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YEAR IN REVIEW 2007-2008

FUNDING: Despite the very difficult funding environment at NIH, NSF and other agencies, 2007-2008, overall, was another excellent year in which the department continued to excel in education, research and service. Research funding in the department was \$6,559,026 (total costs) in NIH support. Our department is ranked 10th nationally in research funding among all public University Physiology Departments. Also noteworthy is the fact that during the year, our faculty held more NIH grants than any other department at the Medical Center. Nearly every faculty member's research program was supported by major external funding.

EDUCATION: This year completed the transition to the new curriculum focusing on integration across disciplines. Dr. Merrill Tarr, Director of Medical Education for the department, continues to play a major role in running the new integrated modules for which our department has primary responsibility - Cardiopulmonary and Renal-Endocrine. The wrinkles continue to be smoothed out in the new curriculum and the students seem to have a favorable view of it compared to the old curriculum. To the credit of all the individual faculty instructors and particularly to Merrill, the Cardiopulmonary and Renal-Endocrine modules were both rated highly by the students. This was also another successful year in terms of teaching awards. At the "Grande Affair" celebration on April 5th, Dr. John Wood and Dr. Gustavo Blanco again were recognized for excellence in teaching. They each won the Student Voice Award for "Outstanding Lecturer" in the first year of the medical curriculum. We congratulate both John and Gustavo on their continuing success. This year we were especially pleased that our department was also recipient of the "Outstanding Module in the First Year" award which went to the Cardio-pulmonary module. Dr. Tarr serves as director of this module and he deserves a lot of credit for its success. There was still another winner at the Grand Affair this year. A couple of really big "big screens" made it possible for all of us to delight in watching the KU Jayhawks demolish the North Carolina Tar Heels (boo!) in the semifinals of the NCAA basketball tournament. The Jayhawks went on to become national champions by beating Memphis in the final game. Finally, congratulations goes to Dr. Peter Smith who won the 2006-2007 Chancellor's Club Award for outstanding classroom teaching. He was honored at the 135th commencement in Lawrence.

MARION M. OSBORN PROFESSORSHIP: Congratulations to Dr. Leslie Heckert on being named the first Marion M. Osborn Professor. The investiture ceremony was Thursday October 9th just before the opening reception of the Greenwald Symposium. Leslie has excelled in every respect. Her research is concerned with the molecular mechanisms that regulate cellular differentiation and organ development in the reproductive system. We are all deeply indebted to Marion and Jim Osborn for their enormous generosity in supporting our department.



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TENURE TRACK APPOINTMENTS: This year there were no new appointments to the tenure track in our department.

RESEARCH TRACK APPOINTMENTS: Two appointments to the research track were made during the year. Dora Krizsan-Agbas, Ph.D. was appointed at the assistant professor level. Dora has been an important member of Peter Smith's research team for the past 10 years. Susan Smittkamp, Ph.D., was also appointed at the assistant professor level. Susan currently works with Dr. John Stanford. She is pursuing independent funding opportunities in the ALS field.

ADJUNCT APPOINTMENTS: There were several new joint appointments at the assistant professor level. Issac Onyango Ph.D. is an assistant professor in the Department of Neurology. His work focuses on the pathophysiology of Alzheimer's disease. Mukta Kumar, MD, MPH was given a joint appointment. She is currently Assistant Professor in Pediatrics, Division of Hematology Oncology. Her research interest is vascular aspects of sickle cell disease. Two faculty members at Stowers Institute for Medical Research were also given joint appointments. Peter Baumann, PhD is currently assistant investigator at Stowers. His work focuses on how defects in telomere maintenance contribute to cancerogenesis and aging. Sue Jaspersen, PhD is also assistant investigator at Stowers. Her work focuses on mechanisms responsible for accurate transmission of genetic and epigenetic information during cell division. The final joint appointment of the year was for Mark Chertoff, PhD at the associate professor level. Mark's primary appointment is in Hearing & Speech. He works on the peripheral auditory system. Important synergies with our department exist for each of these individuals and we look forward to their participation in the research and teaching programs of the department.

FACULTY PROMOTIONS: Congratulations to Leslie Heckert and Joe Tash who were both promoted to full professor.

FACULTY DEPARTURES: There were no faculty departures during the year.

GRADUATE PROGRAM AND PHYSIOLOGY SOCIETY: The graduate students in the department had another active year. The "Physiology Society" leadership included Emily McDonald as President, Sara Turk as Vice President, Argenia Doss as Social Event Coordinator. We are very pleased with the growth of the graduate program in Physiology. In August of 2007, seven new students were recruited to the department. We now have 27 doctoral students in the department. Three students completed their degrees during the year. Gregory Onyszchuk received his Ph.D. with Dr. Bill Brooks, Director of the Hogle Brain Imaging Center. Greg has plans to continue at Hogle as a postdoctoral fellow working on a project with Dr. Jules Nazzaro in Neurosurgery. Darcy Griffin received her Ph.D. with Dr. Paul Cheney. She will continue in Paul's lab as postdoctoral fellow before going on to a postdoctoral fellowship at the University of Pittsburgh Center for Neuroscience. Anh Nguyet Nguyen completed her Ph.D. with Dr. Gustavo Blanco. Anh will continue in Gustavo's lab as a postdoctoral fellow.

Prepared by:

Dr. Paul D. Cheney
Professor and Chair
December 16, 2008



**Department of Molecular and Integrative Physiology Faculty
2007-2008**

Top Row: Stan Svojanovsky, Thomas Imig, Erik Plautz, Mihai Popescu,
Andrei Belousov, Shawn Frost, Paul Terranova

Middle Row: Merrill Tarr, Gustavo Blanco, T. Rajendra Kumar, Norberto Gonzalez,
Wohaib Hasan, Michael Wolfe, Melissa Larson, Navneet Dhillon, Paige Geiger,
Sam Enna, Gaurav Chaturvedi

Bottom Row: John Stanford, Leslie Heckert, Peter Smith, Randy Nudo, Paul Cheney,
David Albertini, Shilpa Buch, Joseph Tash

Not Pictured: Dora Agbas, Lane Christenson, Sang-Pil Lee, Steven LeVine, John Wood



**Department of Molecular & Integrative Physiology Graduate Students
2007-2008**

Top Row: Edward Urban III, Gustaf Van Acker, Alison Ting, David Guggenmos,
George Thomas, Gwenaelle Wernli, Tim Donohue
Bottom Row: Crystal Bethel-Brown, Jill Morris, Martha Caletti, Lacy Luense, Heather Hudson,
Emily McDonald, Sara Turk, Lynda McGinnis, Darcy Griffin, Will Messamore
Not Pictured: Valentine Agbor, Aritra Bhattacharjee, Jie Chao, Guangbo Chen, Jeff Cotitta,
Beth Dille, Argenia Doss, Jitu George, Brittany Gorres, Anisha Gupte,
Tamara Jimenez-Alarcon, Anh-Nguyet Nguyen, Won-Mee Park, Kendall Smith,
Sara Smith, Mariam Riazi-Kermani, Eva Selfridge, Sara Tague, Wen Tang,
Rachel Williams, Huan Yang

DEPARTMENT ROSTER
July 1, 2007 – June 30, 2008

a. Faculty

Primary Appointment in Physiology

Paul D. Cheney, Ph.D., *Professor & Chairman*
David F. Albertini, Ph.D., *Hall Endowed Professor*
Andrei Belousov, Ph.D., *Associate Professor*
V. Gustavo Blanco, M.D., Ph.D., *Associate Professor*
Shilpa J. Buch, Ph.D., *Associate Professor*
Lane K. Christenson, Ph.D., *Assistant Professor*
Salvatore J. Enna, Ph.D., *Professor*
Paige C. Geiger, Ph.D., *Assistant Professor*
Norberto C. Gonzalez, M.D., *Professor*
Leslie L. Heckert, Ph.D., *Professor & Co-Director of the Center for
Reproductive Sciences*
Thomas J. Imig, Ph.D., *Professor*
T. Rajendra Kumar, Ph.D., *Assistant Professor*
Sang-Pil Lee, Ph.D., *Assistant Professor*
Steven M. LeVine, Ph.D., *Professor*
Randolph J. Nudo, Ph.D., *Professor & Director of The Landon Center
on Aging*
Peter G. Smith, Ph.D., *Professor & Director, Kansas Intellectual and
Developmental Disabilities Research Center*
John A. Stanford, Ph.D., *Assistant Professor*
C. Merrill Tarr, Ph.D., *Professor*
Joseph S. Tash, Ph.D., *Professor & Director, Interdisciplinary Center
for Male Contraceptive Research and Drug Development*
Paul F. Terranova, Ph.D., *Professor, Vice Chancellor for Research,
Senior Associate Dean for Research and Graduate Education*
Michael W. Wolfe, Ph.D., *Associate Professor*
John G. Wood, Ph.D., *Associate Professor*

Emeritus

Lawrence P. Sullivan, Ph.D., *Professor*
James L. Voogt, Ph.D., *Professor*

Stowers Affiliates

Peter Baumann, Ph.D., *Assistant Professor*
Scott Hawley, Ph.D., *Professor*
Sue Jasperson, Ph.D., *Assistant Professor*
Rong Li, Ph.D., *Professor*
Ho Yi Mak, Ph.D., *Professor*
Kausik Si, Ph.D., *Assistant Professor*

Research Track Faculty

Dora Agbas, Ph.D., *Research Assistant Professor*
Gaurav Chaturvedi, Ph.D., *Research Assistant Professor*
Navneet Dhillon, Ph.D., *Research Assistant Professor*
Shawn Frost, Ph.D., *Research Assistant Professor*
Wohaib Hasan, Ph.D., *Research Assistant Professor*
Melissa Larson, Ph.D., *Research Assistant Professor, Director of
Transgenic Facility*
Erik Plautz, Ph.D., *Research Assistant Professor*
Mihai Popescu, Ph.D., *Research Assistant Professor*
Stan Svojanovsky, Ph.D., *Research Assistant Professor*

Joint Appointment in Physiology

Kenneth Audus, Ph.D., *Professor (Professor & Dean, School of
Pharmacy, KU-Lawrence)*
Richard Barohn, Ph.D., *Professor (Chair, Neurology)*
Sangita Biswas, Ph.D., *Research Assistant Professor (Senior Research
Scientist MidAmerica Neuroscience Institute)*
William Brooks, Ph.D., *Professor (Director, Hoglund Brain Imaging
Center)*
Jeffrey Burns, Ph.D., *Assistant Professor (Neurology, Director of
Alzheimer and Memory Center & Alzheimer's Disease Clinical
Research Program)*
Mark Chertoff, Ph.D., *Associate Professor (Hearing & Speech)*
In-Young Choi, Ph.D., *Assistant Professor (Neurology & Hoglund Brain
Imaging Center)*
Barry Festoff, M.D., *Professor (Neurology and Pharmacology, Director of
the Neurobiology Research Laboratory at the VA Medical Center,
KCMO)*
Jill Jacobson, M.D., *Professor (Chief, Endocrinology/Diabetes.
Children's Mercy Hospital)*
Gregory Kopf, Ph.D., *Associate Vice Chancellor for Research*
Mukta Kumar, Ph.D., *Assistant Professor (Pediatrics)*
Benyi Li, Ph.D., *Assistant Professor (Internal Medicine)*
Warren Nothnick, Ph.D., *Associate Professor (Ob-Gyn)*
Isaac G. Onyango, D.V.M., Ph.D., *Research Assistant Professor
(Neurology)*
Brian Petroff, DVM, Ph.D., *Assistant Professor (Internal Medicine &
Scientific Director, Breast Cancer Prevention Center)*
Janet Pierce, D.S.N., *Professor (School of Nursing)*
Vidudula Prasad, Ph.D., *Research Associate Professor (VA Medical
Center)*
Jeffrey Radel, Ph.D., *Associate Professor (Occupational Therapy
Education)*

Michael Soares, Ph.D., *Professor (Director, Institute of Maternal-Fetal Biology, Professor, Pathology)*
Zhiming Suo, Ph.D., *Research Assistant Professor (Neurology)*
Russell H. Swerdlow, Ph.D., *Professor (Neurology)*
William Truog, Ph.D., *Professor (Children's Mercy Hospital, University of Missouri-Kansas City School of Medicine)*
Darren Wallace, Ph.D., *Research Assistant Professor (Internal Medicine)*
Steven Warren, Ph.D., *Professor (Applied Behavioral Science, KU-Lawrence; Director, Schiefelbusch Institute for Life Span Studies)*
Carl Weiner, M.D., M.B.A., *Professor (Chair, Ob-Gyn)*

b. Graduate Students	Prelims	Candidate	Requirements Fulfilled
Valentine Agbor		Ph.D.	
Crystal Bethel-Brown		Ph.D.	
Aritra Bhattacharjee		Ph.D.	
Martha Carletti		Ph.D.	
Jie Chao		Ph.D.	
Jeff Cotitta		Ph.D.	
Elizabeth Dille		Ph.D.	
Timothy Donohue		M.D./Ph.D.	
Argenia Doss	11/07	Ph.D.	
Stephanie Fiedler		M.S.	
Jitu Wilson George		Ph.D.	
Brittany Gorres		Ph.D.	
Darcy Griffin	3/05	Ph.D.	
David Guggenmos		Ph.D.	
Anisha Gupte	6/07	Ph.D.	
Heather Hudson	6/07	Ph.D.	
Tamara Jimenez		Ph.D.	
Emily McDonald		Ph.D.	
Joe McDonald	7/03	M.D./Ph.D.	
Lynda McGinnis	1/07	Ph.D.	
Jill Morris		Ph.D.	
Ahn-Nguyet Nguyen	12/06	Ph.D.	
Greg Onyszchuk	10/05	Ph.D.	12/07
Won-Mee Park		Ph.D.	
Mariam Riazi-Kermani**		Ph.D.	
Eva Selfridge		M.D./Ph.D.	
Kendall Smith		M.D./Ph.D.	
Sarah Tague	9/07	Ph.D.	
George Thomas	1/08	M.D./Ph.D.	
Alison Ting	2/06	Ph.D.	
Sara Turk		Ph.D.	
Edward Urban III		M.D./Ph.D.	
Gustaf Van Acker		M.D./Ph.D.	
Gwenaelle Wernli	2/06	Ph.D.	
Rachel Williams		Ph.D.	

**Ph.D. Student in Department of Hearing & Speech, KUMC working with Dr. Paul Cheney

c. Postdoctoral Fellows

Scott Bury
John Bromfield
Anuradha Chakrabarty
Pei-Chun Fang
Vijayalaxmi Gupta
Lesya Holets
Tatiana Karpova
Young Hwan-Kim
Ravichandiran Kumarasamy
Susan Smittkamp
Shixin Tao
Huizhen Wang
Yongfu Wang

d. Temporary Students

Ben Abel
James Allen
Allison Boehm
Douglas Bonebrake
Aveek Dhar
Ryan Gallagher
Bliss Hartnett
Michelle Healey
Katherine Jones
Ci Ci Li
Catlin Linschfeld
Sean Maddock
David Nair
Vinit Nanavaty
Paty Rodriguez
Laura Schaefer
Matthew Sweeney
Parker Tuley
Chad Touchberry
Rohun Viadya
Zachary Viets
Emily Walters

e. Research Staff

Julie Allen – Research Associate
Scott Barbay – Senior Scientist
Janna Belousova – Senior Research Assoc.
Sirosh Bokhari – Senior Research Assoc.
Greg Bomhoff – Research Assistant
Sara Brown – Research Associate
Shannon Callen – Research Assistant
Caleb Dunham – Research Assistant
Ian Edwards – Research Assistant
Stan Fernald – Research Assistant
Ramakrishna Hegde – Sr. Res. Assoc.
Xiaoman Hong – Research Associate
Erica Hoover – Research Technician
Jacqueline Huff – Research Associate
Zhuang Li – Senior Research Assoc.
Zhaohui Liao – Research Assistant
Elza Kharatyan – Research Assistant
Darlene Limback – Research Associate
Tejada Lovella – Research Assistant
Sachin Mathur – Research Assistant
Jeff McDermott – Research Associate
Fuwang Peng – Research Associate
Daren Rice – Research Associate
Nestor Rodriguez – Research Assistant
Gladis Sanchez de Blanco – Research Assoc.
Phillip Stevenson – Research Assistant
Patricia Wolfe – Research Assistant
Honghong Yao – Research Assistant
Hongyu Zhang – Senior Scientist
Xuhui Zhu – Research Assistant

f. Support Staff

Leigh Ann Arbuckle – Senior Coordinator
Linda Carr – Administrative Officer
Jennifer Fajardo – Administrative Assistant
Ted Gleason – Electronics Technician II
Lynn LeCount – Managing Editor
Cindy Martin – Editorial Coordinator
Barbara Shull – Administrative Assistant
*(Interdisciplinary Center for Male
Contraceptive Research & Drug
Development)*
Linda Spears – Administrative Assistant
(Reproductive Sciences Center)
Shari Standiferd – Financial Officer

Notes Concerning Graduate Students

Martha Carletti was first author on a review entitled "MicroRNA in the Ovary and Female Reproductive Tract" published in the Journal of Animal Science. Martha was also co-author on a paper entitled "Hormonal Regulation of MicroRNA Expression in Periovarian Granulosa Cells" published in Biology of Reproduction. Martha was first author on an abstract entitled "The Expression and Function of MicroRNA-21", presented at the annual Society for the Study of Reproduction meeting in Kona, Hawaii, and an abstract by the same title presented at the KUMC Student Research Forum, for which she received first place in the molecular genetics category.

Argenia Doss successfully passed her qualifying examination in November 2007. Also, Argenia presented an oral presentation at KUMC Student Research Forum 2008 entitled, *Increased Calcitonin Gene-related Peptide-immunoreactive Intraepidermal Nerve fibers in Cycling Streptozotocin-induced Diabetic rats*. In April of 2008, she presented a seminar for the Department of Molecular and Integrative Physiology entitled, *Diabetic Peripheral Neuropathy: Is There a Role for Female Hormones?* In addition, she presented an oral presentation at the 2008 Midwest Pain Interest Group Meeting entitled, *The Effects of Female Reproductive Hormones on Cutaneous Nerve Fibers in a Diabetic Rat Model*. She has served as the Social Coordinator for the Physiology Society for 2007-2008 and was elected President of the Physiology Society in the summer of 2008. Argenia is first author of a poster entitled, *Increased PGP 9.5-immunoreactive Axons in the Dermis of Cycling Diabetic Rats*, that she plans to present at the Neuroscience 2008 conference hosted by the Society for Neuroscience. Also, Argenia has a pending application for the Ruth L. Kirschstein National Research Service Award for Individual Predoctoral Fellowships to Promote Diversity in Health-Related Research.

Stephanie Fiedler was first author on a paper entitled "Hormonal Regulation of MicroRNA Expression in Periovarian Mouse Mural Granulosa Cells" published in Biology of Reproduction.

Darcy Griffin received a KUMC Student Travel Scholarship to present a first author poster entitled "*EMG activation patterns associated with long duration ICMS of primary motor cortex*" at the 37th annual Society for Neuroscience conference in San Diego, CA. She was also a co-author on a poster entitled "*Cortical control of fast and slow muscles of the ankle in the rhesus macaque;*" presented at the same meeting. In January, she traveled to Orlando, FL to attend a writing workshop sponsored by the American Physiological Society. Darcy also received a Student Travel Scholarship from the Society for the Neural Control of Movement to attend their 18th annual conference in Naples, FL where she presented a first author poster entitled "*Output effects on proximal forelimb muscles from microstimulation of motor cortex at different shoulder and elbow angles.*" Darcy participated in this year's Student Research Forum where she gave both oral and poster presentations. She was awarded best oral presentation in the Neuroscience III session. In July, Darcy successfully defended her doctoral dissertation entitled "*Primate Motor Cortex: Individual and Ensemble Neuron-Muscle Output Relationships.*"

Anisha Gupte was first author on a paper entitled, "Age-related differences in skeletal muscle insulin signaling: the role of stress kinases and heat shock proteins" in the *Journal of Applied Physiology*. In 2007, she attended the Central States American College of Sports Medicine Meeting in Springfield, MO where she submitted an abstract titled, "Heat shock and markers of skeletal muscle regeneration following an acute bout of eccentric contractions." In April, she attended the Experimental Biology Meeting in San Diego where she had an oral and poster presentation entitled, "Mechanisms by which lipoic acid prevents high fat diet-induced insulin resistance in skeletal muscle." At that same meeting, she submitted an abstract titled, "The effect of heat shock on acute hypertrophic signaling following skeletal muscle damage." She was awarded the Biomedical Research Training Program *pre-doctoral award* from 2007-2008 and 2008-2009. At the Student Research Forum she won the best research presentation award for the Musculoskeletal session and an overall 2nd ranking. She was also awarded the Student Travel Award from Graduate Studies in March and June.

Heather Hudson presented a poster, on which she was first author, entitled "*Cortical Control of Fast and Slow Muscles of the Ankle in the Rhesus Macaque*" at the 37th annual Society for Neuroscience meeting in San Diego, California in November. She submitted an abstract, on which she was first author, entitled "*Somatotopic Organization of Hindlimb Motor Cortex in Rhesus Macaques.*" for the 38th annual Society for Neuroscience meeting. At the Student Research Forum in April, Heather gave a presentation entitled, "*Cortical Control of Fast and Slow Muscles of the Ankle in the Rhesus Macaque.*" In January, Heather attended the American Physiology Society's Professional Skills Workshop: Writing and Reviewing for Scientific Journals in Orlando, Florida. In February, she presented a seminar for the Neuroscience program entitled "*Cortical Control of Fast and Slow Muscles of the Ankle in the Rhesus Macaque.*" Heather also served as Vice-President of the KUMC Student Recycling organization.

Tamara Jimenez was the first author in an abstract for The Future of Male Contraceptives Meeting entitled, "The Na, K-ATPase $\alpha 4$ Isoform: an attractive sperm-specific target for male contraception." At the 4th annual Greenwald Symposium, she was the first author in an abstract on reproduction titled, "Ouabain Stimulated and Na, K-ATPase mediated protein phosphorylation in Rat Spermatozoa." She was a co-author in an abstract titled, "Over Expression of the Na, K-ATPase $\alpha 4$ Isoform in Spermatozoa Results in Increase Motility of the Cells" presented at the 41st Meeting of the Society for the Study of Reproduction and the 2008 Student Research Forum.

Lynda K. McGinnis was co-author of a review paper titled "*Oogenesis: Prospects and challenges for the future*". She was also first author on one paper and co-author on two additional papers that have been provisionally accepted for publication. Lynda gave three invited presentations at national meetings: Gordon Conference on Fertilization & Activation of Development; 4th Annual Gilbert S. Greenwald Symposium; 2008 annual meeting of the Society for the Study of Reproduction titled "*Src-family protein tyrosine kinases are required for meiotic maturation in the mouse.*" For this meeting, she received two travel awards including

the Kathleen Osborn Travel Scholarship and the Larry Ewing Memorial Travel Award, plus the Lalor Foundation Merit Award.

Sarah Tague successfully completed her comprehensive exams in September of 2007. In December she presented a poster entitled "Vitamin D and Estrogen Interact to Regulate Neuritogenesis in Dorsal Root Ganglia Neurons" at the annual American Society for Cell Biology meeting in Washington DC. In March, Sarah gave a departmental presentation entitled "The Pains of a Vitamin D Deficiency: Role of Nociceptor Sprouting" and in April she participated in the 2008 Student Research Forum with a presentation entitled "Vitamin D regulates nociceptor sprouting: A mechanism for hypovitaminosis D induced pain." Sarah helped organize the Midwest Regional Pain Interest Group annual meeting hosted by KUMC in May and presented her work on Vitamin D and muscle pain. She held the office of President of the Neuroscience Journal Club and in this role collaborated with the Kansas City chapter of the Society for Neuroscience to organize regular socials for students, faculty, postdocs and clinicians in the field of Neuroscience. She has participated in the community by volunteering at the Westwood View Elementary School Science Night. This summer Sarah was awarded a Biomedical Research Training Program Fellowship from KUMC. In August, Sarah will resubmit an NRSA individual fellowship application to the NIH. The initial application, submitted in December, received positive reviews but was not funded.

George Thomas successfully passed his comprehensive exam with honors. His thesis project titled, "Memory and Insulin in Early Alzheimer's Disease," was selected by the Dana Foundation for funding through the Brain and Immuno-Imaging Grant Program. He participated in the Clinical Research Scholars Program through the KUMC General Clinical Research Center. He attended a Fellowship in Functional Magnetic Resonance Imaging at the Martinos Biomedical Imaging Center, administered by the Massachusetts General Hospital, Harvard Medical School and the Massachusetts Institute of Technology. In 2007, he presented a poster at the Alzheimer's Association Conference on Prevention in Washington D.C. titled, "Cardiorespiratory Fitness, Arterial Elasticity and Brain Health." He attended the International Society of Behavioral and Cognitive Vascular Disorder in San Antonio, TX where he gave an oral presentation titled, "Cardiorespiratory Fitness, Arterial Elasticity and Brain Health." At the Student Research Forum, he presented his poster, "Insulin Levels are Associated with Preserved Regional Gray Matter Volumes in Alzheimer's Disease." He attended the American Academy of Neurology meeting in Chicago where he presented a poster titled, "Insulin is Associated with Increased Medial Temporal Lobe Volume in Alzheimer's Disease." He also presented two posters at the Alzheimer's Association International Conference on Alzheimer's Disease in Chicago titled, "Insulin Modulates Hippocampal Activity During Memory Encoding in Early Alzheimer's Disease" and "Peripheral Insulin is Related to Medial Remporal Lobe and Hippocampal Volume in Alzheimer's Disease."

Alison Ting was first author on a paper entitled, "Tamoxifen prevents premalignant changes of breast but not ovarian cancer in rats at high risk for both diseases," submitted to Cancer Prevention Research, and a coauthor on a paper entitled, "Effect of chronic exposure to the aryl hydrocarbon receptor agonist 2,3,7,8-tetrachlorodibenzo-p-dioxin in female rats on ovarian gene expression" submitted to Biology of Reproduction. At the Student Research Forum she received the Overall Medal Award for School of Medicine for her presentation entitled, "Tamoxifen rescues the ovarian follicular reserve following exposure to multiple classes of ovotoxic drugs including cancer chemotherapeutics." In April, Alison presented a physiology departmental seminar entitled, "Protective effect of tamoxifen against ovarian follicle loss caused by multiple ovotoxic agents." Alison also attended the Annual American Association of Cancer Research Meeting in San Diego. At this meeting, she was a coauthor on a poster entitled, "A meta-analysis to identify shared biomarker genes and prevention targets for human breast and ovarian cancer."

Gwenaelle Wernli presented a poster entitled "Macrophage depletion suppresses sympathetic hyperinnervation following myocardial infarction" at the Experimental Biology Meeting in San Diego and she was invited to give a talk about her research at the same meeting. She received a \$500 travel award from the Office of Graduate Studies to attend the meeting. She won first place in the Cardiovascular session at the 2008 Student Research Forum for her presentation.

COURSES TAUGHT

Medical Curriculum Core Courses

*CORE 815 – *Cardiopulmonary*. Drs. Gonzalez, Tarr and Wood

CORE 830 – *Sexuality and Reproductive Medicine*. Dr. Heckert

CORE 840 – *Brain, Mind and Behavior*. Drs. Frost, LeVine, Nudo, and Stanford

(*Physiology has primary responsibility for these courses)

†Departmental Graduate Courses

PHSL 800 – *Medical Physiology*. Fall 2007. Drs. Geiger, Smith, and Tash

PHSL 834 – *Reproductive Physiology*. 4 credits. Spring 2008. Dr. Christenson is the course director. Dr. Wolfe is co – course coordinator. Drs. Christenson, Heckert, and Wolfe.

PHSL 844 – *Neurophysiology*. 3 credits. Spring 2008. Enrollment 7. Dr. Cheney.

PHSL 846 – *Advanced Neuroscience*. 5 credits. Enrollment 14. Drs. Cheney and Hasan.

†IGPBS Courses

IGPBS 893 – *Module 3: Molecular Biology*. 4 credits. Fall 2007. Dr. Heckert

IGPBS 894– *Module 4: Cell and Developmental Biology*. 5 credits. Spring 2008. Drs. Blanco, Kumar, and Wolfe

IGPBS 895– *Module 5: Molecular and Physiological Basis of Disease*. 3 credits. Spring 2008. Drs. Albertini, Blanco, Christenson, Geiger, Gonzalez, Kumar, and Stanford. Dr. Albertini, Course Director

† Only Physiology instructors for these courses are listed.

DEPARTMENT SEMINARS

The Departmental Seminar program was directed by Dr. Steven LeVine. Forty five speakers made presentations, eleven of which were from outside the university. In addition to support from the department, the Office of the Dean of the School of Medicine, the KIDDRRC, Landon Center of Aging and the Center for Reproductive Sciences made important financial contributions to our program. The Kathleen M. Osborn Lecture Series sponsored Dr. Kelly E. Mayo from Northwestern University in Evanston, IL. The Fred Samson Jr. Memorial Lectureship sponsored Dr. Mark P. Mattson from the National Institute of Aging.

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|----------|---|---|
| 9/10/07 | Robert Hanzlik, Ph.D.
Professor of Medicinal Chemistry;
Gerald Lushington, Ph.D.
Associate Scientist;
David VanderVelde, Ph.D.
Senior Scientist;
Todd Williams, Ph.D.
Senior Scientist
Univ. of Kansas – Lawrence | <i>The KU Molecular Structures Group:
Partners in Discovery and Analysis</i> |
| 9/17/07 | Ruth Welti, Ph.D.
Professor
Division of Biology
Kansas State University | <i>Mass-Spectrometry-Based Analysis of
Lipids</i> |
| 9/24/07 | Greg Vanden Heuvel, Ph.D.
Associate Professor
Anatomy & Cell Biology, KUMC | <i>Cell Cycle Regulation in Kidney
Development and Disease</i> |
| 10/01/07 | Brian Douglas Ackley, Ph.D.
Assistant Professor
Department of Molecular Biosciences
Univ. of Kansas – Lawrence | <i>ECM Dependent Synapse Formation in C.
Elegans: A Genetically Tractable Model to
Dissect Pathways Underlying Muscular
Dystrophy-Like Diseases</i> |
| 10/08/07 | T. Rajendra Kumar, Ph.D.
Assistant Professor
Molecular & Integrative Physiology,
KUMC | <i>Genetic Approaches for Understanding
FSH Physiology</i> |
| 10/15/07 | Kelly E. Mayo, Ph.D.
Department of Biochemistry, Molecular
Biology & Cell Biology
Center for Reproductive Science
Northwestern University
Evanston, IL | <i>Formation and Regulation of the Ovarian
Follicle: Insights from Studies of Inhibin
and Activin</i> |

10/22/07	Kenneth McCarson, Ph.D. Associate Professor Pharmacology, Toxicology & Therapeutics, KUMC	<i>Stress, Sex and Pain: Looking for Answers Outside the Spinal Cord</i>
10/29/07	Navneet Dhillon, Ph.D. Research Assistant Professor Molecular & Integrative Physiology, KUMC	<i>Antisense DNA Against Host Factors as a Therapy for AIDS</i>
11/05/07	Joyce Slusser, Ph.D. Senior Scientist, Flow Cytometry Core Director Department of Microbiology, Molecular Genetics & Immunology, KUMC	<i>Go With the Flow!</i> Whether you want to measure proliferation rate, determine cell cycle kinetics, study all steps of apoptosis, quantify soluble molecules, or do single cell westerns, you can do it all using flow cytometry tools.
11/12/07	Michael Johnson, Ph.D. Assistant Professor Department of Chemistry University of Kansas – Lawrence	<i>Analysis of Neurological Disease States Using High Temporal Resolution Neurochemical and Behavioral Methods</i>
11/19/07	Garry Hammer, MD, Ph.D. Associate Professor Internal Medicine, Division of Metabolism, Endocrinology and Diabetes; Molecular & Integrative Physiology, and Millie Schembechler Professor of Adrenal Cancer University of Michigan	<i>Adrenocortical Stem/Progenitor Cells: Implications for Plasticity in Steroidogenic Organs</i>
11/26/07	Lisa Timmons, Ph.D. Assistant Professor Department of Molecular Biosciences University of Kansas – Lawrence	<i>ABC Transporters are Required for Efficient RNAi in C. Elegans</i>
11/29/07	Gregory Onyszchuk Graduate Student Molecular & Integrative Physiology, KUMC	<i>Neuroinflammation and Neurodegeneration as Mechanisms for Worsened Outcomes in Elderly Traumatic Brain Injury</i>
12/03/07	Stephen H. Benedict, Ph.D. Associate Professor Department of Molecular Biosciences University of Kansas – Lawrence	<i>The Adhesion Molecule ICAM-1: An Unexpected Regulator of the Immune Response</i>

- 12/05/07 Stacy Zamudio, Ph.D.
Associate Professor
Department of Obstetrics, Gynecology
and Women's Health
New Jersey Medical School
University of Medicine & Dentistry of
New Jersey
Newark, NJ
*Placenta Hypoxia and Pregnancy
Pathologies, Lessons from High Altitude*
- 12/10/07 Norberto C. Gonzalez, M.D.
Professor
Department of Molecular & Integrative
Physiology, KUMC
*Alveolar Macrophages, Mast Cells, and
Systemic Inflammation in the Hypoxic High
Hill*
- 12/17/07 James P. Calvet, Ph.D.
Professor
Department of Biochemistry &
Molecular Biology, KUMC
*The Central Role of cAMP in Polycystic
Kidney Disease: Thoughts on Treatments*
- 01/07/08 Susanna C. Pfannenstiel, M.D.
Post Doctoral Research Fellow
Department of Otorhinolaryngology,
Head & Neck Surgery; KUMC
*Modeling in Prevention of Cochlear
Damage*
- 01/14/08 Beth A. Habecker, Ph.D.
Associate Professor
Department of Physiology &
Pharmacology
Oregon Health & Science University
Portland, OR
*Infarction-Induced Changes in the Cardiac
Sympathetic Innervation*
- 01/28/08 Thomas M. Yankee, Pharm.D, Ph.D.
Assistant Professor
Microbiology, Molecular Genetics &
Immunology, KUMC
*Defining the T Cell Repertoire: Signaling
Pathways that Regulate T Cell
Development*
- 02/04/08 M. Laird Forrest, Ph.D.
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Department of Pharmaceutical
Chemistry
Univ. of Kansas – Lawrence
*New Routes for Chemotherapeutic
Intervention Using Nanotechnology*

- 02/11/08 Robert J. Morecraft, Ph.D.
Professor
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Laboratory of Neurological Sciences
University of South Dakota School of
Medicine
*Neuroanatomical Correlates of Motor
Recovery Following Brain Injury:
Distributed Corticofugal Fiber
Representation and Corticospinal Plasticity
in Non-Human Primates*
- 02/18/08 Erik S. Van Vleck, Ph.D.
Professor
Department of Mathematics
Univ. of Kansas – Lawrence
*Models and Data in Biology and
Physiology: A Dynamical Systems
Perspective*
- 02/25/08 Gaurav Chaturvedi, Ph.D.
Research Assistant Professor
Molecular & Integrative Physiology,
KUMC
*Are We There Yet? Stem Cells: Promises
and Beyond*
- 03/03/08 Jun (Luke) Huan, Ph.D.
Assistant Professor
Department of Electrical Engineering &
Computer Science
Univ. of Kansas – Lawrence
*From Protein Structure to Function: A Data
Mining Approach*
- 03/10/08 Stephanie Fiedler, B.A.
Graduate Student
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KUMC
*Transcriptional Regulation of miRNA-
212/132 Expression in Murine
Periovarial Granulosa Cells*
- Ansiha Gupta, M.S.
Graduate Student
Molecular & Integrative Physiology,
KUMC
*Heat Shock Proteins: Emerging
Therapeutic Targets against Insulin
Resistance*
- 03/17/08 Paul Trainor, Ph.D.
Associate Investigator
Stowers Institute for Medical
Research, Kansas City, MO
*The Etiology and Pathogenesis of
Congenital Craniofacial Birth Defects*

- 03/24/08 Gwenalle Wernli, B.S.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- Macrophage Depletion Suppresses
Sympathetic Hyperinnervation following
Myocardial Infarction*
- Sarah Tague, M.S.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- The Pains of a Vitamin D Deficiency: Role
of Nociceptor Sprouting*
- 03/31/08 Isaac Onyango, Ph.D.
Research Assistant Professor
Department of Neurology
KUMC
- Mitochondrial Dysfunction in Alzheimer's
Disease*
- 04/07/08 Darwin K. Berg, Ph.D.
Distinguished Professor
Division of Biological Sciences
University of California – San Diego
- Nicotinic Control of Neural Development
and Synapse Formation*
- 04/14/08 Sara Turk, M.S.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- The Role of Egr1 in the Gonadotropes*
- Martha Ziegler, B.A.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- The Expression and Function of
MicroRNA-21 in Mouse Granulosa Cells*
- 04/21/08 Argenia Doss, B.A.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- Diabetic Peripheral Neuropathy: Is There a
Role for Female Hormones?*
- Alison Ting, B.A.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- Protective Effect of Tamoxifen Against
Ovarian Follicle Loss Caused by Multiple
Ovotoxic Agents*

- 04/28/08 Tim Donohue, B.S.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- Parasympathetic Withdrawal in Heart Failure Involves Changes in Axo-Axonal Coupling at the Sinoatrial Node*
- George Thomas, B.S.
Graduate Student
Molecular & Integrative Physiology,
KUMC
- Insulin Modulates Hippocampal Function During Memory Encoding in Early Alzheimer's Disease*
- 05/05/08 John Q. Wang, M.D., Ph.D.
Professor and Westport Anesthesia
Missouri Endowed Chair
Department of Anesthesiology
University of Missouri-Kansas City
- Dopamine Regulation of NMDA Receptors in Synaptic Plasticity and Drug Use*
- 05/12/08 Beth Levant, Ph.D.
Associate Professor
Pharmacology, Toxicology &
Therapeutics, KUMC
- Decreased Brain Omega-3 DHA Produces Neurobiological Effects Associated with Depression: Interactions with Reproductive Status in Female Rats*
- 05/19/08 Craig S. Atwood, Ph.D.
Associate Professor
Department of Medicine
University of Wisconsin-Madison
- Living and Dying for Sex and the Ovarian Fountain of Youth*
- 05/22/08 Mark P. Mattson, Ph.D.
Chief, Laboratory of Neurosciences
National Institute on Aging
- Protecting the Brain Against Oxidative Stress Through Hormesis*

PUBLICATIONS

a. Manuscripts Published

- Barrett, S.B., and Albertini, D.F. (2007) "Allocation of gamma-tubulin between oocyte cortex and meiotic spindle influences asymmetric cytokinesis in the mouse oocyte." *Devel. Biol.* 76:949-957.
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- Dhillon, N., Peng, F., Bokhari, S., Callen, S., Shin, S., Zhu, X., Kim, K., and Buch, S. (2007). "Cocaine-mediated Alteration in Tight Junction Protein & Modulation of CCL2/CCR2 axis across the Blood Brain Barrier: Implications for HIV-Dementia." *J Neuroimmune Pharmacology.* 3(1):52-6. Epub 2007 Nov 29
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b. Manuscripts in Press

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- Turk, Sara and Wolfe, M.W. (2007). "Role of Src tyrosine kinase in GnRH induction of the luteinizing hormone beta-subunit promoter." 40th Annual meeting of the Society for the Study of Reproduction, San Antonio, TX.
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- Wolfe, M.W., Chaturvedi, G. and McDonald, E. (2008). "Pituitary adenylate cyclase activating protein (PACAP) regulates expression, intracellular localization and function of early growth response protein 1 (Egr1) in gonadotropes." 41th Annual meeting of the Society for the Study of Reproduction, Kailua-Kona, HI.

RESEARCH SUPPORT

D.F. Albertini: NIH/NICHD – “Coordination of folliculogenesis and oogenesis,” April 1, 2006 – September 1, 2008. Principal Investigator: David Albertini. Direct costs \$175,770.

ESHE Fund – “Embryo Imaging,” December 1, 2007 – November 30, 2008. Principal Investigator David Albertini. Direct costs \$20,000.

Italian Ministry of Science – “Oocyte Cryopreservation,” March 1, 2007 – February 28, 2008. Co-Investigator: David Albertini. Direct costs \$20,000.

NIH – “AhR and Reproductive Aging,” Principal Investigator: David Albertini, Co-Investigator: Brian Petroff. Direct costs \$125,000; Indirect costs \$175,000.

KCALSI – “Influence of environmental toxicants on embryonic stem cells in the rat,” July 1, 2007 – July 31, 2008. Principal Investigator: David Albertini. Direct costs \$40,730; Indirect costs \$9,270.

A. Belousov: NIH – “Cholinergic Regulation in the Hypothalamus,” January 1, 2008 – December 31, 2008. Principal Investigator: A. Belousov. Direct costs \$118,000.

COBRE pilot grant in Developmental Biology, KUMC – “Molecular Regulation of Neuronal Gap Junctions during Development and Injury,” January 1, 2008 – December 31, 2008. Principal Investigator: A Belousov; Project Director: D Abrahamson. Direct costs \$40,000.

V. G. Blanco: NIH – “The Na,K-TPase alpha 4 isoform in male germ cell physiology,” July 1, 2003 – June 30, 2008. Direct costs \$223,500; Indirect costs \$157,500.

Polycystic Kidney Foundation Award – “Ouabain-Na,K-ATPase effect in polycystic kidney disease,” 2006-2007. Total direct and indirect costs \$65,000.

NIH – “Cardenolides Inhibition of the Sperm Na,K-ATPase Alpha 4 Isoform as Contraceptive Agents,” January 1, 2007 – December 31, 2011. Total direct and indirect costs \$147,000.

S. J. Buch: NIH/NCRR COBRE – “Novel Approaches for Control of Microbial Pathogens,” July 27, 2006 – May 30, 2011. Principal Investigator: J. Lutkenhause; Luminex Core D Section Director: S. Buch. Direct costs \$1,550,667

NIH/NIDA – “HIV Encephalitis and Cocaine Abuse: Mechanism of Synergy and Therapy,” May 1, 2006 – April 30, 2011. Principal Investigator: S. Buch. Direct costs \$217,200.

NIH/NIDA – “Morphine and the Neuropathogenesis of SIV in Macaques,” September 30, 2007 – August 31, 2012. Principal Investigator: S. Buch. Direct costs \$361,509.

NIH – “Mechanism and Therapy of HIV Encephalitis,” July 2008 – June 30, 2013. Principal Investigator: S. Buch. Direct costs \$225,000.

Arizona State University/NIH – “3-D Organotypic Model of HIV-Infectable Tissue for AIDS-Associate Dementia,” December 1, 2008 – November 31, 2010. Principal Investigator: Cheryl Nickerson; Co-Investigator: S. Buch. Direct costs \$29,592.

Parker B. Francis Fellowship in Pulmonary Research – “Nanoparticle-Based Gene Therapy for SHIV Pneumonia in Macaques,” July 1, 2007 – June 30, 2010. Mentors: S. Buch & C. Berkland; Mentee: N. Dhillon. Direct costs \$45,000.

G. Chaturvedi: K-INBRE – “Directed differentiation of human embryonic stem cells towards renal lineage,” November 15, 2007 – April 15, 2009. Principal Investigator: G. Chaturvedi. Direct costs: \$75,000; Indirect costs: \$47,000.

P. D. Cheney: NIN/NINDS – “Electrical stimulation of cortical motor output,” April 15, 2005 – March 31, 2009. Principal Investigator: P.D. Cheney. Direct costs: \$925,000; total costs: \$1,359,752.

NIH/NICHD – “Program for a Research Center in Mental Retardation.” P30 Center Grant. Theme Leader, August 1, 2006 – July 31, 2011. Principal Investigator: Steven Warren. Direct costs: \$4,407,500; Total costs: \$6,346,800.

NIH-NIDA – “Morphine and the Neuropathogenesis of SIV in Macaques,” September 30, 2007 – August 31, 2012. Principal Investigator: S. Buch; Co –Investigator: P.D. Cheney 10% effort. Direct costs: \$2,484,734; Total costs \$3, 279,173.

L. K. Christenson: NIH/NICHD – “Decidual Cell Adaptations to Physiological Stressors,” April 12, 2007 – March 31, 2012. Principal Investigator: M. Soares; Co-Investigator: L.K. Christenson. Direct costs \$250,000; Indirect costs \$117,500.

NIH – Centers of Biomedical Research Excellence – “Molecular Regulation of Cell Development and Differentiation,” September 30, 2007 – September 29, 2012. Principal Investigator: D. Abrahamson; Subproject II: L.K. Christenson. Total costs \$1,500,000 (Subproject II \$150,000)

N. K. Dhillon: Parker B. Francis Foundation – “Nanoparticle-Based Gene Therapy for SHIV Pneumonia in Macaques,” July 1, 2007 – July 1, 2010. Principal Investigator: N.K. Dhillon. Direct costs \$144,000.

Lied – “Nanoparticles for Oral Delivery of an HIV-DNA Vaccine.” Principal Investigator: N.K. Dhillon. Direct costs \$35,000.

NIH – “Mechanism and Therapy of HIV-Encephalitis.” Principal Investigator: S.B. Buch; Co-Investigator: N.K. Dhillon. Direct costs \$250,000.

S. J. Enna: Elsevier – “Editorial Office.” Direct costs \$163,477; Indirect costs \$11,747.

International Union of Basic and Clinical Pharmacology – “Secretary – General Office.” Total costs \$44,391.

Nereus Corporation, San Diego, CA – “Unrestricted Research Grant.” Total costs \$30,000.

S. B. Frost: NIH/NINDS – “An Experimental Model of White Matter Infarct,” June 1, 2007 – March 31, 2009. Principal Investigator: S.B. Frost. Direct costs \$192,938.

NIH/NINDS – “Reorganization of Motor Cortex following Brain Injury,” June 1, 1993 – January 31, 2012. Principal Investigator: R.J. Nudo; Co-Investigator: S.B. Frost. Direct costs \$570,097.

P. Geiger: General Research Development Grant – “Neuroprotective effects of a novel HSP90 inhibitor in a rodent model of ALS,” March 1, 2008 – June 30, 2008. Principal Investigator: J.A. Stanford; Co-Investigator: P. Geiger. Direct costs \$15,000.

Juvenile Diabetes Research Foundation Regular Research Grant - “Glyoxalase I and AGE formation in painful diabetic neuropathy,” February 28, 2008 – June 30, 2008. Principal Investigator: D. Wright; Co-Investigator: P. Geiger. Direct costs \$10,000.

N. C. Gonzalez: NIH/NHLBI – “Microvascular Function in Environment Hypoxia,” January 12, 2007 – December 31, 2011. Principal Investigator: N.C. Gonzalez. Total direct costs \$175,000.

NIH/NICHD – “Decidual Cell Adaptations to Physiological Stressors,” July 20, 2005 – June 30, 2010. Principal Investigator: M. Soares; Co-Investigator: N.C. Gonzalez. Total direct costs \$250,000

NIH/NICHD – “Regulation of Pregnancy-Dependent Adaptations,” Principal Investigator: M. Soares; Co-Investigator: N.C. Gonzalez. Total direct costs \$270,978.

W. Hasan: NIH/NHLBI – “NGF and Post-Infarct Cardiac Sympathetic Neuroplasticity,” April 1, 2005 – March 31, 2010. Principal Investigator: P.G. Smith; Co-Investigator: W. Hasan. Total direct costs \$1,000,000.

NIH/NICHD – “Female Pelvic Pain, Hormones and Neuroplasticity,” April 16, 2006 – January 31, 2011. Principal Investigator: P.G. Smith; Co-Investigator: W. Hasan. Total direct costs \$1,125,000.

NIH/NINDS – “Mechanisms of Sympathetic Axon Pruning” July 1, 2006 – June 30, 2010. Principal Investigator: P.G. Smith; Co-Investigator: W. Hasan. Total direct costs \$874,800.

L. L. Heckert: NIH/NICHD – “Gonadal expression of FSH receptor” April 1, 2007 – March 31, 2012. Principal Investigator: L.L. Heckert. Direct costs \$212,500; Indirect costs \$99,875.

NIH/NICHD – “Interdisciplinary Center for Male Contraceptive Research and Drug Development” March 26, 2007 – February 29, 2012. Principal Investigator: J.S. Tash; Principal Investigator for project 3: “Small molecular inhibitors of Dmrt1-regulated target genes as male contraceptive agents” L.L. Heckert. Direct costs \$1,211,452; Indirect costs \$288,549; Project 3 direct costs \$152,577.

T. J. Imig: Tinnitus Research Consortium – “A Neural Correlate of Tinnitus,” July 2005 – June 2008. Principal Investigator: T.J. Imig. Total costs \$100,000.

T. R. Kumar: NIH/COBRE – “Genetic analysis of germ cell development in *atrachosis*, the naturally occurring mouse mutant,” 2007 – 2012. PI: D.R. Abrahamson; Principal Investigator for project 5: T.R. Kumar. Direct costs \$750,000; Indirect costs \$350,000.

NIH/NICHD – “Genes regulated by activin signaling II in gonadotropes,” 2008 – 2010. Principal Investigator: T.R. Kumar. Direct costs \$100,000; Indirect costs \$50,000.

M.A. Larson: NIH/COBRE – “Molecular Regulation of Cell Development and Differentiation,” Principal Investigator: D. Abrahamson; Core B; Transgenic Facility Principal Investigator: M.A. Larson. Total direct costs \$533,795.

S-P Lee: Alzheimer’s Association – “Quantitative in vivo measure of an AD drug treatment in transgenic mice,” August 1, 2007 – July 31, 2009. Principal Investigator: S-P. Lee. Direct costs: \$45,455; Indirect costs: \$4,545.

S. M. LeVine: National Multiple Sclerosis Society – “The Functional Role of Histamine Receptors on Lymphocytes from MS Patients,” July 1, 2007 – June 30, 2008. Principal Investigator: S. LeVine.; Co – Investigators: S. Lynch and S. Benedict. Direct costs \$40,000; Indirect costs \$4,000.

J.R. & Inez Jay Fund – “Development of an Inhibitor of Anthrax Protective Antigen,” July 1, 2007 – June 30, 2008. Principal Investigator: P. Hanson; Co – Investigators: G. Lushington, S. LeVine and L. Mitscher. Direct costs \$ 40,000.

ApoPharma, Inc. – “Responses to Deferiprone by T cells from EAE and MS Subjects,” June 16, 2008 – April 1, 2009. Principal Investigator: S. LeVine.

Rockhurst University – “Rockhurst University Presidential Grant,” Summer 2008. Annie Lee, Ph.D., Associate Professor of Chemistry; Host lab: S. LeVine. Direct costs \$4,000.

R. J. Nudo: NIH/NINDS – “Reorganization of Motor Cortex Following Brain Injury” June 1, 1993 – January 31, 2012. Principal Investigator: R.J. Nudo. Direct costs \$405,173; Indirect costs \$164,924.

NIH/NINDS – “Cortical Stimulation to Enhance Recovery After Stroke,” September 1, 2005 – May 31, 2009. Principal Investigator: R.J. Nudo. Direct costs \$753,965; Indirect costs \$162,917.

NIH – “Motor Performance and Cortical Changes in Chronic Stroke,” December 15, 2004 – November 30, 2009. Principal Investigator: B. Quaney; Mentor: R.J. Nudo. Direct costs \$98,242; Indirect costs \$49,000.

American Heart Association – “Multimodal Neuroimaging in Stroke Rehabilitation,” January 1, 2008 – December 31, 2009. Principal Investigator: C.M. Cirstea; Mentor: R.J. Nudo. Direct costs \$71,500; Indirect costs \$7,150.

NIH – “Non-Human Primate Model of White Matter Infarct,” June 1, 2007 – May 31, 2005. Principal Investigator: S.B. Frost; Co-Investigator: R.J. Nudo. Direct costs \$125,000; Indirect costs \$62,000.

Department of Defense – “Implantable Microsystems for Anatomical Rewiring of Cortical Circuitry: A New Approach for Brain Repair,” 2008 – 2010. Principal Investigator: P. Mosheni; Co-Investigator: R.J. Nudo. Direct costs \$75,000; Indirect costs \$37,000.

E. J. Plautz: NIH/NINDS - U54 Cooperative Program in Translational Research “Cortical stimulation to enhance recovery after stroke,” September 1, 2005 – May 31, 2009. Principal Investigator: R.J. Nudo; Co-Investigator: E.J. Plautz. Direct costs \$232,232; Indirect costs \$100,315.

Helicon Therapeutics, Inc. – “Effect of HT-0712 on motor recovery after cortical ischemia in a non-human primate,” May 30, 2007 – May 30, 2008. Principal Investigator: R.J. Nudo; Co-Investigator: E.J. Plautz. Direct costs \$37,000; Indirect costs \$17,390

P. G. Smith: “Female Pelvic Pain, Hormones and Neuroplasticity,” April 1, 2006 – March 31, 2011. Principal Investigator: P.G. Smith. Direct costs: \$177,707; Indirect costs \$83,522.

“NGF and Post-Infarct Cardiac Sympathetic Neuroplasticity,” March 1, 2007 – February 28, 2011. Principal Investigator: P.G. Smith. Direct costs \$189,636; Indirect costs \$89,129.

“Mechanisms of Sympathetic Axon Pruning,” April 1, 2005 – March 31, 2010. Principal Investigator: P.G. Smith. Direct costs \$218,700; Indirect costs \$102,789.

Hall Family Foundation – “Genomics, SNPs and Clinical Neonatology,” July 1, 2005 – June 30, 2008. Co-Principal Investigators: P.G. Smith and W.E. Truog. Total direct costs \$129,949.

NIH/NICHHD – “Kansas Intellectual and Developmental Disabilities Research Center. P30 Center grant,” July 1, 2006 – June 30, 2011. Principal Investigator: Steven Warren; Co – Director: P.G. Smith. Direct costs \$446,154; Indirect costs \$196,303 (KUMC site only).

NIH – Kansas IDeA Network for Biomedical Research Excellence (K-INBRE), September 1, 2004 – June 30, 2009. Principal Investigator: J. Hunt; Associate Director, Program Coordinator and Director of Bioinformatics: P.G. Smith. Direct costs \$145,000; Indirect costs \$66,700.

J. A. Stanford: NIH/NIA – “Age-Related Changes in Rats’ Orolingual Motor Function,” August 1, 2004 – July 31, 2009. Principal Investigator: J.A. Stanford. Direct costs \$90,000; Indirect costs \$42,300.

NIH/NIA – “Preclinical Motor Function in Aging and Parkinsonism,” August 1, 2006 – July 31, 2001. Principal Investigator: J.A. Stanford. Total costs \$572,314.

Richard and Hubert Hanlon Trust Fund – “Cross Tolerance between Alcohol and Benzodiazepines in Middle-Aged Female Rats,” January 1, 2008 – December 31, 2008. Principal Investigator: J.A. Stanford. Total Costs \$45,000.

Kansas City Area Life Sciences Institute – “Neuroprotective Effects of a Novel HSP90 Inhibitor in a Rodent Model of ALS,” February 28, 2008 – February 27, 2009. Principal Investigator: J.A. Stanford. Total costs \$49,500.

J. S. Tash: NIH – “U54 Interdisciplinary Center for Male Contraceptive Research & Drug Development,” March 1, 2008 – February 28, 2009. Direct costs \$1,013,486; Indirect costs \$491,875.

NASA – “Negative Impacts of Altered Gravity Models on Male Mammalian Reproductive Capacity,” October 1, 2007 – September 30, 2008. Total costs \$593,540.

NIH – “Synthesis and Testing for Non-Steroidal and Non-Hormonal Male Contraceptive Agents,” June 1, 2008 – May 31, 2009. Total costs \$266,854.

M.W. Wolfe: NIH – NIDDK – “Regulation and function of Egr in gonadotropes,” March 1, 2007 – February 29, 2008. Principal Investigator: M.W. Wolfe. Direct costs: \$208,600; Indirect costs: \$98,042.

ACTIVITIES OF STAFF

Dora Agbas, Ph.D., Research Assistant Professor

Innervation to reproductive tissues is modulated by estrogen induced changes in the target tissue. Cyclical change in estrogen levels cause cyclical pruning and regeneration of sympathetic axons innervating uterine smooth muscle while sensory populations remain unaffected. Our research shows that estrogen induces target derived factors, which lead to sympathetic axon degeneration in vivo and in different in vitro culture systems. We have shown that in estrogen treated myometrial smooth muscle BDNF and neurotrimin expression increases. Both of these factors have negative effect on sympathetic outgrowth. On the other hand while BDNF adversely effects sensory nerve populations, neurotrimin is an inductive factor for these fibers. Therefore we postulated that these 2 factors can lead to selective pruning of the innervating sympathetic fibers while sensory ones are not sensitive to estrogen in this tissue.

With my research I try to tease out which molecular mechanisms are initiated by factors leading to nerve degeneration. I focus on cytoskeletal and mitochondrial changes occurring in sympathetic neurites upon neurite selective treatment using Campenot compartmental culture system.

Meetings Attended:

October 4 – 7, 2007 - 5th meeting of the International Society for Autonomic Neuroscience, Kyoto, Japan.

Committees:

Member, Society for Neuroscience, Kansas City Chapter

Teaching Activities:

Judge, Student Research Forum

David F. Albertini, Ph.D., Hall Endowed Professor

The laboratory continues to apply cell and molecular techniques to study ovarian physiology, oocyte and embryo metabolism, and approaches to the preservation of human infertility. Major themes include the role of the cytoskeleton in signal transduction, the causes of embryo failure due to environmental exposure or after the use of artificial reproductive technologies (ARTs), and function of ovary and embryo specific TGFbeta/BMP growth factors in cell proliferation, death, and differentiation (not necessarily in that order).

Meetings Attended:

October 5-8, 2007 – “Fertility Preservation,” Biosymposia LTD, Boston, MA

June 12-13, 2008 – Frontiers in Reproduction Symposium, Woods Hole, MA

Committees:

Departmental

Member, Chairs Committee on Salary

KUMC

Member, Executive Faculty Council

Member, Johnson Seminar Series

Member, 3rd Floor KLSIC Representative

National

Member, Organizing Committee, Meeting on Oocyte

Cryopreservation, Bologna, Italy (November 22-26, 2008)

Study Section Chair, TEDCO Stem Cell Program, Maryland State (February 8-9, 2008)

Editorials and Grant Reviews:

Editorial Board, *Reproduction* (UK)

Editorial Board, *Biology of Reproduction* (Reviews editor)

Editorial Board, *Fertility and Sterility*

Ad hoc Reviewer, *Science*

Ad hoc Reviewer, *PNAS*

Ad hoc Reviewer, *Nature*

Ad hoc Reviewer, *Development*

Ad hoc Reviewer, *Biology of Reproduction*

Ad hoc Reviewer, *Reproduction*

Ad hoc Reviewer, *Tissue Engineering*

Ad hoc Reviewer, *Developmental Biology*

Ad hoc Reviewer, *Molecular Endocrinology*

Ad hoc Reviewer, *Physiological Genomics*

Dr. Albertini (continued)

Editorials and Grant Reviews (continued):

- Ad hoc Reviewer, *Cell*
- Ad hoc Reviewer, *Molecular Reproduction and Development*
- Ad hoc Reviewer, *Stem Cell*
- Ad hoc Reviewer, *Fertility and Sterility*
- Grant Reviewer, American Cancer Society: Cell Growth and Cell Cycle Study Section
- Grant Reviewer, State of Maryland Stem Cell Research Program
- Grant Reviewer, Worcester Polytechnic Institute Advisory Panel on Biological Sciences

Seminars Presented:

- June 30, 2007 – “The role of oocyte-granulosa communication in in-vitro maturation of human oocytes,” Medicult Symposium on Human IVF, sponsored by Medicult, Lyons, France
- July 1, 2007 – “Oocyte cumulus dialogue and embryo development,” ESHRE SIG on gamete influence on embryo, Lyons, France
- September 14, 2007 – “How hormones influence oocyte quality” Plenary lecture 3rd International Conference on Ovulation Induction, Rome, Italy
- September 22, 2007 – “The impact of chemotherapy on the survival and developmental competence of oocytes,” Biosymposia USA Meeting on Fertility Preservation, Boston, MA
- April 4, 2008 - “Oocyte cryopreservation and its impact on embryo development and survival,” Reproductive Endocrinology Division, Cornell-Weill Medical Center, New York, New York
- October 11, 2007 – “Human oocyte in-vitro maturation: clinical questions and prospects for the future,” Fertility Restoration Symposium, American Society for Reproductive Medicine, Washington D.C.
- October 12, 2007 – “Oocyte cryopreservation for cancer survivors,” Fertility Restoration Symposium, American Society for Reproductive Medicine, Washington D.C.
- October 13, 2007 – “Can oocytes be regenerated from ovarian stem cells?” Debate held at American Society for Reproductive Medicine, Washington D.C.
- January 5, 2008 – “The epigenesis of oogenesis,” Plenary Lecture, International Society of Embryo Transfer, Denver, CO
- March 13, 2008 – “The biology behind aging in the female germ line: avoiding the inevitable,” Department of Cell Biology, KUMC

Dr. Albertini *(continued)*

Academic Honors:

Coordinated Environmental Toxicology Program at MBL, Woods Hole, MA

Served fifth (and final) year as Co-Director of the Frontiers in
Reproduction Course at Marine Biology Laboratory, Woods Hole,
MA

Served on two Special Emphasis NIH Advisory Committees

Invited Speaker, European Society of Human Reproduction and
Embryology Symposium on "How gametes influence embryo development,"
Lyons, France, July 2007

Interactive session leader for ASRM annual meeting 2007 (October)

Teaching Activities:

IGPBS 1st year curriculum

4 hour lectures

IGPBS Module 5

Coordinator

Trainees:

Lynda McGinnis – Graduate Student

Paty Rodriguez – Graduate Student

John Bromfield, Ph.D. – Post Doctoral Fellow

Katherine Jones – Summer Student

Sean Maddock – Summer Student

Andrei Belousov, Ph.D., Associate Professor

I am interested in the mechanisms of regulation of cholinergic phenotype in CNS neurons, the cellular and molecular mechanisms of regulation of electrical synapses (gap junctions) during development and neuronal injury, and activity-dependent homeostatic plasticity in the CNS.

Meetings Attended:

November 1-7, 2007 – SFN Meeting, San Diego, CA
July 12-16, 2008 – 6th FENS Meeting, Geneva, Switzerland

Editorial and Grant Reviews:

Ad hoc Reviewer, *Journal of Neurophysiology*
Ad hoc Reviewer, *Synapse*
Editorial Board Member, *The Open Neuroscience Journal*
Grant Proposals Reviewer, Neurological Foundation of New Zealand

Seminars Presented:

June 2008 – “Regulation of neuronal gap junctions during development and injury,” Neurology/Neurosurgery Grand Rounds, University of Kansas Medical Center.

Teaching Activities:

PHTH 863 Pathobiology of Human Function II
1 lecture hour

Trainees:

Won-Mee Park – Graduate Student
Jitu George Wilson – Graduate Student
Youngfu Wang, Ph.D. – Post Doctoral Fellow

V. Gustavo Blanco, Ph.D., Associate Professor

Our laboratory studies the role of ion-transport proteins of the plasma membrane in cell function. Research is focused on the Na, K-ATPase, a plasma membrane enzyme system that uses the energy from ATP to establish and maintain the high internal K⁺ and low internal Na⁺ concentrations characteristic of most animal cells. The transporter comprises a group of isozymes, each characterized by unique enzymatic properties and a cell-dependent and developmentally regulated pattern of expression. We are interested in the function of alpha4, a particular isoform of the catalytic subunit of the Na,K-ATPase that is selectively expressed in spermatozoa. We have found that this isoform has functional and biochemical properties that are different from all other Na,K-ATPases. The alpha4 polypeptide is upregulated at postmeiotic stages of spermatogenesis and its expression is maximal in mature spermatozoa. Alpha4 is expressed in the mid-piece of the sperm flagellum, and is important for the motility of the cells. A variety of molecular and cellular biology methods are used in our laboratory to study the mechanism of action and regulation of alpha4, to understand the role of this Na,K-ATPase in the physiology of the male gametes. These studies are important to understand sodium and potassium transport in male germ cell fertility. Also, we are interested in finding specific inhibitors of alpha4 that could be used as contraceptive agents. In addition, we are studying the role of the Na,K-ATPase in autosomal dominant polycystic kidney disease (ADPKD). We have found that, in renal cells from patients with ADPKD, the Na,K-ATPase exhibits an abnormally increased sensitivity to ouabain, a hormone released by the adrenal glands. We are currently investigating how ouabain affects cyst formation and progression in the disease.

Meetings Attended:

September 2007 - Future of Male Contraception Meeting, Seattle, WA
October 2007 - The Gilbert S. Greenwald Symposium on Reproduction,
Kauffman Foundation Center, Kansas City
November 2007 - American Society of Nephrology, San Francisco, CA
April 2008 - Experimental Biology 2008, San Diego, CA
April 2008 – Student Research Forum, KUMC
May 2008 - Society for the Study of Reproduction Meeting, Kona, HI

Committees:

Departmental

Member, Ph.D.Thesis Committee for Teresa Orth,
Member, Ph.D.Thesis Committee for Jennifer Ho-Chen
Member, Ph.D.Thesis Committee for Anisha Gupte
Member, Ph.D.Thesis Committee for Brittany Gorres
Member, Ph.D.Thesis Committee for Jie Chao

Dr. Blanco (continued)

Committees (continued):

KUMC

Member, Institutional Animal Care and Use Committee (IACUC).

Member, Committee to oversee the Biotechnology Support Facility at KUMC.

Member, Committee to organize the Greenwald Symposium in Reproduction.

Member, Medical Students Wescoe Academic Society.

Member, Ph.D. Thesis Committee for Neal Alcalay, (Dept. Anatomy)

Member, Ph.D. Thesis Committee for Yi Miao, (Dept. Pharmacology)

Editorial and Grant Reviews:

Editorial Board Member, *American Journal of Physiology: Endocrinology and Metabolism*.

Reviewer, *Journal American Society of Nephrology*.

Reviewer, *American Journal of Physiology*

Reviewer, *Cell and Molecular Biology*.

Reviewer, *Biology of Reproduction*

Reviewer, the National Agency for Scientific Promotion and Technology, Argentina.

Ad hoc Reviewer, NIH.

Seminars Presented:

September 2007 – “Cardenolides inhibition of the sperm Na,K-ATPase $\alpha 4$ isoform as contraceptive agent” U54 External Advisory Board Meeting

October 2007 – “A Na, K-ATPase Isoform Unique to Spermatozoa” The Gilbert S. Greenwald Symposium on Reproduction. Kauffman Foundation Center, Kansas City

November 2007 – “The Na,K-ATPase and its Isozymes: What we have learned using the baculovirus expression system” International University of Florida, Miami

December 2007 – “Alfa4, la isoforma de la Na,K-ATPasa específica de Espermatozoide”, Sociedad de Biología de Cordoba, University of Cordoba, Argentina

Academic Honors:

Student Voice Award for Excellence in Teaching in Medical Physiology, 2007.

Chancellor’s Distinguished Teaching Award, University of Kansas Medical Center, 2007.

Dr. Blanco *(continued)*

Academic Honors (continued):

The University of Kansas Bohan Teaching Award, University of Kansas Medical Center, 2007.

The University of Kansas W.T. Kemper Fellowship for Teaching Excellence, University of Kansas Medical Center, 2007.

Teaching Activities:

PHSL 802- Medical Physiology

6 hours lecture.

4 hours problem sessions

8 hours laboratory sessions

2 hours review

1 hour Renal Physiology for physicians, Department of Surgery

IGPBS Module 4

4 hours lecture

Trainees:

Tamara Jimenez - Graduate Student

Anh-Nguyet Nguyen - Graduate Student

Young-Hwan Kim, Ph.D. – Post Doctoral Fellow

Kyle Jansson - Summer Student

Alexander Harbin - Summer Student

Shilpa J. Buch, Ph.D., Associate Professor

My research focuses on mechanism(s) involved in the development of HIV-associated dementia and pneumonias using the rhesus macaque model of AIDS. Another aspect of my research is aimed at understanding how drugs of abuse, such as cocaine and morphine exacerbate HIV-associated end-stage diseases in HIV-infected drug-abusing population, using both the in vitro and in vivo model systems.

Meetings Attended:

July 22 – 25, 2007 - “PDGF Synergistically Enhances IFN- γ Induced Expression of CXCL10 in Blood-Derived Macrophages” at the International AIDS Meeting, Sydney, Australia

Committees:

At-Large Delegate, Executive Committee of the Faculty Council (2007-2008)

Editorial and Grant Reviews:

Editorial Board Member, *Journal of Neurovirology*
Ad hoc Reviewer, *Journal of Virology*
Ad hoc Reviewer, *FASEB*
Ad hoc Reviewer, *Journal of Neuroscience*
Ad hoc Reviewer, *Journal of Neurovirology*
Ad hoc Reviewer, *GLIA*
Ad hoc Reviewer, *Virology*
Ad hoc grant reviewer, NIAAA
Ad hoc grant reviewer, NINDS program Projects
Study Section Permanent Member, NAED

Seminars Presented:

October 2007 – “NeuroAIDS: HIV and Host Interplay.” Department of Infectious Diseases and Microbiology, University of Pittsburg
January 2008 – “NeuroAIDS and Drug Abuse: A tale of two partners.” International Conference on Opportunistic Pathogens, New Delhi, India
January 2008 – “NeuroAIDS: A Tango of HIV and the Host.” Department of Biochemistry, Panjab University, Chandigarh, India
March 2008 – “NeuroAIDS and Drug Abuse: A tale of two partners.” Society on Neuroimmune Pharmacology, Charleston, SC
April 2008 – “NeuroAIDS: A Tango of HIV and the Host.” University of Puerto Rico, San Juan
April 2008 – “NeuroAIDS: A Tango of HIV and the Host.” University of Indiana, Indianapolis
May 2008 – “NeuroAIDS: A Tango of HIV and the Host.” University of Nebraska Medical Center

Dr. Buch *(continued)*

Seminars Presented (continued):

May 2008 - "NeuroAIDS: A Tango of HIV and the Host." Drexel University

Academic Honors:

NIH Study section (NAED) Member (2007-2010)

Appointed as an at-large delegate of the Executive Committee of the Faculty Council (2007-2008)

Teaching Activities:

PTRS: Mechanisms of Wound Healing
3 hours

Trainees:

Crystal Bethel-Brown – Graduate Student

Rachel Williams - Graduate Student

Jimmy Allen – Summer Student

Ci Ci Li – Summer Student

Dave Nair – Summer Student

Vineet Nanavaty – Summer Student

Rohun Viadya – Summer Student

Caitlin Linschfeld – Rotating MD/PhD Student

Paul D. Cheney, Ph.D., Professor and Chair

Neurophysiological techniques are used to investigate the functional contribution of neurons in the cerebral cortex and brainstem to the control of voluntary movement. The spike (action potential) activity of single neurons is recorded in awake monkeys trained to perform various movement tasks. Computerized analysis techniques are used to reveal the functional contribution of a neuron to movement. In another project, SIV infection in monkeys is used as model of neuro-AIDS. This model is used to investigate interactions between SIV infection and drugs of abuse using neurobehavioral, neurophysiological, and neuroanatomical methods.

Meetings Attended:

- November 3-7, 2007 – 36th Annual Meeting of the Society for Neuroscience, San Diego, CA. Was co-author on three poster presentations.
- November 18-19, 2007 – NIH Study Section Meeting, NINDS K99/R00 proposals, Washington DC
- March 13-16, 2008 – Society for Neuroimmune Pharmacology (SNIP) annual meeting, Charleston, SC

Committees:

Departmental

- Member, Crystal Bethel, Ph.D. Dissertation Committee
- Member, Greg Onyschuck, Ph.D. Dissertation Committee
- Member, Jill Morris, Ph.D. Dissertation Committee
- Advisor, Darcy Griffin, Ph.D. Dissertation Committee
- Advisor, Heather Hudson, Ph.D. Dissertation Committee
- Advisor, Mariam Riazikermani, Ph.D. Dissertation Committee
- Advisor, Gustaf Van Acker, Ph.D. Dissertation Committee

KUMC

- Member, Meredith Estep, Ph.D. Dissertation Committee
- Member, Mimi Urish, Ph.D. Dissertation Committee (Hearing & Speech)
- Member, Dean's Leadership Committee
- Coordinator, Basic Science Chairs & Center Directors Group
- Member, Bill Narayan Memorial Symposium Planning Committee
- Judge, Student Research Day
- Search Committee Member – Research Institute President
- Interviewed numerous candidates for various positions

KUMC-KU/Lawrence

- Co-Director, cross campus Ph.D. program in neuroscience
- Member, KU Bioengineering Advisory Committee
- Member, Neuroscience Strategic Planning Committee
- Member, Neuroscience Ph.D. Program Executive Committee
- Member, KIDDRC Internal Scientific Advisory Committee

Dr. Cheney (*continued*)

Committees (continued):

KUMC-KU/Lawrence (continued)

KIDDRC Theme Leader, Neurobiology of Mental Retardation and
Developmental Disabilities

Editorial and Grant Reviews:

Ad hoc Reviewer, *J. Neurophysiology*

Ad hoc Reviewer, *J. Neuroscience*

Ad hoc Reviewer, *J. Physiology*

Ad hoc Reviewer, *J. Neuroscience Methods*

Ad hoc Reviewer, *Cerebral Cortex*

NIH – NIH Study Section Meeting, NINDS K99/R00 proposals

Seminars Presented:

April 13-19, 2008 – University of Alaska-Anchorage gave three research
seminars for various groups

Teaching Activities:

PHYS 844 – Neurophysiology

32 contact hours

8 hours lecture

Advanced Neuroscience

14 hours lecture

Brain & Behaviour Module

2 hours lecture

10, 2-3 hour group meetings

Medical Neuroscience guest lecturer, University of Alaska-Anchorage

6 hours lecture

Physical Therapy – Pathobiology of Human Function II

2 hours lecture

Trainees:

Darcy Griffin – Graduate Student

Heather Hudson – Graduate Student

Mariam Riazi-Kermani – Graduate Student

Will Messamore – MD/PhD Student

Gustaf Van Acker – MD/PhD Student

Lane K. Christenson, Ph.D., Assistant Professor

Fertility control is a major health concern for premenopausal women. Research in my laboratory focuses on understanding the rapid terminal events involved in follicular development and luteal tissue formation. Currently, we are elucidating the mechanisms that microRNAs use to post-transcriptionally regulate gene expression within the ovary. Several LH-induced microRNAs have been identified and we are utilizing a variety of techniques, microarray and computational analyses, 2D-gel electrophoresis coupled to tandem MSMS to identify novel target genes downstream of LH regulated microRNAs. Furthermore, chromatin immunoprecipitation, ChIP-on-chip as well as standard promoter based approaches are being used to decipher how these non-coding RNAs are regulated by LH. Lastly, we are using mouse models (i.e., Dicer floxed mice) and in vivo and in vitro locked nucleic acid oligonucleotide knockdown methods to determine cause and effect for specific microRNAs. An offshoot of this research is our recent observation that deletion of Dicer (i.e., microRNA-mediated post transcriptional gene regulation) has pronounced effects on uterine development and function as well as female infertility. My laboratory has also entered the assisted reproductive technologies (ART) research arena, addressing the issue of embryo quality. We have completed a proteomic (tandem mass spectrometry) analysis of conditioned medium from preimplantation embryos. The proteins identified are now being studied for their predictive value as well as their functional role in embryo development. This area of research has the potential to not only improve ART procedures but also the health of children conceived through ART.

Meetings Attended:

July 19-21, 2007 – Ovarian Workshop, San Antonio, Tx.

July 21-25, 2007 – 40th Annual Meeting of the Society for the Study of Reproduction, San Antonio, TX

May 24-25, 2008 – World Congress on Reproductive Biology, Kailua-Kona, HI

May 27-30, 2008 – 41st Annual Meeting of the Society for the Study of Reproduction, Kailua-Kona, HI

Committees:

Departmental:

Advisor, Martha Carletti, Ph.D. Dissertation Committee

Advisor, Stephanie Fielder, Ph.D. Dissertation Committee

Advisor, Lacey Luense, Ph.D. Dissertation Committee

Member, Allison Ting, Ph.D. Dissertation Committee

Member, Sara Turk, Ph.D. Dissertation Committee

Member, Lynda McGinnis, Ph.D. Dissertation Committee

Member, Emily McDonald, Ph.D. Dissertation Committee

Dr. Christenson (continued)

Committees (continued):

KUMC:

- Member, Subhash Naik, Ph.D. Dissertation Committee
- Member, Yue Cui, Ph.D. Dissertation Committee
- Member, IACUC Animal Transition Committee
- Member, Institutional Oversight for Human Embryonic Stem Cell Committee (ESCRO) at the University of Kansas
- Member, Advisory Committee for the Microarray Facility
- Member, Mass Spectrometry Oversight Committee

National:

- Chairman of Bylaws Committee, Society for Study of Reproduction

Editorials and Grant Reviews:

- Editorial Board Member, *Reproduction*
- Ad hoc Reviewer, *Molecular Endocrinology*
- Ad hoc Reviewer, *Biology of Reproduction*
- Ad hoc Reviewer, *Human Reproduction*
- Ad hoc Reviewer, *Endocrinology*
- Ad hoc Reviewer, *Fertility and Sterility*

Seminars Presented:

- January 4, 2008 – “MicroRNAs and Ovarian Function.” Department of Biochemistry and Molecular Biology, KUMC
- January 30, 2008 – “MicroRNAs and Ovarian Function.” Veterinary Medical School, University of Montreal
- January 31, 2008 - “MicroRNAs and Ovarian Function.” Department of Obstetrics and Gynecology, McGill University, Montreal

Academic Honors:

- Adjunct Professor in Department of Animal Science at University of Nebraska-Lincoln
- Invitation to present seminar at the American Society of Animal Scientists Annual Meeting. MicroRNAs in the ovary and female reproductive tract. Cell Biology Symposium on Role of microRNA in Cellular Function. July 8, 2008.
- Invitation to present seminar at the XIX Annual Meeting of the Chilean Society of Reproduction and Development. Loss of MicroRNA Processing causes Female Infertility. Chillan, Chile September 3-5, 2008.
- Invitation to present seminar to the Department of Anatomy and Cell Biology, October 23, 2008
- Invitation to present seminar at the KINBRE Annual meeting Jan 18, 2009.

Dr. Christenson *(continued)*

Teaching Activities:

PHYS 834 Reproductive Physiology

Course Director

15 lecture hours

IGPBS Endocrinology

4 lecture hours

Trainees:

Martha Carletti – Graduate Student

Stephanie Fiedler – Graduate Student

Lacey Luense – Graduate Student

Allison Boehm – Summer Student

Navneet K. Dhillon, Ph.D., Research Assistant Professor

My research interests are focused on understanding the interplay of macrophages, cytokines and chemokines in lung infections associated with HIV-infection and developing an antisense therapeutic strategies using nanomedicine, in SHIV- macaque or murine models of the disease. Additionally, I am also interested in looking at the interactions between HIV and intravenous drug use (IVDU) that might result in the escalation of pulmonary arterial hypertension (PAH). The extent and type of contribution that each makes to the pathogenesis of PAH is not clearly understood and is under investigation.

Meetings Attended:

March 12-15, 2008 – 14th Annual Meeting of the Society on NeuroImmune Pharmacology, Charleston, SC

May 16-21, 2008 – ATS International Conference, Toronto, Ontario, Canada

Editorials and Grant Reviews:

Ad hoc Reviewer, University of Missouri Research Board Intramural Funding

Seminars Presented:

October 29, 2007 – “Interplay of Host Factors in AIDS: Implications for Antisense Therapy,” Department of Molecular & Integrative Physiology, KUMC

Trainees:

Rachel Williams – Graduate Student, Dr. Buch primary advisor

Jimmy Allen – Summer Student, Dr. Buch primary advisor

Vinit Nanavaty – Summer Student, Dr. Buch primary advisor

S.J. Enna, Ph.D., Professor

The overall objectives of the research program are to define the pharmacological and biochemical properties of neurotransmitter receptors, in particular those for GABA. Currently, emphasis is placed on characterizing the regulation of GABA_B receptor expression and function in response to physiological and pharmacological manipulations. Studies are being conducted on human brain and tissues derived from laboratory animals.

Meetings Attended:

October 4-7, 2007 - NC-IUPHAR Meeting, Paris, France, Oct. 4-7, 2007
December 9-13, 2007 - American College of Neuropsychopharmacology,
Boca Raton, Florida
April 3-8, 2008 - Experimental Biology, San Diego, CA
April 18-21, 2008 - NC-IUPHAR Meeting, Paris, France

Committees:

KUMC

Member, GCRC Education Activities Oversight Committee
Member, K-30 External Advisory Committee Advisory Board
Member, CTSA Subcommittees on Education and Industrial
Partners
Member, Research and Training Committee
Member, Nicholas Stucky Ph.D. Dissertation Committee
(Pharmacology, Toxicology & Therapeutics)
Member, Adrienne Hontz Ph.D. Dissertation Committee
(Pharmacology, Toxicology & Therapeutics)
Member, Jerri Rook Ph.D. Dissertation Committee
(Pharmacology, Toxicology & Therapeutics)
Member, Andrew Ralya Ph.D. Dissertation Committee
(Pharmacology, Toxicology & Therapeutics)

National and International

Member, Scientific Advisory Council, National Alliance for Autism
Research
Chair, Publications Committee, American College of
Neuropsychopharmacology
Member, Nebraska-BRIN External Advisory Committee
Member, PhRMA Foundation Pharmacology Advisory Panel
Member, University of Nebraska Alpha-2 Adrenergic Receptor
Agonist Program Project Committee
Member, GABA_B Nomenclature Database Committee, International
Union of Basic and Clinical Pharmacology
Member, Executive Committee, International Union of Basic and
Clinical Pharmacology

Dr. Enna (continued)

Editorial and Grant Reviews:

Editor-in-Chief, *Biochemical Pharmacology*
Executive Editor-in-Chief, *Pharmacology & Therapeutics*
Editor-in-Chief, *Pharmacology International*
Co-Editor, *xPharm*
Co-Editor, *Current Protocols in Pharmacology*
Guest Editor, *Biological and Pharmaceutical Bulletin*
Section Head (Neuropharmacology and Psychopharmacology), *Faculty of
1000 Biology Literature Search Service*
Editorial Advisory Board, *Brain Research*
Editorial Advisory Board, *Life Sciences*
Editorial Advisory Board, *CNS Drug Reviews*
Editorial Advisory Board, *Current Opinion in Pharmacology*
Ad hoc Grant Reviewer, National Alliance for Autism Research
Ad hoc Grant Reviewer, PhRMA Foundation
Grant Consultant, Prestwick Pharmaceuticals, Inc.
Grant Consultant, Cephalon, Inc.
Grant Consultant, Nereus Pharmaceuticals, Inc.
Grant Consultant, H. Lundbeck A/S

Seminars Presented:

October 11, 2007 - Polish Academy of Sciences, Krakow, Poland.
Neurobiology and Pharmacology of GABA-B Receptors
April 6, 2008 - Symposium Presentation, Experimental Biology Meeting,
San Diego, CA. Future of CNS Drug Development
April 17, 2008 - School of Pharmacy, University of Copenhagen,
Copenhagen, Denmark. GABA-B Receptors and Neuropsychiatric
Disorders
June 2, 2008 - University of Nebraska Medical Center, Omaha, Nebraska. Behavioral
Assay Systems

Academic Honors:

Secretary-General of the International Union of Basic and Clinical
Pharmacology
Invited to Present a Symposium Lecture at the 2009 Experimental Biology
Meeting in Washington, D.C.
Appointed Associate Dean for Research and Graduate Training,
University of Kansas Medical School

Dr. Enna *(continued)*

Teaching Activities:

Psychiatry Residents Lectures

5 hours

Faculty Advisor

Orr Society: Jennifer Liebenthal and Emily Blakenship

Integrative and Organ Systems Pharmacology Course (University of Nebraska)

1 hour

Course Director, Central Nervous System, Integrative and Organ Systems Pharmacology Course, University of Nebraska

Shawn B. Frost, Ph.D., Research Assistant Professor

Our laboratory studies neural plasticity in response to neurological injury and behavioral experience. Currently we are developing a nonhuman primate model to examine the neuroanatomical, neurophysiological and behavioral effects of focal infarcts in the internal capsule; a common site for clinical strokes in the cerebral white matter. This model of white matter infarct will be extremely valuable in future studies examining the underlying mechanisms of recovery after subcortical ischemic stroke and can be used in the development of therapeutic interventions in stroke treatment.

Meetings Attended:

November 3-7, 2007 - 37th Annual Meeting of the Society for Neuroscience, San Diego, CA

Editorials and Grant Reviews:

Ad hoc Reviewer, *Behavioral Brain Research*

Academic Honors:

Invited to the Dr, Miriam and Sheldon G. Adelson Medical Research Foundation advisory meeting on Neural Repair and Rehabilitation, September 25-26, 2008 in Las Vegas, NV

Teaching Activities:

CORE 840 Brain and Behavior 2011
24 hours

Trainees:

David Guggenmos - Graduate Student, R.J. Nudo, Ph.D. as primary advisor

Edward Urban III - Graduate Student, R.J. Nudo, Ph.D. as primary advisor

Pei-Chen Fang, Ph.D. – Post Doctoral Fellow, R.J. Nudo, Ph.D. as primary advisor

Paige C. Geiger, Ph.D., Assistant Professor

Research Summary: Type 2 diabetes (T2D) is one of the leading causes of mortality and morbidity in the world. T2D is characterized by insulin resistance and is typically correlated with obesity and aging. In our lab, we study the molecular mechanisms underlying age-related and high fat diet-induced insulin resistance. We hypothesize that oxidative stress is responsible for inhibiting insulin signaling and for the impairment of glucose homeostasis. Stress kinases such as JNK and IKK- β are activated by oxidative stress and have recently been implicated in inhibiting insulin signal transduction. Thus, we are examining the targeted inhibition of stress kinases to improve insulin sensitivity. We are also exploring therapeutic interventions such as heat therapy, exercise and anti-oxidant treatment in high fat-fed rats.

Meetings Attended:

April 5-9, 2007 – 2007 Experimental Biology Meeting, San Diego, CA

Committees:

Departmental

Advisor, Ph.D. Thesis committee for Anisha Gupte

Advisor, Thesis committee for Brittany Gorres

Advisor, Thesis committee for Jill Morris

Member, Thesis committee for Gwenaelle Wernli

Member, Thesis committee for Argenia Doss

Member, Graduate Student Affairs Committee

KUMC

Chair-elect, Elections Committee, SOM

Member, Professional Development and Faculty Affairs Planning Committee

Member, IGPBS Interview Team Spring 2008

Member, Thesis committee for Neena Sharma, SAH

Student Research Forum Judge

National:

Member, American Physiological Society Conference Committee

Editorials and Grant Reviews:

Ad hoc Reviewer, *Journal of Applied Physiology*

Ad hoc Reviewer, *American Journal of Physiology Endocrinology and Metabolism*

Ad hoc Reviewer, *Free Radical Biology and Medicine*

Ad hoc Reviewer, *Applied Physiology, Nutrition, and Metabolism*

Ad hoc Reviewer, *American Journal of Physiology - Regulatory, Integrative and Comparative Physiology*

Grant Reviewer, Health Research Board of Ireland

Dr. Geiger (*continued*)

Seminars Presented:

- November 6, 2007 – “The Role of Oxidative Stress in Age-Related Insulin Resistance.” University of Alberta, Edmonton, Canada
- October 3, 2007 - Oxidative Stress in Age-Related Insulin Resistance,” Department of Pharmacology Seminar, KUMC
- June 9, 2008 – “Role of Heat Shock Proteins in Insulin Resistance.” University of Missouri-Kansas City Muscle Biology Group Symposium

Teaching Activities:

- PHSL 800 Medical Physiology
 - 4 hours laboratory sessions
 - 4 hours conference
- IGPBS Module 5
 - 4 hours lecture
- PHSL 863 Physical Therapy: Pathobiology of Human Function I
 - 3 hours lecture
- HSES 810 Advanced Exercise Physiology, KU Lawrence
 - 3 hours lecture
- PHSL 838 Integrative Physiology of Exercise
 - Course Director & Lecturer
 - 26 hours

Trainees:

- Anisha Gupte – Graduate Student
- Brittany Gorres – IGPBS rotation student
- Jill Morris – IGPBS rotation student
- Chad Touchberry – Graduate Student (KU Lawrence)

Norberto C. Gonzalez, M.D., Professor

My research centers on the mechanisms of adaptation to acute and chronic hypoxia in intact animals. This includes the study of the effects of hypoxia, induced by a reduction on the levels of inspired oxygen, on each of the linked conductances of the oxygen transport system in resting and exercising animals, and the effects of exercise training on the strategies of acclimatization to hypoxia and their impact on the oxygen transport system. Another important research line is the study of the underlying mechanisms of the microvascular inflammatory response to systemic hypoxia, which may have functional relevance to acute altitude diseases such as acute mountain sickness, high altitude pulmonary edema and high altitude cerebral edema. Recent work in my laboratory has led to the novel observation that the ubiquitous inflammatory response to alveolar hypoxia is not triggered by the reduction of the local tissue PO₂, but rather by a mediator released by alveolar macrophages and transported by the circulation. Current research efforts are directed to identify this substance and to determine the physiological relevance of this response.

Meetings Attended:

April 5–9, 2008: Experimental Biology 08, San Diego, CA

Committees:

Department

Member, Promotion and Tenure Committee

Editorials and Grant Reviews:

Ad hoc Reviewer, *The Journal of Applied Physiology*

Ad hoc Reviewer, *International Journal of Sports Medicine*

Ad hoc Reviewer, *Medicine and Sciences in Sports and Exercise*

Ad hoc Reviewer, *The Journal of Physiology*

Grant Reviewer, US-Israel Binational Science Foundation

Seminars Presented:

October 4, 2007 – “Pathophysiology of Pulmonary Gas Exchange.”

Seminar to Surgery Residents, KUMC

December 10, 2007 – “Alveolar Macrophages, Mast Cells, and Systematic

Inflammation in the Hypoxic High Hill.” Department of Molecular and Integrative Physiology, KUMC

February 1, 2008 – “An Example of the Systematic Effects of Alveolar Macrophages: The Systemic Inflammation of Alveolar Hypoxia.”

The Lawrence P. Sullivan Journal Club, Kidney Institute, KUMC

February 21, 2008 – “Skeletal Muscle Inflammation in Response to Alveolar Hypoxia: How the Lungs Talk to the Muscle.” Center for Exercise Sciences, University of Florida, Gainesville, FL

Dr. Gonzalez (*continued*)

Academic Honors:

Invited Lecturer, International Society for Oxygen Transport to Tissue,
August 3-8, 2008, Sapporo, Japan

Invited to contribute a chapter on Pulmonary Gas exchange in Small
Animals, in the Section on Gas Exchange of the Handbook of Respiration, The
American Physiological Society, Ed. Peter D. Wagner and Michael Hlastala

Teaching Activities:

Respiratory Physiology, Cardiopulmonary Module

9 lecture hours

IGPBS: Respiratory Physiology

6 lecture hours

Trainees:

Jie Chao – Graduate Student

Zachary Viets – Summer Student

Wohaib Hasan, Ph.D., Research Assistant Professor

My research is primarily directed at understanding how peripheral nerves interact with their targets and other nerve populations. My studies indicate that the Nerve Growth Factor (NGF) protein is synthesized by a variety of cell types in development and maturity. After an ischemic episode in the rat heart there is increased NGF synthesis by a variety of cell types in the peri-infarct area. Sympathetic nerves are also attracted to the peri-infarct region and are closely spatially associated with the NGF-expressing cells. In culture, sympathetic nerve outgrowth towards peri-infarct tissue can be reversed by anti-NGF antibodies. These studies indicate that NGF may be responsible for sympathetic hyperinnervation and ultimately contribute to fatal cardiac arrhythmias. Understanding nerve-target interactions after myocardial ischemia is a prime focus of my studies.

With increasing time after infarct, cardiac sympathetic control is progressively altered leading to cardiac damage and death. The increased sympathetic drive may occur because parasympathetic nerves, that normally inhibit sympathetic nerves, no longer are in close association with the sympathetic nerves. I have previously shown that parasympathetic nerves synthesize NGF and this may underlie sympathetic-parasympathetic axo-axonal synapses. Whether alterations in availability of NGF from parasympathetic neurons are responsible for uncoupling of these nerves is also an important ongoing research question.

Committees:

Member, Gwenaelle Wernli, Ph.D. Dissertation Committee
Member, Timothy Donohue, Ph.D. Dissertation Committee

Editorials and Grant Reviews:

Ad hoc Reviewer, *Journal of Molecular Histology*
Ad hoc Reviewer, *Brain Research*
Ad hoc Reviewer, *American Journal of Physiology: Heart and Circulatory Physiology*

Academic Honors:

President, Society for Neuroscience, Kansas City Chapter

Teaching Activities:

NURO 846 Advanced Neuroscience
2 teaching hours
Judge, Student Research Forum

Trainees:

Bliss Hartnett – Summer Student

Leslie L. Heckert, Ph.D., Professor

Our research focuses on understanding the transcriptional and cell-signaling processes important for gonadal function and development. We are currently studying the genes that encode the FSH receptor (FSHR), a protein expressed only in somatic cells of the gonads, steroidogenic factor 1 (SF-1), an orphan nuclear receptor required for gonad and adrenal formation, and DMRT1, an evolutionarily conserved gene that regulates testis differentiation. Molecular approaches, comparative genomics, and transgenic mouse models are employed to explore events regulating gene expression and function. Through characterization of these genes, we hope to enhance our understanding of the processes controlling gonadal development and Sertoli cell-specification.

Committees:

Departmental

- Member, Graduate Student Advisory Committee
- Member, Ph.D. Dissertation Committee for Emily McDonald
- Member, Ph.D. Dissertation Committee for Stephanie Fiedler
- Member, Ph.D. Dissertation Committee for Sarah Tague
- Member, Ph.D. Dissertation Committee for Jeff Cotitta
- Member, Ph.D. Dissertation Committee for Elizabeth Dille

KUMC

- Member, Ph.D. Dissertaion Committee for Adnan Aub-Yousif, Pharmacology, Toxicology and Therapeutics
- Member, Ph.D. Dissertation Committee for Aaron Gottschalk, Biochemistry and Molecular Biology
- Chair, Transgenic Advisory Committee
- Member, Scientific Review Committee for Kansas Intellectual and Developmental Disabilities Research Center (KIDDRC) and Leader of Theme 4
- Chair, 2008 Greenwald Symposium Scientific Organizing Committee
- Member, Postdoctoral Advisory Committee
- Co-Director, Center for Reproductive Sciences

National

- Member, nominations committee, Society for the Study of Reproduction

Editorial and Grant Reviews:

- Member, Editorial Board for *Journal of Andrology*
- Ad hoc Reviewer, *Endocrinology*
- Ad hoc Reviewer, *Biology of Reproduction*
- Ad hoc Reviewer, *Developmental Biology*
- Ad hoc Reviewer, *Molecular Endocrinology*
- Ad hoc Reviewer, National Institute of Health CMIR study section 10/2007
- Ad hoc Reviewer. National Institute of Health RAG study section 3/2008

Dr. Heckert (*continued*)

Seminars Presented:

May 6, 2008 – “Signaling to the nucleus,” Frontiers in Reproduction, Marine Biological Laboratory, Woods Hole, Massachusetts.

May 12, 2008 – “Steroidogenic factor 1 and the regulation of Leydig cell development,” Frontiers in Reproduction, Marine Biology Laboratory, Woods Hole, Massachusetts.

Academic Honors:

Visiting Faculty, Frontiers in Reproduction Course, May 1-18, 2008,

Marine Biological Laboratory, Woods Hole, Massachusetts

Director of Module, 1 Frontiers in Reproduction course, Woods Hole, MA

Teaching Activities:

PHSL 834 – Reproductive Physiology

8 hours lecture

IGPBS 893 – Molecular Biology

5 hours lecture

Frontiers in Reproduction course at Marine Biological Laboratory, Woods Hole, Massachusetts on Transcriptional regulation, May 1-18, 2008.

Visiting Faculty and Course Director.

3 hours lecture

1 hour laboratory

Trainees:

Valentine Agbor – Graduate Student

Beth Dille – Graduate Student

Tatiana Karpova, Ph.D. – Post Doctoral Fellow

Ravichandiran Kumarasamy, Ph.D. – Post Doctoral Fellow

Shixin Tao, Ph.D. – Post Doctoral Fellow

Thomas J. Imig, Ph.D., Professor

Aberrant spontaneous activity in the auditory system is commonly believed to be a cause of tinnitus. Current research projects utilize behavioral methods in combination with 2-deoxyglucose and single unit measures of spontaneous activity to test the hypothesis that the tonotopic profile of aberrant SA is a neural correlate of tinnitus, and to identify mechanisms of control of SA in the central auditory system using the rat as an experimental model.

Committees:

Departmental

Chair, Graduate Student Affairs

Chair, P and T Committee

KUMC

Member, Academic Committee (SOM), Admissions Subcommittee

Member, Year 1-2 Committee

Member, Graduate Council

Member, IGPBS Advisory Board, Admissions Committee

Member, Neuroscience Graduate Program Committee

Member, SOM P and T

Editorial and Grant Reviews:

Ad hoc Reviewer, *Journal of Comparative Neurology*

Ad hoc Reviewer, *Journal of Neuroscience*

Ad hoc Reviewer, *Cerebral Cortex*

Ad hoc Reviewer, *Journal of Physiology*

Grant Reviewer, RGC (Hong Kong)

T. Rajendra Kumar, Ph.D., Assistant Professor

Our laboratory studies development and regulation of the reproductive axis using both gain-of-function (transgenic) and loss-of-function (gene knockout) approaches. These unique genetic models mimic many of the human diseases and thus enable us to experimentally track them both in time and space. Specific projects include unraveling signaling pathways in the hypothalamic medial preoptic area that contributes to male sexual behavior, understanding human pituitary null cell adenoma, mechanisms of secretion of pituitary gonadotropins, and delineating mechanisms of gonadotropin regulation of testis and ovarian development and function, with a special emphasis on how male germline stem cell niche is regulated. These studies are clinically relevant and have significant impact in understanding the physiology and pathology of the mammalian reproductive axis including abnormal reproductive tract development, infertility, and cancer of the pituitary and gonads.

Meetings Attended:

- March 2008 – Society for Experimental Biology Annual Meeting, San Diego, CA
- March 2008 – American Society for Andrology Annual Meeting, Albuquerque, NM
- May 2008 – Society for Study of Reproduction, 41st Annual Meeting, Kona, HI

Committees:

Departmental

- Member, Graduate Student Advisory Committee
- Member, Kathleen Osborn SSR Travel Award Committee

KUMC

- Member, Laboratory Animal Research Advisory Committee
- At-Large Department Member, Faculty Executive Council
- Member, Gilbert Greenwald Symposium Organizing Committee
- Member, Transgenic and Gene Targeting Facility Oversight Committee
- Member, IGPBS International Graduate Students' Selection Committee
- Member, Biomedical Research Training Program Fellowships Selection Committee
- Member, KUMC Bioinformatics Advisory Committee
- Member, KUMC Student Research Forum: Panel of Judges, Session IV: Rep. Biology
- Member, Resident and Fellow Research Forum: Panel of Judges, Session II
- Co-Chair, Center for Reproductive Sciences Journal Club

Dr. Kumar (continued)

Committees (continued):

National

- Member, "Hormone Action" Abstract Review Committee, 41st Annual Meeting Society for Study of Reproduction, Kona, HI, May 2008
- Member, Society for the Study of Reproduction: National Committee on Reproduction and the Environment, 2008-2009
- Member, Publication Committee, *Journal of Andrology*, American Society of Andrology

Editorial and Grant Reviews:

- Editorial Board Member, *Biology of Reproduction*
- Editorial Board Member, *Endocrinology*
- Ad hoc Reviewer, *American Journal of Pathology*
- Ad hoc Reviewer, *American Journal of Physiology: Endocrinology & Metabolism*
- Ad hoc Reviewer, *Archives of Biochemistry and Biophysics*
- Ad hoc Reviewer, *Asia Journal of Endocrinology*
- Ad hoc Reviewer, *Biology of Reproduction*
- Ad hoc Reviewer, *Clinical Endocrinology*
- Ad hoc Reviewer, *Endocrine*
- Ad hoc Reviewer, *Endocrine-Related Cancer*
- Ad hoc Reviewer, *Experimental Gerontology*
- Ad hoc Reviewer, *Expert Opinion on Therapeutic Patents*
- Ad hoc Reviewer, *FEBS Letters*
- Ad hoc Reviewer, *Fertility and Sterility*
- Ad hoc Reviewer, *Genomics*
- Ad hoc Reviewer, *Journal of Andrology*
- Ad hoc Reviewer, *Journal of Biotechnology*
- Ad hoc Reviewer, *Journal of Cell Biology*
- Ad hoc Reviewer, *Journal of Cell Science*
- Ad hoc Reviewer, *Journal of Clinical Endocrinology & Metabolism*
- Ad hoc Reviewer, *Journal of Endocrinology*
- Ad hoc Reviewer, *Journal of Physiology*
- Ad hoc Reviewer, *Molecular and Cellular Endocrinology*
- Ad hoc Reviewer, *Molecular Endocrinology*
- Ad hoc Reviewer, *Molecular Reproduction and Development*
- Ad hoc Reviewer, *Oncogene*
- Ad hoc Reviewer, *Peptides*
- Ad hoc Reviewer, *Reproduction*
- Ad hoc Reviewer, *Reproductive Biology and Endocrinology*
- Ad hoc Reviewer, *RNA*
- Ad hoc Reviewer, *The FASEB Journal*

Dr. Kumar (continued)

Editorial and Grant Reviews (continued):

Ad hoc Reviewer, *Trends in Endocrinology and Metabolism*

Seminars Presented:

October 2007 – “Genetic Approaches for Understanding FSH Physiology”

Department of Molecular & Integrative Physiology, KUMC

January 2008 – “Multiple roles of follicle stimulating hormone (FSH) in gonad development and aging,” Sigma Xi KUMC Chapter Seminar Series

March 2008 – “Regulation of Somatic-Germ cell Interactions by Gonadotropins,” DC Johnson Seminar Series in Reproductive Biology

April 5-9, 2008 – “Genetic analysis somatic cell niche and male germline stem cell development,” FASEB Meeting, American Association of Anatomists, San Diego, CA

May 25, 2008 – “Genetic Removal of Cyclin D2 Leads to Severe Hypogonadism and Infertility in FSH β Null Male Mice,” 41st Annual Meeting of Society for Study of Reproduction, Kona, HI

Academic Honors:

Invited Speaker, Center for Organogenesis, University of Michigan Medical Center, Ann Arbor, MI, 2008

Invited Speaker, Department of Biochemistry and Molecular Biology, North Carolina State University, Raleigh, NC, 2008

Invited Speaker, Department of Obstetrics and Gynecology, University of Texas Medical Branch, Galveston, TX, 2008

Teaching Activities:

IGPBS – Module IV

3 hours lecture (Cell Signaling III)

3 hours lecture (Journal Club Cell Signaling III)

3 hours lecture (Cleavage. Gastrulation and Mesoderm Induction)

3 hours lecture (Reproductive Tract Development)

IGBPS – Module V

2 hours lecture (Hypothalamus-Pituitary-I)

2 hours lecture (Hypothalamus-Pituitary-II)

BCHM 922 – Advanced Molecular Genetics

6 hours lecture (Temporal inactivation of genes in mice; RNAi strategies in mice)

Trainees:

Huizhen Wang, Ph.D. – Post Doctoral Fellow

Aveek Dhar – Summer Student

Melissa A. Larson, Ph.D., Research Assistant Professor; Director of KUMC Transgenic and Gene-Targeting Institutional Facility

The TGIF is a fee-for-service facility supporting the research efforts of investigators at KUMC and the surrounding research community. In this capacity, we are providing the services of generation of transgenic and chimeric mice, targeting of embryonic stem cells, genotyping, sperm cryopreservation, rederivation by embryo transfer and in vitro fertilization. We also provide consultation, demonstration and training on construct generation, embryo handling and mouse surgeries and will be adding the services of embryo cryopreservation and intracytoplasmic sperm injection. We welcome the opportunity to research new projects, and we are developing new techniques and services to offer to investigators. My lab is also investigating the in vivo function of a novel recombinase for use in genetic engineering.

Meetings Attended:

- July 12-14, 2007 – “Frontiers in Genome Engineering,” Building a Better Mouse II Conference, Vanderbilt University, Nashville, TN.
- October 5-7, 2007 – Gilbert S. Greenwald Symposium, Kansas City, MO.

Committees:

KUMC

- Member, Animal Transition Committee
- Member, Animal Rederivation Committee
- Judge, Student Poster Competition at the Gilbert S. Greenwald Symposium on Reproduction, Kansas City, MO, October 5 – 6, 2007

Seminars Presented:

- October 1–2, 2007 – Town Hall Meetings for Animal Users, “KLSIC Animal Transition: Who, What, Why, How, Where and When,” KUMC

Teaching Activities:

- August 14, 2007 - Consultation on sperm cryopreservation for Director of Transgenic Facility, KU – Lawrence

Sang-Pil Lee, Ph.D., Assistant Professor (Hoglund Brain Imaging Center)

My current research interests include the characterization and understanding of biological processes in the brain in vivo at the cellular and molecular level using novel non-invasive magnetic resonance techniques, for example, in vivo measurements of iron contents, A β plaques and axonal transport using contrast agents in transgenic animal models of Alzheimer's disease. My research goal is early diagnosis and identification of changes in functional and physiological aspects of neurodegenerative diseases during the disease progression.

Meetings Attended:

- November 3-7, 2007 – Society for Neuroscience, San Diego, CA.
- April 3-9, 2008 – International Society of Magnetic Resonance in Medicine (ISMRM), Toronto, Canada.
- June 6-10, 2008 – American Diabetes Association, San Francisco, CA.
- June 27 – July 1, 2008 – International Society for Neurochemistry (ISN) – Special Neurochemistry Conference - 8th International Meeting for Brain Energy Metabolism- on “Neurodegeneration and Regeneration”, Beijing, China.

Committees:

- KUMC
Member, Natalia Loskutova Ph.D. Dissertation Committee (Physical Therapy)

Editorial and Grant Reviews:

- Ad hoc Reviewer, *Magnetic Resonance in Medicine*
- Ad hoc Reviewer, *NMR in Biomedicine*
- Ad hoc Reviewer, *Journal of Neuroscience Research*

Seminars Presented:

- September 21, 2007 – “Anatomical and Functional Imaging of Alzheimer's Pathology in Transgenic Animal Models by *In Vivo* MRI,” Presentation to the IGPBS Students.
- September 28, 2007 – “Anatomical Rewiring of Cortical Circuitry: Manganese Enhanced MRI,” Presentation for Keck Foundation site visit.

Teaching Activities:

- PATH 863 – Pathology of Human Function
2 hours lecture

Trainees:

- Amjad Kahlil – Graduate Student (KU Lawrence)
- Jieun Kim, Ph.D. – Post Doctoral Fellow

Steven M. LeVine, Ph.D., Professor

We are interested in advancing the understanding of the disease processes in two disorders of myelin: multiple sclerosis and Krabbe's disease. Myelin is essential for the normal communication between different areas of the nervous system and a loss of myelin can lead to sensory, motor and/or cognitive impairment. A greater knowledge of disease mechanisms can be used to identify new therapeutic targets. Additional research focuses on toxin-mediated pathogenesis with an emphasis on microvascular leakage.

Meetings Attended:

October 8, 2007 – Midwest Regional Center of Excellence, 5th Annual Meeting, Washington University, St. Louis, MO.

Committees:

Coordinator, 2007-2008 Physiology Seminar Series

Editorial and Grant Reviews:

Ad hoc Reviewer, *Glia*

Ad hoc Reviewer, *Journal of Neuroscience Research*

Ad hoc Reviewer, *Neuroscience Letters*

Ad hoc Reviewer, The Wellcome Trust

Teaching Activities:

CORE 840 – Brain Mind and Behavior – Neuropathology Labs for 2nd Year
Medical Students
8 hours lecture

Trainees:

Ryan Gallagher – Graduate Student

Laura Schaefer – Graduate Student

Randolph J. Nudo, Ph.D., Professor & Director of the Landon Center on Aging

Our laboratory is studying the brain's capacity for self-repair after damage. We utilize a non-human primate model of stroke recovery to determine the neurophysiologic, neuroanatomic, and biochemical bases for recovery. By tracking changes in the structure and function of motor areas of the cerebral cortex as a result of a focal vascular infarct, we are beginning to describe the cascade of events that give rise to the reorganized brain. We are also studying novel forms of treatment in chronic stroke to enhance and accelerate the recovery process. These treatment interventions include both physiotherapy, pharmacotherapy, or device-based approaches, either alone or in combination. It is our goal to translate directly the information we gain through brain plasticity research into effective clinical applications.

Meetings Attended:

July 15-18, 2007 - International Brain Research Organization (IBRO)
Annual Meeting, Melbourne, Australia

July 20, 2007 - IBRO Satellite Meeting on Motor Control, Darwin, Australia

Committees:

Departmental

Member, Department Promotion and Tenure Committee

Member, Department Salary Plan Committee

KUMC

Member, GCRC Education Activities Oversight Committee

Member, K-30 External Advisory Committee Advisory Board

Member, CTSA Subcommittees on Education and Industrial
Partners

Member, Department of Physical Therapy Search Committee

Member, Research and Training Committee

National and International

Member, Board of Directors, American Society of
Neurorehabilitation

Editorials and Grant Reviews:

Editorial Board, *Restorative Neurology and Neuroscience*

Editorial Board, *Neurorehabilitation and Neural Repair*

Editorial Board, *Neuroscience and Biobehavioral Reviews*

Editorial Board, *Brain Stimulation*

Ad hoc Reviewer, *Journal of Neurophysiology*

Ad hoc Reviewer, *Stroke*

Ad hoc Reviewer, *Journal of Cerebral Blood Flow and Metabolism*

Ad hoc Reviewer, *Cerebral Cortex*

Ad hoc Reviewer, *Journal of Neuroscience*

Ad hoc Reviewer, *Neuroscience*

Ad hoc Reviewer, *Brain*

Dr. Nudo (continued)

Editorials and Grant Reviews (continued):

Ad hoc Reviewer, *Journal of Comparative Neurology*
Member, NIH Special Emphasis Panel to review technology applications
In neuroscience, October 2007
Member, NIH Special Emphasis Panel to review Institutional Training
Programs in Neuroscience, November 2007
Ad hoc member, NIH Board of Scientific Counselors to review intramural
laboratories, June 2008
Member, NIH Special Emphasis Panel to review Stroke Preclinical Trials
Consortia applications, June 2008
Consultant, Medical Consulting Referral, Inc.
Consultant, Clinical Advisors, LLC
Consultant, Bear Stearns
Consultant, SG Cowan
Media interviews: NHK, Japan (national public broadcasting station in
Japan)

Seminars Presented:

July 20, 2007 – “Redistribution of function in motor cortex of non-human
primates after cortical ischemi”. IBRO Satellite Meeting on Motor
Control. Darwin, Australia.
September 8, 2007 – “Mechanisms underlying recovery after stroke”.
Annual Neuroscience Symposium. University of South Dakota,
Vermillion, South Dakota
September 26, 2007 – “The role of neural reorganization in stroke
recovery”. Masterclasses in Neuroscience, Windsor Great Park,
London, United Kingdom
November 12, 2007 – “Brain mechanisms of recovery after stroke”.
Stowers Institute for Medical Research, Kansas City, Missouri.
January 31, 2008 – “Redistribution of function in motor cortex after stroke”.
Neuromuscular Plasticity Symposium. University of Florida,
Gainesville, Florida

Academic Honors:

Chancellor’s Club Research Award, University of Kansas Medical Center
Javits Investigator Award, National Institute of Neurological Disorders and
Stroke
Invited Speaker, “Redistribution of function in motor cortex of non-human
primates after cortical ischemia,” IBRO Satellite Meeting on Motor
Control, Darwin, Australia, July 20, 2007
Invited Speaker, “Mechanisms underlying recovery after stroke,” Annual
Neuroscience Symposium, University of South Dakota, Vermillion,
South Dakota, September 8, 2007

Dr. Nudo (continued)

Academic Honors (continued):

- Invited Speaker, "The role of neural reorganization in stroke recovery,"
Master classes in Neuroscience, Windsor Great Park, London,
United Kingdom, September 26, 2007
- Invited Speaker, "Brain mechanisms of recovery after stroke," Stowers
Institute for Medical Research, Kansas City, Missouri, November
12, 2007.
- Invited Speaker, "Redistribution of function in motor cortex after stroke,"
Neuromuscular Plasticity Symposium, University of Florida,
Gainesville, Florida, January 31, 2008.
- Invited Speaker, Meeting entitled Plasticity and Repair in
Neurodegenerative Disorders, Lake Arrowhead, California, May 16,
2008.

Teaching Activities

- PTRS 863 Pathobiology of Human Function
1 hour lecture
- PVRM 803/GSMC 803/AUD 805/NRSG 803 Introduction to Clinical
Research
1 hour lecture
- CORE 840 Brain, Mind and Behavior (medical students)
6 hours lecture
- Rehabilitation Medicine residents
1 hour lecture
- PHSL 838 Advanced Topics
15 conference hours
- PTRS 980 Graduate Research

Trainees:

- David Guggenmos – Graduate Student
- Edward Urban III – Graduate Student
- Scott Bury, Ph.D. – Post Doctoral Fellow
- Pei-Chun Fang, Ph.D. – Post Doctoral Fellow
- Mariko Nishibe – MD/PhD Rotation Student

Erik J. Plautz, Ph.D., Research Assistant Professor

Our laboratory studies neural plasticity (the capacity of the brain to undergo physiological and anatomical changes) in response to behavioral experience and neurological injury. We utilize a non-human primate model of ischemic stroke to examine changes in motor areas of the cerebral cortex following injury and during recovery. Several projects are focused on identifying and describing the widespread cascade of events that occur in the days, weeks, and months after injury. Other projects involve evaluation of novel techniques or methods for improving functional recovery from chronic disability, including physiotherapy, pharmacotherapy, and device-assisted electrotherapy.

Meetings Attended:

November 2007 – Society for Neuroscience Annual Meeting, San Diego, CA

Committees:

KUMC

Member, IACUC Committee (2005-2008)

Faculty Judge, KUMC Student Research Forum (April 2008)

Editorial and Grant Reviews:

Ad hoc Reviewer, *Stroke*

Ad hoc Reviewer, *Brain*

Teaching Activities:

PTRS 863 – Pathobiology of Human Function

1.5 hour lecture

Trainees:

David Guggenmos – Graduate Student, Dr. Nudo primary advisor

Scott Bury, Ph.D. – Post Doctoral Fellow, Dr. Nudo primary advisor

Pei-Chun Fang, Ph.D. – Post Doctoral Fellow, Dr. Nudo primary advisor

Mariko Nishibe – Graduate Student (PT)

Edward Urban – MD/PhD Graduate Student, Dr. Nudo primary advisor

Mihai Popescu, Ph.D., Research Assistant Professor

My research activities are directed towards the development of new methodologies aiming to provide improved estimates of the spatio-temporal dynamics of brain activity from multi-channel MEG recordings. Current experimental applications focus on understanding specific brain mechanisms underlying the evoked auditory responses in children with specific language impairment and in children with Asperger syndrome.

A second area of research focuses on developing algorithms for the reconstruction of fetal cardiac currents from multi-channel fMCG recordings, including the integration of 3D ultrasound information of the feto-abdominal anatomy into the discrete formulation of the forward electromagnetic problem. Applications include examining the longitudinal changes of fetal cardiac electrophysiology and differences in cardiac electrophysiology across clinical conditions.

Committees:

KUMC

Member, Tszping Chan dissertation exam committees

National and International

Member, International Program Committee for the *International Workshop on Nonlinear Signal and Image Processing (NSIP 2007)*, September 10-12, 2007, Bucharest, Romania.

Editorials and Grant Reviews:

Ad hoc Reviewer, *IEEE Transactions on Neural Systems & Rehabilitation Engineering*

Ad hoc Reviewer, *Computer Methods and Programs in Biomedicine*

Seminars Presented:

February 25th, 2008 – “Assessment of the sensory memory using magnetoencephalographic recordings”, Department of Speech-Language Hearing

Trainees:

Tszping Chan – Graduate Student (EECS Dept, KU), S. Blunt primary advisor

Meredith Estep – Graduate Student, S. Barlow primary advisor

Peter G. Smith, Ph.D. Professor and Director, Kansas Intellectual and Developmental Disabilities Research Center

Nerves regulate function and structure of peripheral cells. In turn, target cells provide molecular signals that govern the quantity and type of innervation they receive. Our research is concerned with this interplay between nerve and target in a variety of systems including the cardiovascular system, skin, and reproductive tract. We study the factors that make a tissue attractive or repulsive to autonomic and sensory nerves, and regulate neuronal growth and survival. We also study how some nerves alter target properties, such as rates of wound healing and growth of blood vessels. We are interested in how hormones can affect these relationships. A particular focus is the molecular mechanisms by which estrogen influences patterns of innervation, and consequences of hormonally induced changes in innervation on cardiovascular and reproductive tract functions. This research has direct implications for recovery from cardiac injury, and with regard to changes in neural function that occur with changing hormonal status in women.

Meetings Attended:

- July 7-9, 2007 – International Brain Research Organization (IBRO) 2007 Congress Satellite Meeting S11 Physiology and Pathophysiology of the Autonomic Nervous System. Tzu Chi University, Hualien, Taiwan.
- October 5-8, 2007 – 5th Congress of the International Society for Autonomic Neuroscience, Kyoto, Japan.
- January 16-17, 2008 – Developmental Disabilities Research Center Directors Meeting, Washington DC
- January 19-20, 2008 – Kansas IDeA Network for Biomedical Research Excellence Student Symposium, Kansas City MO
- January 16, 2008 – Developmental Disabilities Research Centers Directors Meeting, Washington DC.
- April 5-10, 2008 – Experimental Biology, San Diego, CA.

Committees:

Departmental:

- Member, Physiology Promotions and Tenure Committee
- Chair, Student Advisory Committee for Gwenaelle Wernli
- Chair, Student Advisory Committee for Argenia Doss
- Chair, Student Advisory Committee for Sarah Tague
- Chair, Student Advisory Committee for Tim Donohue
- Chair, Student Advisory Committee for Aritra Bhattacharjee
- Chair, Student Advisory Committee for Eva Selfridge
- Member of Student Advisory Committee for Crystal Bethel-Brown

Dr. Smith (continued)

Committees (continued):

KUMC:

Member, Student Advisory Committee for Mary Lee Dequeant,
Anatomy and Cell Biology
Member, Student Advisory Committee for Melinda Arnett,
Anatomy and Cell Biology
Member, Student Advisory Committee for Megan Johnson,
Anatomy and Cell Biology
Member, Student Advisory Committee for Chris Liverman
Anatomy and Cell Biology
Member, Student Advisory Committee for Jerri Rook,
Pharmacology, Toxicology & Therapeutics
Director, Kansas Intellectual and Developmental Disabilities
Research Center
Associate Director and Program Coordinator, Kansas IDeA
Network for Biomedical Research Excellence (K-INBRE)
Director, K-INBRE Bioinformatics Core at KUMC
Director, Microarray Facility
Member, Confocal Microscopy Advisory Board
Member, Mass Spectroscopy Advisory Board
Member, Kansas INBRE Advisory Board
Member, CTSA Planning Committee
Co-Director, Novel Methodologies and Translational Technologies,
Heartland Institute for Clinical and Translational research
Member, LAR Advisory Committee
Chair, Animal Transition Committee (coordinating transfer of
rodents to KLSIC vivarium)
Member, Board of Directors, KUMC Research Institute
Member, Research Institute Research Committee
Member, Search Committee for the Executive Director of the
Research Institute
Member, Search Committee for the Director, Life Span Institute at
KU-Lawrence
Chair, Bioinformatics Search Committee

Editorials and Grant Reviews:

Ad hoc Reviewer, *American Journal of Physiology*
Ad hoc Reviewer, *Autonomic Neuroscience*
Ad hoc Reviewer, *Brain Research*
Ad hoc Reviewer, *Neuroscience*
KUMC Research Institute
Kansas INBRE

Dr. Smith (continued)

Seminars Presented:

- July 8, 2007 – “Cardiac parasympathetic prejunctional inhibition and NGF expression are reduced in a rodent model of congestive heart failure”. International Brain Research Organization (IBRO) 2007 Congress Satellite Meeting S11 Physiology and Pathophysiology of the Autonomic Nervous System. Tzu Chi University, Hualien, Taiwan.
- August 28, 2007 – “Female Pain Syndromes”. The Central Exchange of Kansas City.
- October 16, 2007 – “Emerging Trends: Establishment of a Translational Technology Core” KUMC
- October 26, 2007 – “Public speaking and conference presentations”. Speech-Language Hearing and Child Language graduate student organization, KUMC
- January 25, 2008 – “A question of balance: Determinants of peripheral autonomic innervation”. Department of Anatomy and Neurobiology, University of Vermont, Burlington, Vermont
- April 8, 2008 – “Estrogen and neuroplasticity in the female reproductive tract”. Symposium on Neuronal Plasticity in Health and Disease, Experimental Biology Meeting, San Diego CA
- April 21, 2008 – “Negotiating skills and the political landscape”, Office of Faculty Development Mentoring Series, KUMC

Academic Honors:

- Platform presentation at IBRO Satellite meeting in Hualien, Taiwan
- Platform presentation, Experimental Biology

Teaching Activities:

- PHSL 800: Medical Physiology
- 3 hours lecture
- 4 hours conference

Trainees:

- Aritra Bhattacharjee – Graduate Student
- Argenia Doss – Graduate Student
- Sarah Tague – Graduate Student
- Gwenaelle Wernli – Graduate Student
- Anuradha Chakrabarty, Ph.D. – Post Doctoral Fellow
- Bliss Hartnet – MD/PhD Rotation Student
- Timothy Donahue – MD/PhD Student
- Eva Selfridge – MD/PhD Student

John A. Stanford, Ph.D., Assistant Professor

My research is focused on analyzing motor function in animal models of normal aging and age-related diseases such as Parkinson's disease (PD) and amyotrophic lateral sclerosis (ALS). Because diminished and slowed motor activity (bradykinesia) and gait disturbances are cardinal Parkinsonian signs, functional changes in the nigrostriatal dopamine system are believed to play a primary role in their increased expression in the elderly. A central hypothesis of my research is that age-related changes in the functional dynamics of this system disrupt the normal processing of motor-related information throughout the basal ganglia. As an extension of this research, I am very interested in characterizing and promoting the use of age-relevant preclinical models of age-related neurodegenerative and neuromuscular conditions, especially PD. Because normal physiological function is changed in aging, the use of older animals as models should facilitate the development of effective neuroprotective or restorative therapies. I am also involved in studies examining clinically-analogous measures of motor function in preclinical models of ALS and prescription drug use and abuse in the elderly (e.g., benzodiazepines). We have also recently initiated studies examining insulin resistance in the brain and periphery in rodent models of PD.

Meetings Attended

November 3-7, 2008 – Annual Meeting of the Society for Neuroscience,
San Diego, CA

January 27, 2008 – Meeting of the Western ALS Association, Newport
Beach, CA

Committees:

Department

Member, Departmental Graduate Student Affairs Committee

KUMC

Member, Rodent Behavior Advisory Committee

Member, KUMC IACUC, September 2005 – present

Editorials and Grant Reviews:

Reviewer, *Journal of Neuroscience Methods*

Reviewer, *Psychopharmacology*

Seminars Presented:

October 24, 2007 – “Clinically-Analogous Measures of Orolingual Motor
Function in Rodent Models of Normal Aging and ALS.”
Neuromuscular Research Conference, KUMC

November 27, 2007 - “Clinically-Analogous Measures of Orolingual Motor
Function in Rodent Models of Normal Aging and ALS.” Meeting of
the Board of Directors on the Keith Worthington Chapter of the ALS
Association, Overland Park, KS

Dr. Stanford (continued)

Seminars Presented (continued):

January 27, 2008 - "Clinically-Analogous Measures of Orolingual Motor Function in Rodent Models of Normal Aging and ALS." Meeting of the Western ALS Association, Newport Beach, CA

Teaching Activities:

IGPBS: Module 5

8 hours

Brain & Behavior

25 hours

Independent Study

Directed readings regarding neural control of oromotor function with Shinying Chu, graduate student in Speech, Language & Hearing, KU-Lawrence

Trainees

Crystal Bethel-Brown – Graduate Student

Jill Morris (co mentor: Paige Geiger) – Graduate Student

Susan Smittkamp, Ph.D. – Post Doctoral Fellow

Michelle Healey – MD/PhD Rotation Student

Stanislav Svojanovsky, Ing., Ph.D., Research Assistant Professor

My research is focused on biomedical applications (microarray, SNP data analysis, and biomarkers), genomics profiling for different diseases and disorders (diabetes, chronic lung disease, brain injuries), development of gene ontology, annotation and pathways for microarray research and how related genes encode functionally related proteins. In addition, I am interested in computational models (neural networks) that could be utilized in solving bioinformatics problems including quantitative structure-activity relationships (QSAR), computer assisted drug design (CADD), high throughput screening (HTS) and genome mapping.

Meetings Attended:

- July 19-23, 2007 - Attended the Beyond Genome 2007 Conference:
Statistical Design for the Microarray Experiments, San Francisco, CA.
- November 9, 2007 – Attended KUMC Faculty Research Day and Poster Session, Kansas City, KS.
- January 12, 2008 – Attended the JCCC Faculty/Staff Research Symposium, Overland Park, KS.
- January 19, 2008 – Attended the K-INBRE 2008 Symposium, Kansas City, MO.

Committees:

- Member, Kansas City Area Life Science Institute (KCALSI), Development Grand Peer Review Committee

Seminars Presented:

- January 12, 2008 – Presented a seminar entitled “Computer Assisted Drug Design: New perspectives in anticancer Drug discovery” at the JCCC Faculty/Staff Research Symposium at JCCC, Overland Park, KS.
- February 2008 – “Neural Network Applications in Bioinformatics Research” for the Department of Electrical Engineering and Computer Science, University of Kansas, Lawrence, KS.

Teaching Activities:

- EECS 833 – Neural Network and Fuzzy Logic
 - 4 hours lecture
 - 4 hours review

Trainees:

- Emily Walters – Graduate Student (Pittsburg State University)

C. Merrill Tarr, Ph.D., Professor

My present research interest is the development and evaluation of interactive, teaching modalities that can be used to enhance the educational experience of students.

Committees:

KUMC

Director, Cardiopulmonary Module in Year 1 Medical Curriculum

Director, Renal-Endocrine Module in Year 1 Medical Curriculum

Member, Education Council

Member, Phase 1 Committee

Teaching Activities:

Cardiopulmonary Module Year 1 Medical

6 hours of lecture

4 hours of small group teaching

Joseph S. Tash, Ph.D., Professor and Director of Interdisciplinary Center for Male Contraceptive Research & Drug Development

I have felt for a long time that effective solutions to the problem of human overpopulation must include new male contraceptive approaches. Towards this end, a long term research goal is to understand the mechanisms underlying the development of sperm and sperm functions related to fertility with an eye towards identification of proteins in sperm or the testis that could be used as targets for development of male contraceptive agents.

Meetings Attended:

September 2007 – Future of Male Contraceptive. Seattle, WA
October 2007 – 23rd American Society for Gravitational & Space Biology
Annual Meeting, NASA Research Park, CA
March 2008 – Frontiers in Medicinal Chemistry, Rensburg, Germany
April 2008 – American Society for Gravitational & Space Biology Meeting,
Washington DC
May 2008 – 41st Annual Meeting of the Society for the Study of
Reproduction, Kailua-Kona, HI
Participated in Quarterly MCP meetings with the University of Minnesota
and the Moffitt Cancer Center

Committees:

KUMC

Member, School of Medicine Dean's Leadership Committee
Member, School of Medicine Basic/Center Directors Committee
Director, Imaging Core Laboratory, Center for Reproductive
Sciences.
Member, KUMC Institutional Animal Care and Use Committee
(IACUC)
Member, KUMC Biotech Facility Oversight Committee

National

Member, Board of Governors, American Society for Gravitational
and Space Biology 2006 – 2008

Editorials and Grant Reviews:

Reviewer, *Biology of Reproduction*
Reviewer, *Journal of Anrology*
Ad hoc Reviewer, Male Contraceptive Development Program
April 2008 – Dissertation Defense, Sedide Ozturk: Function of Guanine
Nucleotide Independent Forms of the G-Protein Elongation Factor
1A.; UMDNJ Robert Wood Johnson Medical School
Participated in the review of the Male Contraceptive Development
Program (U01) (RFA-HD-08-005)

Dr. Tash (*continued*)

Seminars Presented:

April 2008 – “Non-Hormonal Male Contraception: Novel Approaches and Novel Targets.” UMDNJ Robert Wood Johnson Medical School

Academic Honors:

2007 Faculty Investigator Research Award
Promoted to Full Professor, 2008

Teaching Activities:

PHYS 802 Medical Physiology
180 hours lecture
16 conference hours

Trainees:

Ben Abel – Graduate Student
Jeffrey Cotitta – Graduate Student
Vijayalaxmi Gupta, Ph.D. – Post Doctoral Fellow
Lesya Holets, Ph.D. – Post Doctoral Fellow

Michael W. Wolfe, Ph.D., Associate Professor

Pituitary expression of luteinizing hormone and placental expression of chorionic gonadotropin are essential to mammalian reproduction. Research in my laboratory is directed towards understanding the cellular and molecular mechanisms involved in regulating pituitary and placenta function as well as tissue-specific and hormonal regulation of the genes encoding the α and β -subunits of these hormones. This involves studying the mechanisms regulating cell differentiation, elucidation of transcription factors regulating basal expression, and identifying the signal transduction pathways involved in gonadotropin-releasing hormone, retinoid, growth factor, cytokine and adipokine regulation of gene expression.

Meetings Attended:

July 2007 – 40th Annual Meeting of Society for the Study of Reproduction, San Antonio, TX.

October 2007 – 4th Annual Gilbert Greenwald Symposium on Reproduction, Kansas City, MO.

May 2008 – First Congress on Reproductive Biology, Kailua – Kona, HI.

May 2008 – 41st Annual Meeting of the Society for the Study of Reproduction, Kailua – Kona, HI.

Committees:

Departmental

Member, Committee organizing the Gilbert S. Greenwald Symposium on Reproduction

Member, Dissertation Committee for Jennifer Ho-Chen, Ph.D. Candidate

Member, Dissertation Committee for Anh-Nguyet Nguyen, Ph.D. Candidate

Member, Dissertation Committee for Martha Carletti, Ph.D. Candidate

Member, Dissertation Committee for Brittany Gorres, Ph.D. Candidate

Member, Dissertation Committee for Edward Urban, M.D./Ph.D. Candidate

Chair, Dissertation Committee for Sara Turk, Ph.D. Candidate

Chair, Dissertation Committee for Emily McDonald, Ph.D. Candidate

Chair, Comprehensive Exam for Stephanie Fiedler

KUMC

Member, Dissertation Committee for Lindsey N. Canham, Ph.D. Candidate, Dept of Pathology and Laboratory Medicine

Member, Dissertation Committee for Damayanti Chakraborty, Ph.D. Candidate, Dept of Pathology

Member, Comprehensive Exam Committee for Yue Cui, Dept. of Pharmacology

Dr. Wolfe (*continued*)

Committees (*continued*)

National

Member, By Laws Committee, Society for the Study of Reproduction

Editorials and Grant Reviews:

Ad hoc Reviewer, *Animal Reproduction Science*

Ad hoc Reviewer, *Biology of Reproduction*

Ad hoc Reviewer, *Endocrinology*

Ad hoc Reviewer, *Journal of Cellular and Molecular Medicine*

Editorial board, *Journal of Endocrinology*

Seminars Presented:

May 29, 2008 – “Pituitary adenylate cyclase activating protein (PACAP) regulates expression, intracellular localization and function of early growth response protein 1 (Egr1) in gonadotropes.” 41th Annual meeting of the Society for the Study of Reproduction, Kailua-Kona, HI.

Teaching Activities:

Reproductive Physiology (PHSL834)

Course co-coordinator

8 hours lecture

IGPBS Module 4: Signal Transduction Section

3 hours lecture

3 hours journal club

Pre-clinical phase: year 1, Renal-Endocrine Module

7 hours lecture (team taught within a 17 hr block)

2 hr review session

4 hr of small group conferences

Pre-clinical phase: year 1, Sexuality and Reproductive Medicine Module

3 hours lecture

Trainees

Emily McDonald – Graduate Student

Sara Turk – Graduate Student

John G. Wood, Ph.D., Associate Professor

The major goal of our research is to examine mechanisms responsible for the microvascular inflammatory response during acute hypoxia as well as to identify mechanisms responsible for microvascular acclimatization to chronic hypoxia. These studies are done in collaboration with Dr. Gonzalez. We are also working with Dr. James Thomas and Dr. Michael Moncure (Department of Surgery) to examine how upregulation of hypoxia-inducible factor attenuates microvascular injury following ischemia/reperfusion or hemorrhagic shock.

Meetings Attended:

- October 7-11, 2007 - American College of Surgeons Clinical Congress, New Orleans, LA
- January 15-20, 2008 - Keystone Symposia: Molecular, Cellular, Physiological and Pathogenic Responses to Hypoxia, Vancouver
- April 4-8, 2008 - Experimental Biology, San Diego, CA

Committees:

Departmental

- Member, Anh Nguyen's thesis committee
- Member, Gwenaelle Wernli's thesis committee
- Member, Timothy Donohue's thesis committee
- Member, George Thomas' thesis committee
- Member, Jie Chao's thesis committee

KUMC

- Chair, Department of Surgery Research Committee
- Member, Department of Surgery Education Committee
- Member, Pre-Matriculation Planning Committee
- Member, Katy Allen's thesis committee (Depart. of Pharmacology, Toxicology, and Therapeutics)
- Member, Chieko Saito's thesis committee (Depart. of Pharmacology, Toxicology, and Therapeutics)

Editorial and Grant Reviews:

- Ad hoc Reviewer, *Microcirculation*
- Ad hoc Reviewer, *American Journal of Physiology*
- Ad hoc Reviewer, *Journal of Applied Physiology*
- Reviewer, American Heart Association Vascular Wall Biology study section

Seminars Presented:

- March 21, 2008 – “Microvascular Inflammation and Acclimatization to Hypoxia,” University of Alaska – Anchorage

Other Academic Honors:

- Student Voice Teaching Award

Dr. Wood (continued)

Teaching Activities:

First Year Medical Curriculum

14 hours lecture

1 hour review

Vascular Surgery Program, Dept of Surgery

2 lecture hours

Residency program, Dept. of Surgery (25 residents)

1 lecture hour

Second Year Medical Curriculum

1 lecture hour

University of Alaska Anchorage, WWAMI Biomedical Program

5.5 hours lecture

First Prep Board Review

2 hours lecture

Prematriculation Program

21 hours lecture

14 problem sessions

2 hours lab

Trainees:

Parker Tuley, 2nd year MD student, Summer Research Program