling heavily promoted private fundraising and relationships with alumni, and was instrumental in providing support for women's athletics at UT.

If you would like to view the video tribute for Dr. Boling or leave him a birthday message, go to http://www.tennessee.edu/boling/.


THE
NEUROSCIENCE INSTITUTE
UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER
St. Jude Children's Research Hospital
ALSAC • Danny Thomas, Founder
Graduate Studies in Neuroscience
The Neuroscience Graduate Program is a multidisciplinary, interdepartmental program at the University of Tennessee Health Science Center (UTHSC) and supported by the Neuroscience Institute. Established in 1985, the Neuroscience Institute comprises over 90 faculty from multiple departments and colleges, including Anatomy and Neurobiology, Medicine, Molecular Sciences, Neurology, Neurosurgery, Ophthalmology, Pathology, Pediatrics, Pharmaceutical Sciences, Pharmacology, Physiology, and Surgery. Some faculty hold primary appointments at the world-renowned St. Jude Children's Research Hospital a short distance away. Our Ph.D. program provides a broad research training in neurophysiology, neuropharmacology, neuroanatomy, molecular and cellular neuroscience, developmental neurobiology, and behavioral neuroscience.
Basic and clinical Neuroscience research at UTHSC focus on intracellular signaling pathways, neuronal excitability, synaptic transmission, sensory processing and retinal biology, neurological and neurodegenerative disorders, brain tumors, neurogenetics and neural development, and mental and addictive disorders. UTHSC is one of the world's leading centers exploiting novel genetic approaches to explore brain development, CNS function and behavior, and psychiatric and neurodegenerative diseases.
Memphis is a culturally diverse metropolitan area of over 2.5 million residents, with the rich traditions associated with a city on the banks of the Mississippi River. Memphis has more sunny days then Miami, and combines southern heritage and hospitality with contemporary charm. You'll enjoy great dining (world famous barbecue), art galleries and an exiciting nightlife. Memphis is a must for those wanting to visit the birthplace of blues, soul, and rock and roll. Sun Studio, The Rock 'N' Soul Museum, Gibson Guitar Factory and Beale Street entertainment district are just a few blocks from campus, as is the Mississippi River, and downtown. The city is runner and bike-friendly, with a new "greenline" that extends to the city center from a 3200 acre urban park (Shelby Farms) that also provides fishing and horseback riding. Memphis is home to FedEx, to the NBA's Memphis Grizzlies, and to the Memphis Zoo, ranked one of the top zoos in the US and home to over 3500 animals on 76 beautifully landscaped acres.
To apply to the Neuroscience Track of our Graduate Program, please go to the Integrated Biomedical Science Program website:
http://www.uthsc.edu/grad/IBS
To find out more about Neuroscience and our program, please visit our website:
http://www.uthsc.edu/neuroscience
THE UNIVERSITY of TENNESSEE
HEALTH SCIENCE CENTER