Annual Report of the

Department of
Molecular & Integrative
Physiology

University of Kansas Medical Center

Covering the period July 1, 2009 – June 30, 2010
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year in Review</td>
<td>1</td>
</tr>
<tr>
<td>Department Roster</td>
<td>7</td>
</tr>
<tr>
<td>Graduate Student Notes</td>
<td>13</td>
</tr>
<tr>
<td>Courses Taught</td>
<td>15</td>
</tr>
<tr>
<td>Department Seminars</td>
<td>17</td>
</tr>
<tr>
<td>Publications</td>
<td></td>
</tr>
<tr>
<td>a. Published (7/1/09-6/30/10)</td>
<td>23</td>
</tr>
<tr>
<td>b. In Press</td>
<td>29</td>
</tr>
<tr>
<td>c. Abstracts</td>
<td>33</td>
</tr>
<tr>
<td>Research Support</td>
<td>41</td>
</tr>
<tr>
<td>Staff Activities</td>
<td>49</td>
</tr>
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YEAR IN REVIEW  
2009-20010

**RESEARCH FUNDING:** Despite the very difficult funding environment at NIH and other agencies, 2009-2010 was a fine year in terms of overall accomplishments not only in research but also in education and service. Research funding in the department was $5,743,750 (total costs) in NIH support. Although this represents a significant decrease from last year, our department continues to be ranked in the top 25 nationally in research funding among all public University Physiology Departments. Also noteworthy is the fact that again this 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:** Dr. Merrill Tarr, Director of Medical Education for the department, continues to play a major role in running the Cardiopulmonary and Renal-Endocrine modules for which our department has primary responsibility. To the credit of all the individual faculty instructors and particularly to Merrill, the Cardiopulmonary and Renal-Endocrine modules were once again both rated highly by the students. This was also another highly successful year in terms of teaching awards. At the “Grande Affair” celebration in April, Dr. John Wood and Dr. Gustavo Blanco were recognized for excellence in teaching. As they have done now for several consecutive years, they again 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. And once again this year our department was the recipient of the “Outstanding Module in the First Year” award which went to Cardiopulmonary. This makes three years in a row that Cardiopulmonary has received this distinction. Dr. Tarr serves as director of this module and he deserves a lot of credit for its success. Dr. Tarr's accomplishments in medical education were also recognized with two special awards during the year. First, he won the 2009 Bohan Teaching Award which was presented at the annual Education Retreat on September 18th. Dr. Tarr also won the Chancellor's Club Distinguished Teaching Award and was recognized at the University of Kansas 2010 Commencement in May. Congratulations Dr. Tarr!

*Dr. Merrill Tarr wins the 2009 Bohan Teaching Award.*
TENURE TRACK APPOINTMENTS: There were no appointments to the tenure track during the year.

RESEARCH TRACK APPOINTMENTS: There were no appointments to the research track during the year.

ADJUNCT APPOINTMENTS: Several secondary appointments to the department were made.

Joshua Mammen, MD/PhD was appointed as assistant professor in the department. Josh is a new faculty member in surgery. He is trained as a physiologist as well as a surgeon. His research focuses on intracellular signaling mechanisms related to ischemia-reperfusion. His clinical specialty is surgical oncology. His areas of interest include melanoma, breast cancer, and sarcoma.

Ajay Nangia, MD/PhD was appointed as associate professor in the department. Dr. Nangia's primary appointment is in the Department of Urology. He received his medical degree from St. Thomas and Guy’s Hospital Medical School in London, U.K. He completed a General Surgery internship and one year of General Surgery residency at the University of Pittsburgh Medical Center in Pittsburgh, Pennsylvania and did a Urology residency at the University of Pittsburgh Medical Center. He also completed a Male Infertility and Microsurgery fellowship at the Cleveland Clinic Foundation in Cleveland, Ohio. Dr. Nangia spent time in private practice and then six years at Dartmouth-Hitchcock Medical Center in New Hampshire. Dr. Nangia’s special interests in the field of urology are microsurgery, andrology, male infertility, and he is actively involved with research in male contraception.

Mark Weiss, PhD was appointed as professor in the department. He is professor of anatomy and physiology in the College of Veterinary Medicine at Kansas State University. He is currently doing a sabbatical with Dr. David Albertini and Dr. Brian Petroff. Dr. Weiss' lab isolated unique stem cells from the umbilical cord matrix. He has shown that these stem cells can be xenotransplanted into the brain without being rejected and that they differentiate into neurons. His broad research interests include neural control of regulatory functions and behaviors, finding function and location of brain circuits that control blood pressure and fluid balance, circuitry in hypothalamus and the autonomic nervous system and how the brain organizes both the autonomic nervous system and the neuroendocrine systems.

Jules Nazzaro, MD was appointed at the associate professor level. Dr. Nazzaro is associate professor in the Department of Neurosurgery. His research interests focus on the anatomy and physiology of deep brain stimulation (DBS) for neurological disease. He is also investigating DBS lead heating associated with MRI procedures. His clinical activities include DBS for Parkinson’s disease and essential tremor. He also serves as a clinical mentor for Dr. Nudo's T32 training grant on neurorehabilitation.
**FACULTY PROMOTIONS:** Raj Kumar and John Stanford were promoted to associate professor with tenure as of July 1, 2009. Congratulations to both of them on achieving this well deserved milestone in their careers.

**FACULTY/STAFF DEPARTURES:** There were no faculty or staff departures during the year.

**FACULTY AWARDS/ACCOMPLISHMENTS:**

Merrill Tarr, as noted above, received several teaching recognition awards including the Chancellor's Club Distinguished Teaching Award, The Bohan Teaching Award. In addition the Cardiopulmonary module, which Merrill directs and teaches in, was recognized by Student Voice as the best module of the first year medical curriculum.

John Wood and Gustavo Blanco were again recognized by the Student Voice (medical student organization) as outstanding lecturers in the first year curriculum.

Peter Smith was elected as the North American Representative to the International Society of Autonomic Neuroscience (ISAN) Executive Committee.

Joe Tash's research on the male contraceptive drug gamendazole continues to show great promise. It is also attracting attention from many funding sources including the Bill & Melinda Gates Foundation.

Andrei Belousov with help from Mike Wolfe, developed a new comprehensive physiology course in the department. The title of the course is Comprehensive Human Physiology and will be required of all Physiology Department graduate students.

David Albertini was named to the scientific advisory board of the Onco-fertility Consortium at Northwestern University School of Medicine.

Sam Enna accepted a four year term as Secretary General of the International Union of Basic and Clinical Pharmacology (IUPHAR). He was also appointed as series editor for "Advances in Pharmacology".

Grant successes: Several members of the department were awarded NIH grants under the American Recovery and Reinvestment Act (ARRA). Andrei Belousov and Gustavo Blanco both had NIH R01 grants funded under the program and there were also a number of administrative supplements funded including one for Joe Tash's U54 Center grant entitled "Interdisciplinary Center for Male Contraceptive Research and Drug Development". In addition, Gustavo Blanco, Lane Christenson, Paige Geiger, Raj Kumar and Randy Nudo all received major new grants from NIH through the conventional funding mechanisms. Joe Tash received a new grant from NASA to continue his work on fertility in microgravity environments. Randy Nudo received funding for a NIH T32 predoctoral training grant entitled “Kansas University Training Program in Neurological and Rehabilitation Sciences” and a DoD grant entitled "A
Brain-Machine-Brain Interface for Rewiring of Cortical Circuitry after Traumatic Brain Injury" which is a consortium project with Case Western Reserve University.

GRADUATE PROGRAM AND PHYSIOLOGY SOCIETY: The graduate students in the department had another active year. The “Physiology Society” leadership included William Messamore as President, David Guggenmos as Vice President and Secretary and Valentine Agbor as Social Event Coordinator. We are very pleased with the growth of the graduate program in Physiology. In August of 2009 six new students joined the department. The new students and their mentors are:

J.B. Fitzgerald - Dr. Christenson  
Jason Gill - Dr. Si (Stowers)  
Kyle Jansson - Dr. Blanco  
Ram Kannan - Dr. Baumann (Stowers)  
Aracely Lutes - Dr. Baumann (Stowers)  
Bliss O'Bryhim - Dr. Symons

Including students who are working at Stowers Medical Research Institute with faculty members who have their academic appointment in Physiology, we now have 36 doctoral students (18 women, 18 men) actively enrolled in the department.

Three students completed their degrees during the year. Martha Z. Carletti (July 10, 2009) received her degree with Dr. Christenson. The title of her dissertation presentation was "MicroRNA-21 Mediated Post-Transcriptional Gene Regulation in Ovarian Function". Martha stayed on at KUMC and is doing a postdoctoral fellowship with Dr. Fariba Behbod in the Division of Cancer and Developmental Biology of the Department of Pathology and Laboratory Medicine. Martha's doctoral training was supported by a prestigious Self Fellowship Award.  Gwenaelle Clarke (August 12, 2009) was mentored by Dr. Peter Smith. The title of her dissertation presentation was "Regulation of Sympathetic Plasticity in the Heart". Gwenaelle also decided to stay at KUMC for a postdoctoral fellowship with Dr. Peter Smith.  George Thomas (October 23, 2009) completed his doctoral degree with Dr. Jeff Burns. Dr. Burns' primary appointment is Neurology with a secondary appointment in Physiology. The title of his dissertation presentation was "Neural Substrates of Insulin-Mediated Memory Facilitation in Early Alzheimer's Disease; The Impact of the Apolipoprotein E-Epsilon-4 Allele on Hippocampal Insulin Responses". George is an MD/PhD student and is now completing the final two years of the medical curriculum. Congratulations to Martha, Gwenaelle, George and their mentors.

Prepared by:

Dr. Paul D. Cheney  
Professor and Chair
Front Row (left to right): Peter Smith, Phil Lee, Leslie Heckert, Gustavo Blanco, Michael Wolfe, Joseph Tash

Middle Row (left to right): Paul Cheney, Shrikant Anant, John Stanford, Lane Christenson, Satish Ramalingam, Salvatore Enna, Dora Agbas, Navneet Dhillon, Melissa Larson, David Albertini, Norberto Gonzalez, T. Rajendra Kumar, Vargheese Chennathukuzhi

Back Row (left to right): Matthew Anway, Stan Svojanovsky, Mihai Popescu, Shawn Frost, Thomas Imig, Andrei Belousov, John Wood, Dharmalingam Subramaniam, Steven LeVine

Not Pictured: Gaurav Chaturvedi, Paige Geiger, Sumedha Gunewardena, Randolph Nudo, Merrill Tarr, Paul Terranova
Department of Molecular & Integrative Physiology Graduate Students
2009-2010

(1) Jie Chao, (2) Tamara Jimenez Alarcon, (3) Elizabeth Dille,
(8) Valentine Agbor, (9) Jill Morris, (10) Emily McDonald, (11) Jitu George, (12)
Lacey Luense, (13) Artira Bhattacherjee, (14), Ram Kannan
(15) J.B. Fitzgerald, (16) Argenia Doss, (17) Eva Selfridge,
(18) Edward Urban, (19) Tim Donohue, (20) Gustaf Van Acker

Not Pictured: Crystal Bethel-Brown, Guangbo Chen, Jason Gill, Brittany Gorres,
David Guggenmos, William Messamore, Bliss O’Bryhim, Kendall Smith, Sarah
Smith, Sarah Tague, Wen Tang, Huan Yang
DEPARTMENT ROSTER
July 1, 2009 – June 30, 2010

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
Vargheese M. Chennathukuzhi, Ph.D., Assistant Professor
Lane K. Christenson, Ph.D., Associate 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., Associate Professor
Phil 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., Associate 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., Associate Professor
Scott Hawley, Ph.D., Professor
Sue Jaspersen, 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
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
Susan Smittkamp, Ph.D., Research Assistant Professor
Stan Svojanovsky, Ph.D., Research Associate Professor

Joint Appointment in Physiology
Kenneth Audus, Ph.D., Professor (Professor & Dean, School of Pharmacy, KU-Lawrence)
Richard Barohn, Ph.D., Professor (Chair, Neurology)
Sandra Billinger, PT, Ph.D., FAHA, Research Assistant Professor (Physical Therapy and Rehabilitation Science)
Sangita Biswas, Ph.D., Research Assistant Professor (Senior Research Scientist MidAmerica Neuroscience Institute)
William Brooks, Ph.D., Professor (Director, Hoglund Brain Imaging Center)
Shilpa Buch, Ph.D., Professor (Pharmacology & Experimental Neuroscience, University of Nebraska Medical 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)
Buddhadeb Dawn, Ph.D., Professor (Internal Medicine)
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)
Joshua Mammen, M.D., Assistant Professor (General Surgery)
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)
Joint Appointment in Physiology (continued)
Zhiming Suo, Ph.D., Research Assistant Professor (Neurology)
Russell H. Swerdlow, Ph.D., Professor (Neurology)
R.C. Andrew Symons, M.D., Ph.D., Assistant Professor (Ophthalmology)
William Truog, Ph.D., Professor (Children’s Mercy Hospital, University of
Missouri-Kansas City School of Medicine)
Mahesh Visvanathan, Ph.D., Courtesy Assistant Professor (Electrical
Engineering & Computer Science)
Darren Wallace, Ph.D., Research Assistant Professor (Internal Medicine)
Steven Warren, Ph.D., Professor (Applied Behavioral Science, KU-Lawrence;
Director, Schiefelbucsh Institute for Life Span Studies)
Carl Weiner, M.D., M.B.A., Professor (Chair, Ob-Gyn)
<table>
<thead>
<tr>
<th>b. Graduate Students</th>
<th>Prelims</th>
<th>Candidate</th>
<th>Requirements Fullfilled</th>
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<tr>
<td>Valentine Agbor</td>
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<td>Ph.D.</td>
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<td>Crystal Bethel-Brown</td>
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<tr>
<td>Aritra Bhattacherjee</td>
<td>12/08</td>
<td>Ph.D.</td>
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<tr>
<td>Martha Carletti</td>
<td>6/07</td>
<td>Ph.D.</td>
<td>7/09</td>
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<tr>
<td>Jie Chao</td>
<td>5/09</td>
<td>Ph.D.</td>
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<tr>
<td>Guangbo Chen</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Julie Cotitta</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Elizabeth Dille</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Timothy Donohue</td>
<td>12/07</td>
<td>M.D./Ph.D.</td>
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<tr>
<td>Argenia Doss</td>
<td>11/07</td>
<td>Ph.D.</td>
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<td>J.B. Fitzgerald</td>
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<td>Jitu Wilson George</td>
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<td>Ph.D.</td>
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<td>Jason Gill</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Brittany Gorres</td>
<td>8/08</td>
<td>Ph.D.</td>
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<tr>
<td>David Guggenmos</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Heather Hudson</td>
<td>6/07</td>
<td>Ph.D.</td>
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<tr>
<td>Kyle Jansson</td>
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<td>M.D./Ph.D.</td>
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<tr>
<td>Tamara Jimenez</td>
<td></td>
<td>Ph.D.</td>
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<td>Ram Kannan</td>
<td></td>
<td>Ph.D.</td>
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<td>Lacey Luense</td>
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<td>Ph.D.</td>
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<td>Aracely Lutes</td>
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<td>Emily McDonald</td>
<td>7/08</td>
<td>Ph.D.</td>
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<tr>
<td>William Messamore</td>
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<td>M.D./Ph.D.</td>
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<td>Jill Morris</td>
<td>11/08</td>
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<td>Bliss O’Bryhim</td>
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<td>Won-Mee Park</td>
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<tr>
<td>Eva Selfridge</td>
<td></td>
<td>Ph.D.</td>
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<td>Kendall Smith</td>
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<td>Sarah Smith</td>
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<td>Ph.D.</td>
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<td>Sarah Tague</td>
<td>9/07</td>
<td>Ph.D.</td>
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<td>Wen Tang</td>
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<td>George Thomas</td>
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<td>10/09</td>
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<td>Sara Turk</td>
<td>8/07</td>
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<td>Edward Urban III</td>
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<td>Gustaf Van Acker</td>
<td>3/09</td>
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<td>Gwenaelle Wernli</td>
<td>2/06</td>
<td>Ph.D.</td>
<td>8/09</td>
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<td>Huan Yang</td>
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<td>Postdoctoral Fellows</td>
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<td>Gokhan Akkoyunlu</td>
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<td>Cassandra Buchheit</td>
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<td>Gwenaelle Clarke</td>
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<td>Malissa Wolfe</td>
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<td>Sara Yunghans</td>
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e. Research Staff
Istvan Adany – Sr. Research Assoc.
Julie Allen – Research Associate
Janna Belousova – Senior Research Assoc.
Greg Bomhoff – Research Assistant
Anuradha Chakrabarty – Senior Scientist
Anindita Chatterjee – Research Assistant
Steven Curry – Research Technician
Ian Edwards – Research Assistant
Stan Fernald – Research Assistant
Ramakrishna Hegde – Senior Scientist
Xiaoman Hong – Research Associate
Tatiana Karpova – Senior Scientist
Karen Khar – Research Technician
Elza Kharatyan – Research Assistant
Fang Li – Research Assistant
Zhuang Li – Senior Research Assoc.
Zhaoxue Liao – Research Assistant
Darlene Limback – Research Associate
Jeff McDermott – Research Associate
Daren Rice – Research Associate
Nestor Rodriguez – Research Assistant
Adam Schooley – Senior Research Assoc.
Gladis Sanchez de Blanco – Research Assoc.
Phillip Stevenson – Research Assistant
Lovella Tejada – Research Assistant
Hongyu Zhang – Senior Scientist

f. Support Staff
Leigh Ann Arbuckle – Senior Coordinator
Linda Carr – Administrative Officer
Jennifer Fajardo – Administrative Assistant
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

Kyle Jansson presented a talk at the Student Research Forum titled, "Ouabain enhances CFTR-dependent fluid secretion in ADPKD epithelia." Kyle also submitted an abstract to the annual American Society of Nephrology conference titled, "Ouabain activates Src-dependent signaling in ADPKD cells."

Tamara Jimenez was the first author on an abstract for The 6th Annual Gilbert S. Greenwald Symposium titled: “Transgenic mouse with augmented expression of the Na,K-ATPase α4 isoform exhibit increased sperm motility”. At the 32nd Annual Student Research Forum, Tamara was first author for her presentation entitled, “The Na,K-ATPase α4 isoform is regulated during sperm capacitation.” Tamara was first author on the abstract entitled: “Activity of the Na,K-ATPase α4 isoform is important for motility and to maintain membrane potential, intracellular Ca2+ and pH in rat spermatozoa” at the 35th Annual American Society of Andrology meeting. In addition, Tamara was first author in a paper entitled: “Activity of the Na,K-ATPase alpha4 isoform is important for membrane potential, intracellular Ca2+, and pH to maintain motility in rat spermatozoa” that was published in Reproduction. She was also awarded a Biomedical Research Training Grant for an application entitled: “Functional relevance of the Na,K-ATPase α4 isoform in male fertility”.

Lacey Luense was first author of the review article "The role of Dicer in female fertility" published in Trends in Endocrinology and Metabolism. She attended the 42nd Annual Meeting of the Society for the Study of Reproduction in Pittsburgh, PA where she presented a poster entitled "Loss of microRNA Leads to Abnormal Function and Development of the Adult Mouse Uterus." She also presented a talk at the Student Research Forum entitled "Developmental Programming: Gestational Testosterone Treatment Alters Fetal Ovarian Steroidogenic Gene Expression."

Sarah Tague received a 'Ruth L. Kirschstein National Research Service Award for Individual Predoctoral Fellowship' (F31) from the National Institute on Aging. She was awarded the 'Mitchell Max Award for Research Excellence' by the NIH Pain Consortium for a poster entitled "Vitamin D deficiency causes deep tissue mechanical hyperalgesia and muscle nociceptor sprouting". She was selected to represent KUMC at the annual 'Research Summit at the Capitol' in Topeka KS, where she presented a poster entitled "Vitamin D deficiency increases growth of pain-sensing nerves". She was also a lead author of an abstract entitled "Nociceptor Axon Sprouting in Hypovitaminosis D", which was presented at the Vitamin D Workshop in Brugge, Belgium.

Edward Urban III was the first author on an abstract entitled, “Spared Corticocortical Neurons Projecting to Ischemic Core Display Differential Gene Expression After Cortical Infarct in Rats” for the 2009 Society for Neuroscience meeting.
COURSES TAUGHT

**Medical Curriculum Core Courses**


**Departmental Graduate Courses**
PHSL 800 – *Medical Physiology*. Drs. Blanco, Smith

PHSL 834 – *Reproductive Physiology*. 5 credits. Drs. Blanco, Christenson, Wolfe


PHSL 844 – *Neurophysiology*. 3 credits. Spring 2010. 9 students. Dr. Cheney is course director and sole instructor.

**IGPBS Courses**

GSMC 853 – *Cellular Structure*. Drs. Belousov and Blanco

GSMC 854 – *Cell Communication*. Dr. Albertini
**DEPARTMENT SEMINARS**

The Departmental Seminar program was directed by Dr. David Albertini. Thirty-four speakers made presentations, ten 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 KIDDRC, 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. Mario Ascoli from the University of Iowa. The Fred Samson Jr. Memorial Lectureship sponsored Dr. Howard Fox from the University of Nebraska Medical Center.

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<tr>
<th>Date</th>
<th>Speaker</th>
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<td>7/10/09</td>
<td>Martha Z. Carletti</td>
<td>MicroRNA-21 Mediated Post-Transcriptional Gene Regulation in Ovarian Function</td>
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<td>Gwenaelle Clarke</td>
<td>Regulation of Sympathetic Plasticity in the Heart</td>
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<td>9/07/09</td>
<td>Joshua Mammen, M.D., Ph.D.</td>
<td>Ischemia/Reperfusion Injury in the Intestine: Important Roles for PKC, MAPK, and Adenosine</td>
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<td>Kenneth E. Miller, Ph.D.</td>
<td>A Role for Phosphate-Activated Glutaminase in Chronic Pain</td>
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<td>9/28/09</td>
<td>Merlin Butler, M.D.</td>
<td>Prader-Willi Syndrome: Genetics and Behavior</td>
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<td>Virginia Rider, Ph.D.</td>
<td><strong>Estrogen: Contributor to Gender-Based Autoimmunity</strong></td>
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<td>George Vielhauer, Pharm.D.,</td>
<td><strong>Development of HSP90 Inhibitors for Treatment of Prostate Cancer</strong></td>
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<td>Janet Pierce, RN, DSN, CCRN</td>
<td><strong>Treatment of Diaphragm and Lung Apoptosis Following Hemorrhagic</strong></td>
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<td>George P. Thomas</td>
<td><strong>Neural Substrates of Insulin-Mediated Memory Facilitation in Early</strong></td>
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<td>Alzheimer's Disease; The Impact of the Apolipoprotein E-Epsilon-4</td>
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<td>10/26/09</td>
<td>Katherine Swenson-Fields,</td>
<td><strong>Wnt Signalling in Cell Fate Determination</strong></td>
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<td>S. Omar Ahmad, Ph.D.</td>
<td><strong>Microbiological Quantitation: The ABCs of Stereology</strong></td>
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<td><strong>Effects of Assisted Reproductive Technologies on the Epigenetic</strong></td>
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<td>Program of Pre- and Post-Implantation Mouse Embryos</td>
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<td>Mark Fisher, Ph.D.</td>
<td>To Catch a Toxin: EM Structure of the Anthrax Translocation Complex</td>
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<td>Marco Brotto, BSN, MS, Ph.D.</td>
<td>Discovery of a Muscle Specific Phosphatase (MIP-MTMR14) and its Roles in Muscle Health and Disease</td>
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<td>Hiroshi Nishimune, Ph.D.</td>
<td>Organization of Presynaptic Terminals by Voltage Dependent Calcium Channel and its Extracellular Ligand</td>
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<td>Sandra Billinger, PT, Ph.D., FAHA</td>
<td>Altered Cardiovascular Function after Stroke</td>
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<td>V. Gustavo Blanco, M.D., Ph.D.</td>
<td>Ouabain Induced and Na,K-ATPase Mediated Signaling in Polycystic Kidney Disease</td>
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<td>Juan Arroyo, Ph.D.</td>
<td>eNOS Protein Expression and Apoptosis in an Ovine Model of Intrauterine Growth Restriction (IUGR)</td>
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<td>Rohit Bakshi, M.D., F.A.A.N.</td>
<td>Imaging of Brain Iron Deposition in Neurologic Disorders</td>
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<td>2/22/10</td>
<td>Russell Swerdlow, M.D.</td>
<td>Mitochondria and Neurodegeneration</td>
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<td>3/2/10</td>
<td>Mario Ascoli, Ph.D.</td>
<td>Signaling Pathways that Affect the Proliferation and Survival of Leydig Cells. A Tale of Immortalized Cell Lines, Primary Cultures and Mice</td>
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<td>Professor Pharmacology Carver College of Medicine University of Iowa Iowa City, IA</td>
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<td>3/8/10</td>
<td>Sarah L. Kieweg, Ph.D.</td>
<td>Biomechanical and Computational Molecular Design of Vaginal Microbicides</td>
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<td>Assistant Professor Mechanical Engineering University of Kansas Lawrence</td>
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<td>Paul M. Kulesa, Ph.D.</td>
<td>Neural Crest Migration: VEGF Chemoattraction Drives Cells to Head Targets</td>
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<td>Director of Imaging Center Stowers Institute for Medical Research Kansas City, MO</td>
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<td>Graduate Student Molecular &amp; Integrative Physiology KUMC</td>
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<td>Shrikant Anant, Ph.D.</td>
<td>Backseat Drivers in Absolute Control: A New Paradigm in Cancer Biology</td>
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<td>Program Leader, Gastrointestinal Cancers Oklahoma University Cancer Institute Associate Professor Medicine/Gastroenterology and Nutrition University of Oklahoma Health Sciences Center Oklahoma City, OK</td>
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<td>3/29/10</td>
<td>Paul Schloerb, M.D.</td>
<td>Body Water, etc.</td>
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<td>4/5/10</td>
<td>Sarah Smith</td>
<td>Graduate Student Molecular &amp; Integrative Physiology KUMC</td>
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<td>The Role of Bem1 in Actin-Independent Symmetry Breaking in S. cerevisiae</td>
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<td>Daotai Nie, Ph.D.</td>
<td>Associate Professor Department of Medical Microbiology, Immunology and Cell Biology Southern Illinois University School of Medicine Springfield, IL</td>
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<td>Nanog, Cancer Stem Cells, and Resistance to Chemotherapy</td>
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<td>Jie Chao</td>
<td>Graduate Student Molecular &amp; Integrative Physiology KUMC</td>
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<td>Mechanisms of Systemic Microvascular Inflammation Induced by Acute Alveolar Hypoxia</td>
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<td>Howard S. Fox, M.D., Ph.D. Professor &amp; Executive Vice-Chair Pharmacology &amp; Experimental Neuroscience University of Nebraska Medical Center Omaha, NE</td>
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<td>Chronic Viral Infection of the Brain: Applying Lessons Learned from HIV/SIV</td>
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<td>Robyn Honea, D.Phil.</td>
<td>Research Assistant Professor Alzheimer's and Memory Program Department of Neurology KUMC</td>
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<td>Brain Imaging: A Window into the Complex Genetic and Environmental Influences on the Aging Brain</td>
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<td>J. Eva Selfridge</td>
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<td>Mechanisms of Sympathetic Remodeling in the Uterus: A Model for Degeneration</td>
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<td>Jeffrey D. Milbrandt, M.D., Ph.D.</td>
<td>Altering Neuronal/Glial Metabolism to Prevent Axonal Degeneration</td>
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<td>James S. McDonnell</td>
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<td>Gustaf Van Acker</td>
<td>Assessment of Cortico-Muscle Connectivity of the Macaque Forelimb</td>
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PUBLICATIONS

a. Manuscripts Published


b. Manuscripts in Press


Albertini, D.F. “Oocyte maturation for fertility preservation.” In Advances in fertility Preservation, eds Seli and Agawarl, Springer


Clarke GL, Bhattacherjee A, Tague S, Hasan W, and Smith PG. “Beta adrenoceptor blockers increase cardiac ventricular sympathetic innervation by inhibiting autoreceptor suppression of axon outgrowth.” Journal of Neuroscience


Enna, S.J. “A Legacy of Discovery: From Monoamines to GABA.” Neuropharmacology, in press.


Fang, PC; Barbay, S; Plautz, EJ; Hoover, E; Strittmatter, SM; and RJ Nudo (2010) “Combination of NEP 1-40 treatment and motor training enhances behavioral recovery following a focal cortical infarct in rats.” *Stroke*, 41:544-9. (in press, 2009; published, 2010)


Gupta V, Tash JS, Georg Gl. Anti-spermiogenic efficacy of single oral daily dose administration of iminosugars NB-DNJ and NB-DGJ coincides with their potency as inhibitors of testicular glucosyltransferase /glucosidase in C57Bl/6J male mice and rats. *J Med Chem*; final draft in prep.


Sun, J. Chaturvedi, G. and Weinman, S.A. “Pathogenesis of liver injury in Hepatitis C.” In; *Molecular Pathology of Liver Diseases*, Satdarshan P.S. Monga (editor), Springer

Tague, SE and Smith PG. “Vitamin D receptor and Metabolizing Enzyme Expression in Dorsal Root Ganglion Neurons of Adult Female Rats: Modulation by Ovarian Hormones.” *Journal of Chemical Neuroanatomy*, in press.

c. Abstracts


Chao J, Donham P, Wood J, Gonzalez NC. “Monocyte Chemoattractant Protein –1 (MCP-1) released from alveolar macrophages mediates the systemic inflammation of alveolar hypoxia.” *FASEB J* 24:990.16, 2010


Donohue, T and Smith, PG (2009) “Parasympathetic Withdrawal in Heart Failure Involves Reduced Vagal Prejunctional Inhibition of Sympathetic Nerves.” Experimental Biology


Jimenez T, Sanchez G and Blanco G. “Activity of the Na,K-ATPase α4 isoform is important for motility and to maintain membrane potential, intracellular Ca^{2+} and pH in rat spermatozoa.” 35th annual American Society of Andrology Meeting. Houston, TX April 2010.


McDonald EA and Wolfe MW. 2010 “Adiponectin regulation of the immune modulators, CD24 and Siglec10, in the human placenta.” 43rd Annual Meeting of the Society for the Study of Reproduction, Milwaukee, WI.


Pal, R., Wang, Y., Hui, D., Belousov, A.B., and Michaelis, E.K. “Transgenic expression of glutamate dehydrogenase 1 (Glud1) in neurons: enhanced glutamate release leading to decreased spine density and altered synaptic plasticity.” SFN (abstracts) 136.6, 2009.


Tague SE and Smith PG (2009) “Nociceptor axon sprouting in hypovitaminosis D.” Fourteenth Workshop on Vitamin D, Brugge, Belgium

Tague, SE and Smith PG (2009) “Vitamin D-related proteins are selectively expressed by peptidergic sensory neurons and reduced following ovariectomy in rats.” Society for Neuroscience.


38


Truog WE, Svojanovsky SR, Bloomer C, Norberg M, Smith PG. “Single Nucleotide Polymorphisms (SNPs) and BPD: Possible New Associations.” Abstract accepted for a poster at the meeting of the Pediatric Academic Societies, September 2009.


RESEARCH SUPPORT


NIH, NCRR, ARRA supplement as above, May 1, 2010 – April 30, 2011. Direct costs $115,000.


NIH U54 – “Project II. Cardenolide inhibition of Na,K-ATPase alpha4 isoform as contraceptive agents.”


42

NIH NIBIB – “Photoacoustic imaging of functional domains in primary motor cortex of monkeys.” Principal Investigator: Xinmai Yang; Co-Investigator: P.D. Cheney. 5% effort. December 1, 2009 – November 30, 2011. Subcontract from Lawrence of $86,085 direct costs; $129,128 total costs.

NIH-NICHD – “Program for a Research Center in Mental Retardation.” P30 Center Grant. Theme Leader Dr. John Colombo (PI). August 1, 2006 – July 31, 2011. Direct costs $4,407,500; Total costs $6,346,800.


American Cancer Society and KUMC Cancer Center – “Serum profiling to predict the presence of Barrett’s esophagus.” Principal Investigator: A. Bansal; Co-Investigator: L.K. Christenson. April 1, 2010 – March 31, 2011. Direct costs $30,000.


International Union of Basic and Clinical Pharmacology – Secretary-General Office. Total award $44,440.

National Institute of Child Health and Human Development – “Kansas University Training Program in Neurological and Rehabilitation Sciences.” Principal Investigator: R.J. Nudo; Co-Chair: S.J. Enna. Total award $1,144,745 (Year -01 $168,229)


**P.C. Geiger**: National Institute of Health/NCRR – “Kansas IDeA Network of Biomedical Research Excellence (K-INBRE).” Principal Investigator: J. Hunt, PI Major Starter Grant: P.C. Geiger. Major Starter Grant Title “Protective role of heat shock proteins in the regulation of insulin action and protection from skeletal muscle insulin resistance.”

Juvenile Diabetes Research Foundation (JDRF) – “Glyoxalase I and AGE formation in painful diabetic neuropathy.”


**L.L. Heckert:** Marion M. Osborn Endowment


K-INBRE, KUMC – “Kansas IDeA Network of Biomedical Research Excellence Faculty Scholar Award 2010-2011.” Total costs $20,000.


Core B: Transgenic Facility. Principal Investigator: M.A. Larson. Total direct costs $533,795.


NIH (subaward to KUMCRI) – “MRI-Based Modeling to Evaluate Surgical efficacy for reduced Osteoarthritis Risk.” Principal Investigator: K.J. Fischer; Co-Investigator: P. Lee. August 1, 2009 – June 30, 2013. $43,919 (KUMC portion)


**M. Popescu:** NIH-NIBIB – “Advanced source reconstruction techniques for fetal magnetocardiography.” Principal Investigator: M. Popescu. September 30, 2008-August 31, 2011. Direct costs $275,000; Total costs $411,543.

NIH-NICHD – “The effects of docosahexaenoic acid (DHA) on fetal cardiac outcomes.” Principal Investigator: Kathleen Gustafson, Co-Investigator: M. Popescu. May 1, 2009-April 30, 2011. Direct costs $275,000; Total costs $411,563.


**P.G. Smith:** “Female Pelvic Pain, Hormones and Neuropasticity.” April 1, 2006 – March 31, 2011. Principal Investigator: P.G. Smith. Annual direct costs $177,707, annual indirect costs $89,129.


NIH 1 R56 AI077791 – “Genetic modifiers of anthrax lethal toxin induced pathophysiology.” Principal Investigator: K. Bradley (UCLA), Co-Investigator: S. LeVine, and J.G. Wood (20% effort). Annual direct costs to KUMC $100,000, indirect costs $47,000.


NIH 5 T32 ES007079-27 – “Training Program in Environmental Toxicology.” Principal Investigator: C. Klaassen, Co-Investigator: J.G. Wood (5% effort)
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 and microfluidic compartmental culture systems.

Committees:
- Treasurer, Society for Neuroscience Kansas City Chapter
- Judge, Student Research Forum
David F. Albertini, Ph.D., Hall Endowed Professor

The causes of infertility and cancer remain a focus for the laboratory especially as they pertain to Women’s Health. Collaborations with Dr. Sam Kim (Ob/Gyn) and Dr. Brian Petroff (Medicine) are ongoing and explore the impact of chemotherapy, radiation, and endocrine disruptors on the function of the mammalian ovary. Projects underway include (1) the role of stem cells in the generation of germ line and somatic lineages in the ovary, (2) optimizing methodologies for the cryopreservation of oocytes and ovarian tissue, (3) establishing mechanisms that define oocyte and embryo quality as they pertain to assisted reproductive technologies and (4) defining modifications in cell cycle regulation that occur during the transition from meiosis to mitosis in the developing embryo.

Meetings Attended:
- August 10, 2009 – Gordon Conference on Reproductive Tract Biology
- October 21, 2009 – Annual Meeting of Society for Reproductive Medicine, Denver, CO
- April 20, 2010 – 15th World Congress on In Vitro Gerilization and 5th World Congress on In Vitro Maturation, Geneva, Switzerland
- June, 27, 2010 – European Society for Human Reproduction and Embryology, Rome, Italy

Committee Activities:
- Departmental Chair, Seminar Committee
- KUMC Member, Executive Faculty Council

Editorial and Grant Reviews:
- Editorial Board, Editor-in Chief, Journal of Assisted Reproduction and Genetics
- 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
- Ad hoc Reviewer, Cell
- Ad hoc Reviewer, Cell Stem Cell
- Ad hoc Reviewer, Molecular Reproduction and Development
- Ad hoc Reviewer, Stem Cell
- Ad hoc Reviewer, Fertility and Sterility
Dr. Albertini (continued)

Editorial and Grant Reviews (continued)
Grant Reviewer, NIH
Grant Reviewer, CMIR
Grant Reviewer, ARRA
Grant Reviewer, State of Maryland Stem Cell Research Program
Grant Reviewer, Worcester Polytechnic Institute Advisory Panel on Biological Sciences
Grant Reviewer, Wellcome Trust, UK
Ad hoc Reviewer, CMIR Study Section
Study Section Chair, TEDCO Stem Cell Program, Maryland State (February 8-9, 2010)

Seminars Presented:
March 21, 2009 – “Oocyte cryopreservation for treatment of infertility.” Annual Meeting of Society for Gynecological Investigation, Glasgow, Scotland
April 20, 2009 – “Integrating oogenesis with folliculogenesis.” 15th World Congress on In Vitro Fertilization and 5th World Congress on In Vitro Maturation, Geneva, Switzerland
January 23, 2010 -“Granulosa-Oocyte Interactions: An old concept with new meaning.” Department of Reproductive Medicine, U. California San Diego. La Jolla CA.
January 26, 2010 – “Three Faces of Eve: the ovarian follicle as a multitasking unit.” Keynote address NICHD U-54 Ovary Focus Group Meeting, UCSD, La Jolla, CA.
February 17, 2010 - “What ovarian follicles do to protect genomic integrity in the female germ line.” Center for Reproductive Sciences, KU Medical Center, Kansas City KS.
May 14, 2010 - “Regulatory developmental mechanism and dialogue between oocytes and granulosa cells.” The Future of Reproductive Medicine, Ragusa Italy.
May 21, 2010 - “Analyzing early mammalian development with dynamic imaging.” Frontiers of Cellular Imaging for Research and Education Symposium. Marquette University, Milwaukee, WI.

Academic Honors:
Lecturer and Lab Instructor, Frontiers in Reproduction Course Marine Biological Laboratory, Woods Hole, MA
Teaching Activities:
  IGPBS 1st Year curriculum
    2 x 2 hour lectures, Cell cycle
  IGPBS Graduate Physiology
    4 lectures
  Reproduction Block, first year medical students (lecture and discussion group)
    Reproduction Physiology course, 3 lectures

Trainees:
  John Bromfield, Ph.D. – Post Doctoral Fellow
  Gokhan Akkoyunlu, Ph.D. – Post Doctoral Fellow
Andrei B. Belousov, Ph.D., Associate Professor

My interests include (1) cellular and molecular mechanisms for the regulation of electrical synapses (gap junctions) during development and neuronal injuries and (2) role of gap junctions in neuronal death/survival during injuries.

Meetings Attended:
- July 25-28, 2009 – Hippocampus and Memory: Norm and Pathology Conference, Puschino, Russia
- October 15-21, 2009 – Society for Neuroscience meeting, Chicago, IL

Committees:
- Member, KUMC Information Resources Committee

Editorial and Grant Reviews:
- Editorial Board Member, The Open Neuroscience Journal (ON), Bentham Science Publishers
- Ad hoc Reviewer, The Journal of Neuroscience
- Ad hoc Reviewer, Hippocampus
- Ad hoc Reviewer, Journal of Alzheimer’s Disease
- Ad hoc Reviewer, FEBS Letters

Seminars Presented:
- July 2009 – “Glutamate-dependent neuronal plasticity: hippocampus vs. hypothalamus.” Hippocampus and Memory: Norm and Pathology Conference, Puschino, Russia
- July 2009 – “Neuronal gap junctions play critical role in NMDA receptor-mediated excitotoxicity.” Hippocampus and Memory: Norm and Pathology Conference, Puschino, Russia
- September 2009 – “Neuronal gap junctions: role and regulation during development and pathology.” Higuchi Biosciences Center, Department of Pharmacology and Toxicology, University of Kansas, Lawrence, KS

Teaching Activities:
- PHSL 842 – Comprehensive Human Physiology
  - 9 – 2 hour lectures
- PTRS 863 – Pathobiology of Human Function
  - 1 – 2 hour lecture
- GSMC 853 – Cell Structure
  - 2 hour lectures
  - 1 – 2 hour seminar
Dr. Belousov (continued)

Trainees:
   Won-Mee Park – Graduate Student
   Youngfu Wang, Ph.D. – Post Doctoral Fellow
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, both in rats and humans has functional properties that are different from all other Na,K-ATPases. 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 being used to study the regulation, activity and mechanisms of action of alpha4, as well as the role of this Na,K-ATPase in the physiology of the male gametes. Also, we are searching for compounds that will inhibit alpha4 with the idea of using them as male contraceptive agents. These studies will help understand the importance of ion transport in male germ cell fertility and contraception.

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:
- October 2009 – NICHD Contraceptive and Reproductive U54 Meeting, Bar Harbor, ME
- October 2009 – Gilbert S. Greenwald Symposium on Reproduction, Kansas City, MO
- April 2010 – KUMC Student Research Forum
- April 2010 – American Society of Andrology Meeting, Houston, TX
- June 2010 – Society for the Study of Reproduction, Milwaukee, WI

Committees:
- Departmental
  - Member Ph.D. Thesis Committee for Valentine Agbor
  - Member Ph.D. Thesis Committee for Crystal Bethel-Brown
  - Member Ph.D. Thesis Committee for Jie Chao
  - Member Ph.D. Thesis Committee for Brittany Gorres
  - Member Ph.D. Thesis Committee for Won-Mee Park
- KUMC
  - Member Ph.D. Thesis Committee for Yi Miao (Dept. Pharmacology)
  - Member Ph.D. Thesis Committee for Binu Paul (Dept. Anatomy)
  - Member, Institutional Animal Care and Use Committee (IACUC)
  - Member, Committee to oversee the Biotechnology Support Facility at KUMC
Dr. Blanco (continued)

Committees (continued)
KUMC (continued)
    Member, Committee to organize the Greenwald Symposium in Reproduction
    Member, Medical Students Wescoe Academic Society
    Member, Admissions Committee for MD/PhD Program
    Coordinator, DC Johnson Seminar Series in Reproduction

Editorials and Grant Reviews
    Editorial Board Member, American Journal of Physiology: Endocrinology and Metabolism
    Editorial Board Member, Journal of Assisted Reproduction and Fertility
    Reviewer, American Society of Nephrology
    Reviewer, American Journal of Physiology
    Reviewer, Biology of Reproduction
    Reviewer, Journal of Assisted Reproduction and Fertility
    Reviewer, Nature
    Reviewer, National Agency for Scientific Promotion and Technology, Argentina
    Ad hoc Reviewer, NIH

Seminars Presented:
    January 2010 - “Ouabain induced and Na,K-ATPase mediated signaling in polycystic kidney disease.” Seminars in Physiology, Department of Physiology, KUMC
    May 2010 – “Alpha4, a Na,K-ATPase isoform dedicated to sperm motility.” Koster Symposium. Washington University in St. Louis, St. Louis, MO
    June 2010 – “Ouabain-Na,K-ATPase signaling in polycystic kidney diseased cells.” Texas Tech University, Lubbock, TX.
    June 2010 – “Alpha4, a Na,K-ATPase Isoform dedicated to sperm function.” Texas Tech University, Lubbock, TX
    June 2010 – “Increased expression of the Na,K-ATPase α4 isoform in transgenic mice results in augmented sperm motility.” Society for the Study of Reproduction, Milwaukee, WI
    January, May and September 2010 - “Cardenolides inhibition of the sperm Na,K-ATPase α4 isoform as contraceptive agents. U54 Quarterly Meeting, KUMC
    September 2010 – “Cardenolides inhibition of the sperm Na,K-ATPase α4 isoform as contraceptive agents.” EAB Meeting, Minneapolis, MN
Dr. Blanco (continued)

Teaching Activities

- PHSL 802 – Medical Physiology
  - 11 hours lecture
  - 4 hours interactive cases in renal physiology
  - 2 hours review of renal physiology of board preparation
- IGPBS Cell Membrane Structure and Transport Systems of Plasma Membrane
  - 6 hours lecture
- Biology of Reproduction
  - 4 hours lecture
  - 2 hours Paper Discussions
- Renal Physiology for Medical Students
  - 8 hours lecture
- Advanced Medical Spanish 912
  - 1 hour lecture

Trainees:

- Kyle Jansson – Graduate Student
- Tamara Jimenez Alarcon – Graduate Student
- Jake Kenyon – Summer Student
Gaurav Chaturvedi, Ph.D., Research Assistant Professor

My research is primarily directed at identification and characterization of cancer stem cells in relation to Hepatocellular (HCC) carcinoma especially in case of post transplant recurrence and also understanding the mechanisms underlying metastasis. We are also interested in the biology of "Epithelial to Mesenchymal Transition", a phenomenon that has been closely related to the process of Metastasis.

Meetings Attended:
  September 10-11, 2009 – Circulating Tumor Cells (CTCs): Emerging Technologies for Detection, Diagnosis and Treatment, Bethesda, MD

Editorials and Grant Reviews:
  Ad hoc Reviewer, International Journal of Experimental Pathology
  Ad hoc Reviewer, Toxicology Letters
  Ad hoc Reviewer, Cellular and Molecular Neurobiology

Seminars Presented:
  December 3, 2009 – “Epithelial Mesenchymal transitions in Hepatocellular Carcinoma.” Liver Club Meeting, KUMC
**Paul D. Cheney, Ph.D.,** Professor & 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:
- October 17-21, 2009 – 39th Annual Meeting of the Society for Neuroscience, Chicago, IL
- October 22, 2009 – Society for Neuroscience Satellite Symposium on Motor Control Honoring Professor James Houk, Northwestern University, Chicago, IL
- December 2-6, 2009 – Association of Chairs of Physiology Departments annual meeting, Tucson, AZ

Committee Activities:
- Departmental Coordinator, Fred Samson Annual Memorial Lecture
- School of Medicine
  - Member, Dean’s Leadership Committee
  - Member, Basic Science Chairs IGPBS curriculum revision committee
  - Member, Executive Committee of the SOM Faculty Council
  - Member, SOM Faculty Council
  - Member, Internal Advisory Committee, Neuroscience Rehabilitation Training Grant, Dr. Nudo, PI.
  - Member, Mentoring Awards review committee
- KUMC
  - Interviewed numerous candidates for various positions
  - Member, Institute for Neurological Disorders Executive Committee
  - Member, Institute for Neurological Disorders Advisory Committee
  - Co-director, Neuromuscular and Movement Disorders Division of the Institute for Neurological Disorders
  - Member, Professional Development and Faculty Affairs (PDFA) Planning Committee
- KUMC-KU/Lawrence
  - Co-Director, cross campus Ph.D. program in neuroscience
  - Member, KU Bioengineering Advisory Committee
  - Member, Neuroscience Ph.D. Program Executive Committee
  - Member, KIDDRC Internal Scientific Advisory Committee
  - KIDDRC Theme leader, Neurobiology of Mental Retardation and Developmental Disabilities
Committee Activities (continued)

Comprehensive Exam/Dissertation Committee
Crystal Bethel, PhD program in Physiology
Jill Morris, PhD program in Physiology
Meredith Estep, PhD program in Neuroscience
Heather Hudson, PhD program in Neuroscience, dissertation advisor
Gustaf Van Acker, MD/PhD program, dissertation advisor
Meredith Poore, PhD program in Hearing & Speech
Emily Zimmerman, PhD program in Hearing & Speech
Sommer Amundson, PhD program in Biomedical Engineering, dissertation co-advisor with Carl Luchies
Carrie Quinn, PhD program in Physiology
Lalit Venkatesen, PhD program in Neuroscience
David Guggenmos, PhD program in Physiology
Ed Urban, PhD program in Physiology

Editorial and Grant Reviews
Ad hoc Reviewer, *J. Neurophysiology*
Ad hoc Reviewer, *J. Neuroscience*
Ad hoc Reviewer, *J. Physiology*
Ad hoc Reviewer, *Cerebral Cortex*
Ad hoc Reviewer, *J. Comp. Neurology*
Grant Reviewer, NIH IFCN#5 Challenge Reviews, August 27, 2009
Grant Reviewer, NIH IFCN-L - Auditory system Special Emphasis Panel, February 14th 2010
Grant Reviewer, Swiss National Scientific Research Fund grant review, May 2010
Grant Reviewer, NIH IFCN#5 Sensorimotor Integration Special Emphasis Panel, Nov. 3-4, 2010

Seminars Presented:
October 22, 2009 - Invited Speaker, Motor Control Symposium in honor of James Houk, Northwestern University, October 22, 2009, "Not your grandfather's red nucleus."
October 29, 2009 – Department of Pharmacology Seminar Series, UMKC, "Behavioral and neurophysiological correlates of neuronal impairment in an SIV model of neuro-AIDS."
Dr. Cheney (continued)

Teaching Activities:
- **PHSL 844 – Neurophysiology**
  3 credit hour course, Spring 2010, 9 students, lectures and student presentations. Course director and sole instructor. About 15 hours of lecture, prepared all topic objectives and readings, evaluated student presentations.
- **Brain & Behavior Module in the medical curriculum**
  10, 2-3 hour small group meetings. I gave two of the small group sessions.
- **Advanced Neuroscience, Summer 2010**
  6 hours lecture
- **Physical Therapy and Rehabilitation Sciences, Spring 2010 – Pathobiology of Human Function**
  2 hours lecture

Trainees:
- Heather Hudson – Graduate Student
- Will Messamore – MD/PhD Student
- Gustaf Van Acker – MD/PhD Student
Lane K. Christenson, Ph.D., Associate Professor

My research is focused on understanding the molecular processes of reproduction in order to enhance and inhibit fertility. My primary interest is focused on understanding the post-transcriptional gene regulatory mechanisms (i.e., microRNA-mediated) that facilitate ovulation and luteinization of the ovarian follicle following the LH surge. These studies have identified LH-regulated microRNAs and their target transcripts; ultimately these genes may be useful in controlling fertility and/or understanding diseases such as polycystic ovarian syndrome (PCOS), a major cause of human infertility. My laboratory has a funded project to identify markers of embryo quality from spent medium of human in vitro fertilization (IVF) using high throughput proteomic approaches.

Meetings Attended:
March 24-27, 2010 – Society for Gynecologic Investigation Annual Meeting, Symposium on New Frontiers in Ovarian Biology, Tampa Bay, FL

Committees:
Departmental
- Co-Chair, Graduate Student Affairs
- Member, Greenwald Symposium Planning Committee
- Advisor, Jon B. Fitzgerald Ph.D. Dissertation Committee
- Advisor, Lacey Luense Ph.D. Dissertation Committee
- Member, Jitu George Ph.D. Dissertation Committee
- Member, Emily McDonald Ph.D. Dissertation Committee
- Member, Huan Yang Ph.D. Dissertation Committee
- Member, Ram Kannan Ph.D. Dissertation Committee
- Member, Departmental Faculty Selection Committee for two KUMC Cancer Center member recruits

KUMC
- Member, Yue Cui Ph.D. Dissertation Committee
- Member, Ashleigh Fritz Ph.D. Dissertation Committee
- Member, Advisory Committee for the Microarray Facility
- Member, Mass Spectrometry Oversight Committee
- Member, Biomedical Research Training Program (BRTP) review panel
- Member, Kansas Intellectual and Developmental Disabilities Research Center (KIDDRC) Integrative Imaging Core

National
- Member, Nominating Committee, Society for Study of Reproduction
- Member, Development Committee (Endowment), Society for Study of Reproduction

Editorial and Grant Reviews
- Editorial Board Member, Reproduction
- Ad hoc Reviewer, Biology of Reproduction
- Ad hoc Reviewer, Endocrinology
- Ad hoc Reviewer, Reproduction
Dr. Christenson (continued)

Editorial and Grant Reviews (continued)
- Ad hoc Reviewer, Molecular Endocrinology
- Ad hoc Reviewer, Journal for Assisted Reproductive Technologies
- Ad hoc Reviewer, Trends in Endocrinology and Metabolism
- Ad hoc Reviewer, Journal of Assisted Reproduction and Genetics
- Ad hoc Reviewer, International Journal of Molecular Sciences
- Ad hoc Reviewer, Molecular and Cellular Endocrinology
- Ad hoc Reviewer, Molecular Human Reproduction

Seminars Presented
- September 16, 2009 – “Biomedical Research Careers.” Kansas State University Department of Animal Science, Manhattan, KS
- October 8, 2009 – “MicroRNA-21 is a regulator of LH actions in granulose cells.” 6th Annual Gilbert S. Greenwald Symposium on Reproduction, Kansas City, MO

Academic Honors
- Invitation to present seminar at XVII Ovarian Workshop, “MicroRNA-21 a key regulator of LH action in the ovary,” Milwaukee, WI, July 27-29, 2010
- Adjunct Professor in Department of Animal Sciences at University of Nebraska-Lincoln

Teaching Activities
- Co-Director, Departmental Graduate Program
- IGPBS – “Post-transcriptional gene regulation” 6 hours lecture
- PHSL 834 – Reproductive Physiology Co-Course Director and Lecture 14 hours
- PHSL 851 – Seminar Course Director

Trainees
- John B. Fitzgerald – Graduate Student
- Lacey Luense – Graduate Student
Navneet K. Dhillon, Ph.D., Research Assistant Professor

My research involves understanding the interplay of macrophages, cytokines and chemokines in lung infections associated with HIV-infection. The complications associated with AIDS in the ART era are evolving away from those of an infectious nature and towards noninfectious consequences of prolonged survival. HIV-related pulmonary hypertension (HIV-PAH) is a particularly severe example and the majority of HPAH occurs in individuals with a history of intravenous drug use (IVDU). One of my primary research efforts is aimed at understanding mechanistically how HIV-1 and drugs of abuse contribute alone and in concert to the pathogenesis of PAH, which can later help in developing novel and effective therapeutic intervention strategies. Understanding pathways involved in viral-drugs of abuse interactions that cause dysfunction of pulmonary vasculature will add insight into the vascular biology of all arteriopathies such as PAH in general, coronary artery diseases and systemic hypertension. Other focus of the lab is to develop DNA vaccine encapsulated nanoparticles, targeted specifically to antigen presenting cells, as an effective oral vaccination strategy against HIV-1 infection.

Meetings Attended:
- May 15-20, 2009 – ATS Internation Conference, San Diego, CA
- April 13-17, 2010 – 16th Annual Meeting of the Society on NeuroImmune Pharmacology, Los Angeles, CA

Editorials and Grant Reviews:
- Grant Reviewer, KUMC Biomedical Research Training Program

Trainees:
- Bing Xue, Ph.D. – Post-doctoral Fellow
- Joel Mermis – Pulmonary Fellow
Salvatore 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 GABAB receptor expression and function in human brain autopsy material and laboratory animal.

Meetings Attended:
- August 2009 – Nebraska INBRE Meeting, Grand Island, Nebraska
- September 2009 – Wiley Editorial Board Meeting, New York
- November 2009 – PhRMA Foundation Meeting, Washington D.C.
- November 2009 – NC-IUPHAR Meeting, Paris, France
- December 2009 – American College of Neuropsychopharmacology, Hollywood, FL
- March 2010 – Elsevier Executive Editors Meeting, New York
- April 2010 – NC-IUPHAR Meeting, Paris, France

Committee Activities:
- Departmental
  - Member, Promotion and Tenure Committee
- KUMC
  - Co-Chair, Internal Advisory Committee, Kansas University Training Program in Neurological Rehabilitation Sciences
  - Member, Research and Training Committee
  - Associate Dean, Research and Graduate Training
- National
  - Member, Nebraska-BRIN External Advisory Committee
  - Member, PhRMA Foundation Pharmacology Advisory Panel
  - Member, GABAB Nomenclature Database Committee, International Union of Basic and Clinical Pharmacology
  - Chair, Secretary General, Executive Committee, International Union of Basic and Clinical Pharmacology (IUPHAR)

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 Neuroscience and Therapeutics*
Dr. Enna (continued)

Editorial and Grant Reviews (continued)
Editorial Advisory Board, Current Opinion in Pharmacology
Series Editor, Advances in Pharmacology
Reviewer, PhRMA Foundation
Consultant, H. Lundbeck A/S
Consultant, Leydig, Voit & Mayer, LTD.

Seminars Presented:
November 2009 – “Manuscript Preparation.” University of Nebraska Medical Center, Omaha, NE
March 2010 – “GABA_B Receptors and Neuropsychiatric Disorders.” Lundbeck, Pharmaceuticals, Paramus, New Jersey
June 2010 – “Behavioral Assay Systems.” University of Nebraska Medical Center, Omaha, NE

Teaching Activities:
April 2010 – University of Catania, Catania, Italy. Visiting Professor. Six hours of lectures on GABA_B receptors, depression, and scientific writing
Psychiatry Residents Lectures: Neurochemistry, Neurotransmitters and Psychiatric Illness
4 hours
Integrative and Organ Systems Pharmacology Course (University of Nebraska)
1 hour
Medical School, Small Group Leader, Respiratory Physiology
4 hours
Graduate School, Advanced Neurosciences
6 hours
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
October 17-21, 2009 – Society for Neuroscience annual meeting, Chicago, IL

Editorial and Grant Reviews
Ad hoc Reviewer, Somatosensory and Motor Research
Ad hoc Reviewer, J. Neuroscience Methods
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 24-28, 2010 – 2010 Experimental Biology meeting, Anaheim, CA

Committee Activities:
  Departmental
    Advisor, Thesis committee for Brittany Gorres
    Advisor, Thesis committee for Jill Morris
    Member, Thesis committee for Argenia Doss
    Member, Graduate Student Affairs Committee
  KUMC
    Vice Chair-Elect, Faculty Council, SOM
    Executive Committee, SOM
    Member, Thesis Committee for Brianne Guilford (Anatomy & Cell Biology)
    Member, Thesis Committee for Hun-Hung Huang (Physical Therapy)
    Member, Thesis Committee for Amanda Obaidat (Pharmacology)
  National
    Member, American Physiological Society Conference Committee

Editorial and Grant Reviews:
  Ad hoc Reviewer, American Journal of Physiology Endocrinology and Metabolism
  Ad hoc Reviewer, American Journal of Physiology – Regulatory, Integrative and Comparative Physiology
  Ad hoc Reviewer, Free Radical Biology and Medicine
  Ad hoc Reviewer, Journal of Cellular Physiology
  Ad hoc Reviewer, Journal of Lipid Research
  Ad hoc Reviewer, Molecular and Cellular Endocrinology
  Ad hoc Reviewer, PLOS One
  Ad hoc Reviewer, Metabolism
  Ad hoc Reviewer, Brain Research
  Ad hoc Reviewer, Medicine and Science in Sports and Exercise
  Ad hoc Reviewer, NIH Integrative Physiology of Obesity Study Section, May 27-28, 2010
Dr. Geiger (continued)

Editorial and Grant Reviews (continued)
Abstract Reviewer, American Diabetes Association’s 70th Scientific Sessions 2010

Seminars Presented:

Teaching Activities:
PHSL 815 Cardiopulmonary Core, M1
4 hours lecture
4 hours conference
PHSL 842 Comprehensive Human Physiology
11 hours lecture
PHSL 863 Physical Therapy: Pathobiology of Human Function
3 hours lecture

Trainees:
Brittany Gorres – Doctoral candidate
Jill Morris – Doctoral candidate
Kathleen White – K-INBRE summer scholar
Sara Yunghans – Undergraduate summer student
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 PO$_2$, but rather by a mediator, Monocyte Chemoattractant Protein -1 (MCP-1/CCL2) released by alveolar macrophages and transported by the circulation. Current research involves studies to evaluate the overall functional significance of this phenomenon in the adaptive strategies of entire animals to hypoxia.

Meetings Attended:
   April 24-28, 2010 – Experimental Biology 2010, Anaheim, CA

Committee Activities:
   Departmental
      Member, Promotions and Tenure Committee

Editorial and Grant Reviews
   Reviewer, The Journal of Applied Physiology
   Reviewer, American Journal of Respiratory Cellular and Molecular Biology
   Reviewer, Free Radical Biology and Medicine
   Reviewer, The Journal of Physiology (London)

Teaching Activities:
   Cardiopulmonary Module – Respiratory Physiology
      5 lectures
      2 small group meetings

Trainees:
   Jie Chao – Graduate Student
   Paula Donham – Frontiers in Physiology Fellow, American Physiological Society, Summer 2009
Leslie L. Heckert, Ph.D., Marion M. Osborn Professor, Co-Director of the Center for Reproductive Sciences

The research in our laboratory focuses on the transcriptional and cell-signaling processes for proper function and development of the gonads. Sequence and structural information of the genome are queried to identify new proteins and regulatory pathways that direct cellular differentiation and gametogenesis, with the goal of extending our understanding of the mechanistic requirements for fertility as a means to improve the options for contraception as well as diagnosis and treatment of infertility. The current research is focused primarily on genes that encode the follicle-stimulating hormone receptor (FSHR) and doublesex and mab-3 related transcription factor 1 (DMRT1). FSHR is required for cells to respond to the pituitary hormone FSH and thus hormone signaling occurs only in cells that produce the receptor. FSHR expression is highly cell-specific, limiting FSH response to only somatic cells of the gonads. DMRT1 is a transcription factor that is essential for male fertility. It is found only in the testis, where it is required for the differentiation and survival of both germ cells and Sertoli cells. Molecular approaches, comparative genomics, and transgenic mouse models are used to explore events regulating gene expression and function and high-throughput screening for inhibitors of DMRT1 binding. Project goals are to identify: 1) genomic and transcriptional requirements for cell-specific expression of Fshr, 2) DMRT1 binding sites in the genome of germ cells and Sertoli cells, their associated DMRT1 target genes and biological pathways, and 3) identify small molecule inhibitors of DMRT1 as potential contraceptive agents.

Meetings Attended:

Committees:
Departmental
Member, Graduate Student Advisory Committee
Member, Departmental P&T Committee
Member, Ph.D. Dissertation Committee for Emily McDonald
Member, Ph.D. Dissertation Committee for Sarah Tague
Member, Ph.D. Dissertation Committee for Jeff Cotitta
Member, Ph.D. Dissertation Committee for Elizabeth Dille
Member, Ph.D. Dissertation Committee for Valentine Agbor

KUMC
Member, Ph.D. Dissertation Committee for Aaron Gottschalk, Biochemistry and Molecular Biology
Member, Postdoctoral Advisory Committee
Leader (Theme 4) and Member Scientific Review Committee for Kansas Intellectual and Developmental Disabilities Research Center (KIDDRC)
Member, IGPBS Curriculum and Oversight Committee
Chair, Greenwald Symposium Scientific Organizing Committee
Dr. Heckert (continued)

Committees (continued)
KUMC (continued)
Member, Transgenic Advisory Committee
Co-Director, Center for Reproductive Sciences
Director, Center for Idiopathic Male Infertility (CIMI) – under development
National
Member, Reproduction, Andrology and Gynecology Study Section,
National Institute of Child Health & Human Development
Chair, Program Committee for the 43rd Annual Meeting of the Society for
the Study of Reproduction, July 30, 2010-August 2, 2010,
Milwaukee, WI
Course Director, Section 1, Frontiers in Reproduction, The Marine
Biological Laboratory, Woods Hole, MA
Representative to the World Congress on Reproductive Biology (WCRB);
The Society for the Study of Reproduction, September 2-4, 2010,
Kitasato University, Tawada, Japan

Editorial and Grant Reviews:
Member, Editorial Board for Journal of Andrology
Member, Editorial Board Biology of Reproduction
Ad hoc Reviewer, Endocrinology
Ad hoc Reviewer, Developmental Biology
Ad hoc Reviewer, Molecular Endocrinology

Seminars Presented:
July 18-22, 2010 – “Fshr and Transcriptional Regulation in Sertoli Cells.” 42nd
Annual Meeting of the Society for the Study of Reproduction, Pittsburg, PA
May 3, 2010 – “Signals, Transcription and the HPG Axis.” Frontiers in
Reproduction, Marine Biology Laboratory, Woods Hole, MA
in Reproduction, Marine Biological Laboratory, Woods Hole, MA

Other Academic Honors:
“DMRT1 is Involved in Distinct Biological Signaling Pathways in Sertoli Cells and
Germ Cells.” Selected abstract presented by graduated student Valentine
Agbor at the 43rd Annual Meeting of the Society for the Study of
Reproduction.
Invited Representative for the Society for the Study of Reproduction to the World
Congress on Reproductive Biology 2010 interim meeting. Kitasato
University, Tawada, Japan
“Transcriptional Regulation of Testicular Genes” Reproductive Tract Biology
Gordon Research Conference, August 15-20, 2010. Proctor Academy,
Andover, NH
Dr. Heckert (continued)

Other Academic Honors (continued)
“Cell-specific Functions of DMRT1 in Sertoli Cells and Germ Cells of the Testis”,
Society for Reproduction and Development, September 2-4, 2010,
Kitasato University, Tawada, Japan
“Cell-specific functions of DMRT1 in the testis” The Population Council,
Rockefeller University, August 23, 2010

Teaching Activities:
May 2-15, 2010 – Frontiers in Reproduction course at Marine Biological
Laboratory, Woods Hole, MA
2 – 1.5 hour lectures
3 day laboratory on transcriptional regulation
Director, Marine Biological Laboratory summer course, Frontiers in Reproduction
(section 1). Woods Hole, MA

Trainees:
Valentine Agbor – Graduate Student
Beth Dille – Graduate Student
Jitu George – Graduate Student
Ravichandiran Kumarasamy, Ph.D. – Post Doctoral Fellow
Shixin Tao, Ph.D. – Post Doctoral Fellow
Audrey Shamet – Summer Student
Aberrant spontaneous activity in the auditory system is commonly believed to be a cause of tinnitus. Current research projects utilize behavioral methods and single unit and metabolic measures of spontaneous activity to test the hypothesis that regeneration of hair cells in a rat model can reduce or eliminate neural and behavioral correlates of tinnitus.

Meetings Attended:
June 8-11, 2010 – 4th International TRI Tinnitus Conference, Dallas, TX

Committee Activities:
Departmental
- Co-Chair, Graduate Student Affairs
- Co-Chair, P and T Committee
KUMC
- Member, Academic Committee (SOM)
- Member, Admissions subcommittee
- Assistant Director, IGPBS

Teaching Activities:
Brain and Behavior, 2nd year medical students
- 6 lectures
- 5 labs
- 4 small group sessions
T. Rajendra Kumar, Ph.D., Associate Professor

Our laboratory studies development and regulation of the reproductive axis using both gain-of-function (transgenic) and loss-of-function (gene knockout) approaches. Specific projects include understanding the pathophysiology of human pituitary null cell adenoma, mechanisms of sorting and 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:
July 2010 – Society for Study of Reproduction, 43rd Annual Meeting, Milwaukee, WI
August 2010 – Gordon Research Conference on Reproductive Tract Development

Committee Activities:
Departmental
Member, Department of Physiology/Cancer Center Faculty Recruitment Committee
Member, Tamara Jimenez Thesis Committee
Member, Valentine Agbor Thesis Committee
Chair, Phillip Stevenson Thesis Committee
KUMC
Member, At-Large Member, Faculty Executive Council
Member, Kansas Intellectual and Developmental Disabilities Research Center User Advisory Committee for Core C. Research Design and Analysis
Member, KUMC Flow Cytometry Core Advisory Committee
Member, Developmental and Regenerative Biology Seminar Organizing Committee
Member, Tom Bradley Thesis Committee
National
Member, Society for the Study of Reproduction: Committee on Reproduction and Environment
Member, Publication Committee, Journal of Andrology, American Society of Andrology
Ad-hoc Review Member, Development-1 (DEV1) Study Section Panel, National Institutes of Health
Mail-in-Reviewer, Development-2 (DEV2) Study Section Panel, National Institutes of Health
Committee Activities (continued)

Chair, Mini-Symposium on Gonadal-Adrenal Organogenesis and a common primordium for steroidogenic tissues, 43rd Annual Meeting of The Society for Study of Reproduction (SSR), Milwaukee, WI
Chair, Platform Session on Male Reproductive Tract: Testis Development & Function, 43rd Annual Meeting of The Society for Study of Reproduction (SSR), Milwaukee, WI
Ad-hoc Reviewer Member, Special Emphasis Panel on Molecular and Integrative Signal Transduction (MIST) Study Section, National Institutes of Health

Editorial and Grant Reviews

Editorial Board Member, *Journal of Assisted Reproduction and Genetics*
Editorial Board Member, *Frontiers in Neuroendocrine Science*
Manuscript Reviewer, *American Journal of Pathology*
Manuscript Reviewer, *American Journal of Physiology: Endocrinology & Metabolism*
Manuscript Reviewer, *Archives of Biochemistry and Biophysics*
Manuscript Reviewer, *Asia Journal of Endocrinology*
Manuscript Reviewer, *Biology of Reproduction*
Manuscript Reviewer, *Clinical Endocrinology*
Manuscript Reviewer, *Development*
Manuscript Reviewer, *Endocrine*
Manuscript Reviewer, *Endocrine-Related Cancer*
Manuscript Reviewer, *Endocrinology*
Manuscript Reviewer, *Experimental Gerontology*
Manuscript Reviewer, *Expert Opinion on Therapeutic Patents*
Manuscript Reviewer, *FEBS Letters*
Manuscript Reviewer, *Fertility and Sterility*
Manuscript Reviewer, *Genesis*
Manuscript Reviewer, *Genomics*
Manuscript Reviewer, *Journal of Andrology*
Manuscript Reviewer, *Journal of Biotechnology*
Manuscript Reviewer, *Journal of Cell Biology*
Manuscript Reviewer, *Journal of Cell Science*
Manuscript Reviewer, *Journal of Clinical Endocrinology & Metabolism*
Manuscript Reviewer, *Clinical Investigation*
Manuscript Reviewer, *Journal of Endocrinology*
Manuscript Reviewer, *Journal of Physiology*
Manuscript Reviewer, *Microscopy Research & Technique*
Manuscript Reviewer, *Molecular and Cellular Endocrinology*
Manuscript Reviewer, *Molecular Endocrinology*
Manuscript Reviewer, *Molecular Reproduction and Development*
Dr. Kumar (continued)

Editorial and Grant Reviews (continued)
  Manuscript Reviewer, Oncogene
  Manuscript Reviewer, Peptides
  Manuscript Reviewer, PLoS One
  Manuscript Reviewer, PNAS (USA)
  Manuscript Reviewer, Physiology & Behavior
  Manuscript Reviewer, Reproduction
  Manuscript Reviewer, Reproductive Biology and Endocrinology
  Manuscript Reviewer, RNA
  Manuscript Reviewer, The FASEB Journal
  Manuscript Reviewer, Trends in Endocrinology and Metabolism
  Ad-hoc Review Member, Development-1 (DEV1) Study Section Panel, National Institutes of Health, 07/2009
  Mail-in-Reviewer, Development-2 (DEV2) Study Section Panel, National Institutes of Health, 07/2009
  Ad-hoc Reviewer Member, Special Emphasis Panel on Molecular and Integrative Signal Transduction (MIST) Study Section, National Institutes of Health, 02/2011

Seminars Presented:
  August 18, 2009 – “Functional Genomics of Follicle Stimulating Hormone,”
    Invited Speaker, Department of Genetics, University of Delhi South Campus, New Delhi, India
  August 31, 2009 – “Functional Genomics of Follicle Stimulating Hormone,”
    Invited Speaker, Department of Zoology, Department of Zoology, University of Delhi, Delhi, India
  October 16, 2009 – “Functional Genomics of Follicle Stimulating Hormone,”
    Invited Speaker, Department of Obstetrics & Gynecology, University of Michigan Medical Center, Ann Arbor, MI
  November 18, 2009 – “Transgenic Mouse Models for Null Cell Adenoma,”
    Invited Speaker, Department of Life Sciences, Veterans Medical Center, Kansas City, MO
  March 25, 2010 – “Mouse Models for FSH Secretion and Function in the Male,”
    Invited Speaker, Center for Research in Reproduction, University of Virginia Health System, Charlottesville, VA

Academic Honors:
  January 28, 2011 – Invited Speaker, Department of Obstetrics & Gynecology, Washington University School of Medicine, St. Louis, MO
  June 2011 – Invited Speaker, Division of Cancer Biology, National Cancer Institute, Frederick, MD
Dr. Kumar (continued)

Teaching Activities:
  PATH 805 – Imprinting & X- Chromosome Inactivation
    4 hours lecture
  GSMC 851 – An Overview of Gene Control & Gene Expression
    2 hours teaching
    2 hours paper discussion
  PATH 803 – Stem Cell Biology
    2 hours teaching
  BCHM 922 – Temporal Inactivation of Genes & RNAi Strategies in Mice
    4 hours teaching

Trainees:
  Huizhen Wang, Ph.D. – Post Doctoral Fellow
  Phillip Stevenson – Graduate Student
  Molly McGraw – IGPBS Rotation Student
  Ramesh Padmanabhan – IGPBS Rotation 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 and embryo 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 service of 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:
- March 8-9, 2010 – “Transgenic and Gene-Targeting Facility,” Poster presentation at Missouri Regional Life Sciences Summit, Kansas City, MO
- October 8-9, 2010 – KUMC Gilbert S. Greenwald Symposium on Reproduction, Kansas City, MO

Committees:
- Member, WIMS Mentoring Committee

Seminars Presented:

Other Academic Honors:
- Kansas Technology Enterprise Corporation Scholar Award, January 2010
Dr. Lee received his Ph.D. in Biophysical Sciences and Medical Physics from University of Minnesota. His research topic was the physiological bases of functional MRI signals and development of novel non-invasive magnetic resonance techniques for the biophysical investigation. Dr. Lee’s current research interests include the characterization and understanding of biological processes in the neurodegenerative brain at the cellular, molecular and functional levels using in vivo bioengineering approaches including state-of-the-art magnetic resonance techniques. For example, one of Dr. Lee’s research goals is early diagnosis and identification of changes in functional and physiological aspects of Alzheimer’s disease during the disease progression. Through the identification and characterization of the disease in an early stage through in vivo measurements of axonal transport, iron contents and ß-amyloid (Aß) plaques in transgenic animal models of Alzheimer’s disease, therapeutic responses can be objectively quantified and new treatment strategies can be developed.

Meetings Attended:
- July 11-16, 2009 – International Conference on Alzheimer’s Disease, Vienna, Austria
- August 23-28, 2009 – 22nd biennial joint meeting of the International Society for Neurochemistry (ISN/APSN), Busan, Korea
- May 1-7, 2010 – International Society of Magnetic Resonance in Medicine (ISMRM), Stockholm, Sweden

Committee Activities:
- KUMC
  Member, Thesis committee for Joshua Johnson (Mechanical Engineering)
  Member, Thesis committee for Donica Stadum (Mechanical Engineering)

Editorial and Grant Reviews
- Ad hoc Reviewer, Advances in Neurobiology
- Ad hoc Reviewer, NMR in Biomedicine
- Ad hoc Reviewer, Magnetic Resonance in Medicine
- Ad hoc Reviewer, Conference proceedings of International Society for Magnetic Resonance in Medicine
- Ad hoc Reviewer, NeuroImage

Seminars Presented:
- May 2009 – “Glutathione in secondary progressive MS.” Translational Discovery Forums, Institute for Neurological Disorders
- July 28, 2009 – “Oxidative stress and Alzheimer’s disease” Seminar Series on Aging, Health and Dementia, University of Kansas Medical Center (Originating Site) and Kansas Statewide (Interactive Televideo (ITV)
Seminars Presented (continued)
November 3, 2009 – “Early pathologic changes of axonal transport and neurochemical levels in 3xTg-Alzheimer mice” 2009 Faculty Research Day and Poster Session, KUMC Research Institute, Kansas City, KS
November 3, 2009 – “Short-echo-time 1H MRS studies of alcohol exposure on the mouse brain over-expressing glutamate dehydrogenase” 2009 Faculty Research Day and Poster Session, KUMC Research Institute, Kansas City, KS

Teaching Activities:
PATH 863: Pathology of Human Function
1 (2 hour) lecture
ANAT 898: Introduction to Faculty Research
1 (1 hour) lecture
NURO 799: Neuroscience Program Seminar Series
1 (1 hour) lecture
CHEM 775/PTX 775: Chemistry of the Nervous System
1 (1.5 hour) lecture
PHSL 846/ANAT 846: Advanced Neuroscience
1 (2 hour) lecture

Trainees:
Joshua Johnson – Graduate Student (Mechanical Engineering, KU-Lawrence)
Donica Stadum – Graduate Student (Mechanical Engineering, KU-Lawrence)
Steven M. LeVine, Ph.D., Professor

Our research is directed at advancing the understanding of the pathogenic mechanism in multiple sclerosis, which is a neurological disease that causes sensory, motor and/or cognitive losses. We also study novel interventions for this disease. Our research incorporates a team approach that includes clinical samples, flow cytometry, immunology, and animal models. Additional studies address mechanisms of toxin-induced vessel injury.

Meetings Attended:

- April 2010 – Meeting on Deferiprone in Neurodegenerative Conditions with Brain Iron Accumulation sponsored by ApoPharma, Inc., held in London, UK
- June 4-5, 2010 – Americas Committee on Treatment and Research in Multiple Sclerosis (ACTRIMS), San Antonio, TX

Committee Activities:

- Departmental
  - Member, Departmental Promotions and Tenure Committee
  - Member, Thesis Committee for Wen Tang
  - Member, Thesis Committee for Crystal Bethel-Brown
  - Member, Departmental Faculty Search Committee

Grant and Journal Reviews:

- Reviewer, Biological Trace Element Research
- Reviewer, Brain Research
- Reviewer, Laboratory Investigation
- Ad hoc Grant Reviewer, Tobacco-Related Disease Research Program, University of California, March 2010

Teaching Activities:

- Core 840 – Brain, Mind and Behavior – Neuropathology Labs for second year medical students
  - 6 hours lab
- PHSL 842 – Comprehensive Human Physiology Course
  - 3 hour lecture
- CORE 820 – Gastrointestinal Tract and Nutrition
  - 3 hour lecture
- May 2010 – Visiting Professor at UCLA for four days
Dr. LeVine (continued)

Trainees:
- Cassandra Buchheit – Student at Rockhurst University
- Edward Doyle, III – Student at Rockhurst University
- Laura Rues – Student at Rockhurst University
- Matthew Sweeney – Student at Rockhurst University
- Kelsey Weigel – Student at Rockhurst University
- Aaron Rohr – Medical Student
- Rachel Williams, Ph.D. – Post Doctoral Fellow
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:
October 15, 2009 – International Symposium on Neurorehabilitation: From Basics to Future, Valencia, Spain
April 22-23, 2010 – Princeton Conference, Boston, MA

Committees:
KUMC
Member, K30 grant Internal Advisory Board
Member, General Clinical Research Center Advisory Committee
Member, General Clinical Research Center Executive Committee
Chair, Laboratory Animal Resources Advisory Committee
Brain Injury and Repair section co-director, Institute for Neurological Disorders
Advisory Council, Institute for Neurological Disorders
National
Member, Board of Directors, American Society of Neurorehabilitation

Editorial and Grant Reviews:
Deputy Editor, Brain Stimulation
Editorial Board, Restorative Neurology and Neuroscience
Editorial Board, Neurorehabilitation and Neural Repair
Editorial Board, Neuroscience and Biobehavioral Reviews
Ad-hoc Reviewer, Journal of Neuroscience Methods
Ad-hoc Reviewer, Annals of Neurology
Ad-hoc Reviewer, Journal of Neuroscience
Ad-hoc Reviewer, Brain
Ad-hoc Reviewer, Neurocase
Ad-hoc Reviewer, Science
Ad-hoc Reviewer, Stroke
Ad-hoc Reviewer, Cerebral Cortex
Ad-hoc Reviewer, Neuroscience
Dr. Nudo (continued)

Editorial and Grant Reviews (continued):
Ad-hoc reviewer, Fondazione Italiana Sclerosi Multipla (Italian Multiple Sclerosis Foundation)
Ad-hoc reviewer, NIH/NICHD Loan Repayment applications, April 2010.
Ad-hoc reviewer, NIH/NIAMS R03 New Investigator applications, February 4, 2010
Ad-hoc reviewer, NIH S10 Shared Instrumentation grant reviews, November, 2009
Ad-hoc reviewer and Chair, NIH/NICHD T32 grant applications November 23, 2009
Ad-hoc reviewer, NIH CSR Special Emphasis Panel, October 13, 2009.
Ad-hoc reviewer, NIH R13 conference grant application, September, 2009
Ad-hoc reviewer, NIH P30 applications, July 28, 2009.
Ad-hoc reviewer, NIH/NICHD Special Emphasis Panel for K01 applications, July 17, 2009

Seminars Presented:
August 21, 2009 – “Future prospects for brain prosthetics,” Invited Speaker, Neurology/Neurosurgery Grand Rounds, Kansas University Medical Center, Kansas City, Kansas
September 11, 2009 – “Brain machine interfaces for modulating recovery after stroke,” Invited Speaker, Neurology Grand Rounds, University of Texas at Houston
November 6, 2009 – “Rewiring the Brain after Stroke,” Invited Speaker, Behavioral and Brain Sciences Colloquium Series, University of Texas at Dallas
December 3, 2009 – “Brain mechanisms of recovery after stroke,” Invited Speaker, Neurology Grand Rounds, University of Nebraska Medical Center, Omaha, Nebraska
December 4, 2009 – “Brain machine interfaces for modulating recovery after stroke,” Invited Speaker, University of Nebraska-Omaha Biomechanics Lab Journal Club
March 5, 2010 – “The Role of Neural Reorganization in Recovery after Brain Injury,” Keynote Speaker, 2010 Speech Motor Control Conference, Savannah, Georgia
March 12, 2010 – “Brain Machine Interfaces for Modulating Recovery after Strokes,” Invited Speaker, Seoul National University College of Medicine, Seoul, South Korea
March 13, 2010 – “Neuroplasticity and the Coming Age of Brain Repair,” Plenary Lecturer, Korean Society of Neurorehabilitation, Seoul, South Korea
Dr. Nudo (continued)

Seminars Presented (continued):

April 14, 2010 – “The Role of Neural Reorganization in Recovery after Brain Injury,” Invited Speaker, Neuroscience Seminar Series, Medical College of Georgia, Augusta, Georgia
April 24, 2010 – Invited Session Introducer, Session on “Recovery”, 27th Princeton Conference on Cerebrovascular Disease, Boston, Massachusetts
May 7, 2010 – “Progress and Discovery in Mechanisms of Repair and Recovery Following Stroke,” Invited Speaker, Symposium entitled Therapeutic Frontiers in Acute CNS Injury”

Academic Honors:
Honorary Member, Korean Society for NeuroRehabilitation, March 13, 2010

Teaching Activities:
NEUS 840 Medical Neuroscience
6 lecture hours
PHSL 848 - Molecular Mechanisms in Neurological Disorders
1 hour lecture
Faculty Research Series
1 hour lecture
PHTH 863 -- Pathobiology of Human Function II
1 hour lecture
Introduction to Clinical Research (Summer)
1 hour lecture
Introduction to Clinical Research (Fall)
1 hour lecture
Rehabilitation Medicine Residency Program
1 hour lecture

Trainees:
David Guggenmos - Graduate Student
Edward Urban - Graduate Student
Mariko Nishibe – Graduate Student
David McNeal – Post-doctoral fellow
Omar Almograhbi – MD summer research student
Manoj Mittal – Neurology residency research rotation
One of my research interests is the development and evaluation of new approaches to the biomagnetic inverse problem. The goal of this research is to improve the MEG source estimation accuracy, such as to achieve better characterization of the underlying brain generators in specific experimental settings. Current experimental MEG projects focus on the correlation between the evoked brain activity and behavioral profiles in children with Asperger syndrome, and on the effects of language interventions on the evoked brain responses in children with primary language disorder.

A second area of research is focusing on multi-channel biomagnetic recordings of the fetal heart activity. Fetal magnetocardiographic (fMCG) measurements are performed in our laboratory with a dedicated biomagnetometer system that enables screening of the fetal heart electrophysiology from early gestational ages. We seek to develop new computational approaches to the analysis of fMCG signals, using 3D reconstructed ultrasound images of the fetal-maternal anatomy to derive realistic volume conductor models, and to improve the estimators of fetal myocardial currents from the multi-channel fMCG recordings. The clinical validation of this methodology is conducted on fetuses with abnormal increase in ventricular wall thickness (cardiac hypertrophy). Our goal is to develop fMCG into a reliable technique for monitoring fetal heart electrophysiology and for early identification and diagnosis of congenital heart anomalies.

Committees:

- Member, Doctoral Committee for Rong Tao (BioE, KU)
- Member, Doctoral Committee for Huizhong Cui (BioE, KU)

Editorials and Grant Reviews:

- Ad hoc Reviewer, IEEE Transactions on Neural Systems & Rehabilitation Engineering
- Ad hoc Reviewer, Annals of Biomedical Engineering
- Reviewer, Medical Research Council (MRC) granting organization (UK)

Teaching Activities:

- PTRS 863 – Pathobiology of Human Function
  - 2 hours lecture

Trainees:

- Rong Tao – Graduate Student (BioE, KU)
- Lalit Venkatesan – Graduate Student (Neuroscience, KU), main advisor: Professor Steven Barlow
Peter G. Smith, Ph.D., Professor, Co-Director, Kansas Intellectual and Developmental Disabilities Research Center, Director, Institute for Neurological Disorders

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 are particularly interested in the factors to regulate the density of innervation of peripheral targets, and how abnormal increases in axon numbers can lead to cardiac dysfunction and pain syndromes associated with high estrogen status or low vitamin D.

Meetings Attended
 September 2, 2009 – “Bone morphogenetic protein-4 is a mediator of estrogen-induced sensory axon plasticity in the rat vagina.” International Society for Autonomic Neuroscience, Sydney, Australia

Committee Activities

Departmental
 Member, Promotions and Tenure Committee
 Chair, Student Advisory Committee for Gwenaelle Wernli Clarke
 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 Bhattacherjee
 Chair, Student Advisory Committee for Eva Selfridge
 Member, Student Advisory Committee for Ed Urban III

KUMC
 Member, Student Advisory Committee for Chanel Li (Pharmacology and Toxicology, KU-L)
 Member, Student Advisory Committee for Kevin Farmer (Physical Therapy)
 Director, Institute for Neurological Disorders
 Co-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, KUMC Microarray Facility
 Member, Mass Spectroscopy Advisory Board
 Member, Kansas INBRE Advisory Board
 Member, CTSA Planning Committee
 Member, LAR Advisory Committee
 Member, Research Institute Board of Directors
 Chair, KUMC Research Institute Research Committee

102
Dr. Smith (continued)

Committee Activities (continued)
  KUMC (continued)
    Member, Search Committee for the Director, Life Span Institute at KU
    Chair, Bioinformatics Search Committee
    Chair, Computer Scientist Search Committee
    Member, KU/KUMC Joint Task Force on Infrastructure
    Member, Liver Center Advisory Committee
  National
    North American Representative to the Executive Committee, International Society for Autonomic Neuroscience

Editorial and Grant Reviews
  Ad hoc Reviewer, Journal of Comparative Neurology
  Ad hoc Reviewer, Autonomic Neuroscience: Basic and Clinical
  Ad hoc Reviewer, Brain Research
  Ad hoc Reviewer, Regulatory Peptides
  NIH Neurological, Aging and Musculoskeletal Epidemiology
  KUMC Research Institute
  Kansas INBRE

Seminars Presented:
  September 2, 2009 – “Bone morphogenetic protein-4 is a mediator of estrogen-induced sensory axon plasticity in the rat vagina”, International Society for Autonomic Neuroscience, Sydney, Australia

Teaching Activities:
  PHSL 800: Medical Physiology
    3 hours lecture
    4 hours conference

Trainees:
  Aritra Bhattacherjee – Doctoral Candidate
  Argenia Doss – Doctoral Candidate
  Sarah Tague – Doctoral Candidate
  Timothy Donohue – MD/PhD Doctoral Candidate
  Eva Selfridge – MD/PhD Doctoral Candidate
  Gwenaelle Clarke, Ph.D. – Post Doctoral Fellow
John A. Stanford, Ph.D., Associate Professor

My research is focused on preclinical models of normal aging and age-related diseases that affect motor function, such as Parkinson’s disease (PD) and amyotrophic lateral sclerosis (ALS). We are currently examining the effects of high fat diet-induced insulin resistance on nigrostriatal dopamine function in attempts to understand the co-morbidity between Type 2 Diabetes and PD. We are also studying bulbar deficits and neuromuscular denervation in the SOD1-G93A and TDP-43 models of ALS. Finally, we are characterizing forelimb force control in preclinical models of aging and early-stage PD.

Committees:

Departmental
Member, Department Graduate Student Affairs Committee

KUMC
Member, Rodent Behavior Advisory Committee
Member, IACUC
Member, KIDDRC Core B Advisory Committee

Editorials and Grant Reviews
Reviewer, Brain Research
Reviewer, Neurotoxicity Research
Reviewer, Neurochemical Research
Reviewer, Neuroscience Letters
Reviewer, Neuroscience Research
Ad hoc Reviewer, NIH Communication Disorders Review Group (CDRC), October 15, 2009

Seminar Presented:
November 20, 2009 – “Translatable Measures of Motor Function in Preclinical Models of Parkinson’s Disease and ALS.” Neurology/Neurosurgery Grand Rounds, University of Kansas Medical Center, Kansas City, KS
December 2, 2009 – “Translatable Measures of Motor Function in Preclinical Models of Parkinson’s Disease and ALS.” Department of Pharmacology & Toxicology, University of Kansas, Lawrence, KS
February 25, 2010 – “Translatable Measures of Motor Function in Preclinical Models of Parkinson’s Disease and ALS.” Clinical and Translational Research Seminar Series, University of Kansas Medical Center, Kansas City, KS
March 8, 2010 – “Translatable Measures of Motor Function in Preclinical Models of Parkinson’s Disease and ALS. Department of Analytical Chemistry, University of Kansas, Lawrence, KS
Dr. Stanford (continued)

Teaching Activities:
  Brain and Behavior
    25 total hours of small group teaching
  Advanced Neuroscience
    Course Director
    6 hours classroom teaching

Trainees:
  Jill Morris – Graduate Student (co-mentor: Paige Geiger)
  Christopher Leto – Medical Student
  Nolan Seim – Medical Student
  Neal Desai – Summer Student
  Yonghong Wang, M.D. – Visiting Scholar
Stanislav Svojanovsky, Ing., Ph.D., Research Associate 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 Attending:
  October 7, 2009 - Statistical Methods and Data Analysis Workshop, University of Kansas, Lawrence, KS
  January 16-17, 2010 – The Eight Annual K-INBRE Symposium, Kansas City, MO
  March 11, 2010 – “More efficient script for MATLAB process” workshop at Hoglund Brain Imaging Center (HBIC) at KUMC, Kansas City, KS.

Seminars Presented:
  March 29, 2010 – “Neural Network Applications for EECS 833” Department of Electrical Engineering and Computer Science, University of Kansas, Lawrence, KS.

Academic Honors:
  April 7, 2010 – recipient of the JCCC “College Scholars Program for 2010-2011”

Teaching Activities:
  GI Physiology Lecture – Microarray data analysis and interpretation
    1 hour lecture
  EECS 833 Neural Networks and Fuzzy Logic (KU-Lawrence)
    4 hours lecture
    4 hours review
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:
- Director, Cardiopulmonary Module in Year 1 Medical Curriculum
- Director, Renal-Endocrine Module in Year 1 Medical Curriculum
- Member, Phase 1 Committee
- Member, Angel Advisory Board

Academic Honors:
- Student Voice Award: Cardiopulmonary Module voted “The Outstanding First Year Module”
- Bohan Teaching Award
- Chancellor’s Excellence in Teaching Award

Teaching Activities:
- Cardiopulmonary Module Year 1 Medical
  - 7 hours of lecture
  - 4 hours of small group teaching
- Integration and Consolidation Module Year 2 Medical
  - 1 hour lecture
Joseph S. Tash, Professor, Director (U54 Interdisciplinary Center for Male Contraceptive Research & Drug Development)

My interests and involvement in research in reproductive biology and signal transduction began during my undergraduate years and have continued to the present time. 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 spermatogenesis, and the development and expression of sperm motility and fertility. This knowledge can be used to identify targets in sperm or the testis that could be used for development of male contraceptive agents. A second major research interest, concerns whether male reproduction is affected by space flight.

Meetings Attended:
- July 2009 – Society for the Study of Reproduction, Pittsburg, PA
- October 2009 – U54/U01 Steering Committee Meeting, Bar Harbor, ME
- October 2009 – Greenwald Symposium, KUMC
- November 2009 – Hosted the U54 External Advisory Board Meeting, KUMC
- December 2009 – Hsp90 Symposium, University of Kansas, Lawrence, KS
- February 2010 – Bill & Melinda Gates Foundation: Experts in Contraception Meeting, Seattle, WA
- February 2010 – IAM Symposium, KUMC
- March 2010 – Life Sciences Summit, University of Missouri-Kansas City
- March 2010 – ASCSB Board Meeting, Washington DC
- March 2010 – ASGSB Capital Hill Visits, Washington, DC
- April 2010 – Alliance for the Contraception in Cats & Dogs Symposium, Dallas, TX
- May 2010 – Technology Transfer and Commercialization Meeting, Lawrence, KS

Participated in Quarterly MCP meetings

Committees:
- KUMC
  - Member, School of Medicine Dean’s Leadership Committee
  - Member, School of Medicine Basic Chairs/Center Directors Committee
  - Associate Director, Imaging Core Laboratory Center for Reproductive Sciences
  - Member, KUMC Biotech Facility Oversight Committee
- National
  - Member, Board of Governors, American Society for Gravitational and Space Biology

Editorials and Grant Reviews:
- Reviewer, Biology of Reproduction
- Reviewer, Journal of Andrology
Dr. Tash (continued)

Seminars Presented:
  October 2009 – “U54 Project 1: Progress on the mechanism of action of male contraceptive H2-gamendazole.” U54/U01 Steering Committee Meeting, Jackson Labs, Bar Harbor, ME
  December 2009 – “Hsp90 and eEF1A as novel targets for male contraceptive drug development.” University of Kansas, Lawrence.
  April 2010 – “KU-AS-272 as a Potential Single-Dose Non-hormonal Male and Female Sterilant for Dogs and Cats.” Alliance for Contraception in Cats & Dogs Symposium, Dallas, TX.

Other Academic Honors:
  Nominated for the Chancellor’s Research Award, 2010

Trainees:
  Jeffrey Cotitta – IGPBS Student
  Vijayalaxmi Gupta, Ph.D. – Post Doctoral Fellow
  Lesya Holets, Ph.D. – Post Doctoral Fellow
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:
October 2009 – 6th Annual Gilbert S. Greenwald Symposium on Reproduction, Kansas City, MO

Committee Activities
Departmental
Member, Dissertation Committee for Brittany Gorres, Ph.D. candidate
Member, Dissertation Committee for Edward Urban, M.D./Ph.D. candidate
Member, Dissertation Committee for Lacey Luense, Ph.D. candidate
Member, Dissertation Committee for Tamara Jimenez, Ph.D. candidate
Member, Dissertation Committee for J.B. Fitzgerald, Ph.D. candidate
Chair, Dissertation Committee for Sara Turk, Ph.D. candidate
Chair, Dissertation Committee for Emily McDonald, Ph.D. candidate
Graduate Student Advisory Committee

KUMC
Member, Dissertation Committee for Lindsey N. Canham, Ph.D. candidate
(Dept. of Pathology)
Member, Dissertation Committee for Damayanti Chakraborty, Ph.D. candidate (Dept. of Pathology)
Judge at the Student Research Forum, 2009

National
Chair, By-laws committee; Society for the Study of Reproduction

Editorials and Grant Reviews
Ad hoc Reviewer, Molecular and Cellular Biology
Ad hoc Reviewer, Endocrinology
Editorial Board Member, Journal of Endocrinology

Michael W. Wolfe, Ph.D., Associate Professor
Dr. Wolfe (continued)

Teaching Activities
- Reproductive Physiology (PHSL 834)
  9 hours lecture
- Comprehensive Human Physiology (PHSL 842)
  Course co-director
  7 hours lecture
- Pre-clinical phase: year 1, Renal-Endocrine Module
  7 hours lecture (team taught within a 17 hr block)
  2 hr review session
- Pre-clinical phase: year 1, Reproduction and Sexuality Module
  3 hours lecture

Trainees:
- Sara Turk – Graduate Student
- Emily McDonald – Graduate Student
John G. Wood, Ph.D., Associate Professor

Systemic hypoxia occurs at altitude and in a variety of cardiopulmonary diseases. Our major goal 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 in collaboration with Dr. Gonzalez. I am also working with faculty and residents in the Department of Surgery to study mechanisms involved in microvascular injury in hemorrhagic shock and mesenteric ischemia/reperfusion. Dr. Leone Mattioli and I are also examining mechanisms of fructose-induced microvascular inflammation.

Meetings Attended:
  October 10-15, 2009 – American College of Surgeons Meeting, Chicago, IL
  April 25-28, 2010 – Experimental Biology Meeting, Anaheim, CA

Committees:
  Departmental
    Member, Jie Chao Thesis Committee
    Member, Tim Donohue Thesis Committee
    Member, George Thomas Thesis Committee
  KUMC
    Member, Katy Allen (Dr. Bryan Copple, advisor) Thesis Committee
    Member, Chieko Saito (Dr. Hartmut Jaeschke, advisor) Thesis Committee
    Member, Pre-matriculation Planning Committee
    Member, Academic and Professionalism Committee
    Member, Promotions Sub-Committee
    Member, Department of Surgery Education Committee
    Co-Chair, Department of Surgery Research Committee

Editorials and Grant Reviews:
  Ad hoc Reviewer, Microcirculation
  Ad hoc Reviewer, Journal of Applied Physiology
  Reviewer, American Heart Association Vascular Wall Biology Study Section

Seminars Presented:
  May 20, 2010 – “Microvascular inflammation.” Sepsis Interest Group, Departments of Surgery and Medicine.

Academic Honors:
  Student Voice Award for Outstanding First Year Teaching
Dr. Wood (continued)

Teaching Activities:
- First year medical curriculum
  - 20.5 hours lecture
  - 2 hours review
  - 4 hours conference
- Second year medical curriculum
  - 2 hours lecture
- Comprehensive Human Physiology
  - 14 hours lecture
  - 1 hour lab
- First Prep Board Review
  - 2.5 hours lecture
- Pre-matriculation Program, June, 20 students
  - 21 hours lecture
  - 15 hours problem sessions
  - 1 hour lab
  - 2 hours review
- Vascular Surgery Program, Department of Surgery
  - 3 hours lecture
- Department of Medicine, Pulmonary and Critical Care Medicine
  - 1 hour lecture

Trainees:
- Al Casillan, M.D., Ph.D. – Resident in the Department of Surgery
- Casey Hertzenberg, M.D. – Resident in the Department of Surgery
- Scott Mullen, M.D. – Resident in the Department of Surgery
- Jessica Hogan – Third year medical student
- Brian Seacat – Third year medical student