Annual Report of the

Department of
Molecular & Integrative Physiology

University of Kansas Medical Center

Covering the period July 1, 2010 – June 30, 2011
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YEAR IN REVIEW
2010-2011

RESEARCH FUNDING: Despite the continued highly difficult funding environment at NIH, NSF and other agencies, the 2010-2011 academic year was actually a growth year for our department with total research funding increasing by 29% over last year to a total of $7,584,726. Total NIH research funding in the department was $6,303,692 (total costs). Our department is ranked 15th nationally in research funding among all public University Physiology Departments and 28th among 127 public and private medical schools. Also noteworthy is the fact our department is second among all departments at the Medical Center in the number of NIH grants held and first in the number of NIH R01 grants held. Nearly every faculty member’s research program was supported by major external funding. It is a tribute to the dedication and talent of our faculty that the department has continued to do so well in spite of a very difficult funding environment at NIH.

EDUCATION: Dr. Merrill Tarr, Director of Medical Education for the department, continues to play a major role in running the two modules of the medical curriculum - Cardiopulmonary and Renal-Endocrine. To the credit of all the individual faculty instructors and particularly to Merrill, the Cardiopulmonary and Renal-Endocrine modules were both rated highly by the students. This was again another very 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. They each won the Student Voice Award for “Outstanding Lecturer” in the first year of the medical curriculum. This continues what is now many consecutive years for each of them winning this award. We congratulate both John and Gustavo on their teaching success. And once again this year our department was the recipient of the “Outstanding Module in the First Year” award which went to Cardio-pulmonary. Dr. Tarr serves as director of this module and he deserves a lot of credit for its success.

The medical curriculum will expand to a full four year program at Wichita with eight students starting next year and eventually expanding to about 25. Particularly noteworthy is the fact that a former long-term member of our department, Dr. Dennis Valenzeno, was recruited from his roles as Associate Dean for Medical and Pre-Medical Programs and Director of the Alaska WWAMI Biomedical Program at the University of Alaska at Anchorage to become Associate Dean for Medical Sciences and Chair of the Department of Medical Sciences at the University of Kansas Medical Center at Wichita. Congratulations to our long-time friend and colleague and welcome back. A four year program will also be initiated in Salina with eight students entering the program in the Fall of 2011.

MORE STATE RESCISSION: The rescission continued this year with our department returning another 5% of state funding. This continues to be a painful exercise that has resulted in permanent elimination of faculty and staff positions. We look forward to better times in the future and hopefully a year with no more rescissions.
**TENURE TRACK APPOINTMENTS:** We are pleased and excited to have added Dr. Shri Anant to the department as a new full professor. In addition to his appointment in our department, Shri is Associate Director of Cancer Prevention and Control within the University of Kansas Cancer Center. He is also Associate Dean for Research and Graduate Studies in the School of Medicine. Prior to joining our department, Shri led the gastrointestinal cancers program at the University of Oklahoma Cancer Institute where he was also director of gastroenterology research. Among Shri’s many research accomplishments is the discovery of a new gene, RBM3, which can transform normal cells into cancer cells. Blocking the expression of RBM3 causes the cancer cells to die. He is also well known for determining the mechanism of action of natural products such as curcumin in preventing cancer. Shri is a key member of a new research theme within our department focusing on the pathophysiology of cancer.

**RESEARCH TRACK APPOINTMENTS:** There were many new appointments to the research track during the year.

- **Satish Ramalingam, Ph.D.** was appointed at the assistant professor level. Satish was recruited from the University of Oklahoma Medical Center and works closely with Dr. Anant. Satish’s research interest is the role of RNA binding proteins in tumor progression and metastasis.

- **Dharmalingam (Dharma) Subramaniam, Ph.D.** was appointed at the assistant professor level. Dharma was also recruited from the University of Oklahoma Medical Center with Dr. Anant. Dharma works on the mechanisms by which gastric epithelial cells respond to the small peptide hormones gastrin and pro-gastrin, and also the pathophysiology of infection by Helicobacter pylori. He also has an interest in mechanisms by which dietary phyto-chemicals inhibit the growth of colon and pancreatic cancer cells.

- **Lynda McGinnis, Ph.D.** was appointed to the research track as an assistant professor. Lynda received her Ph.D. from our department working with Dr. David Albertini and then has been working as a postdoctoral fellow with Bill Kinsey. Her research interest focuses on the embryonic developmental effects of in-vitro manipulation techniques commonly used for in vitro fertilization.

- **Vijayalaxmi (Vijay) Gupta, Ph.D.** was appointed as research assistant professor. She received her Ph.D. from Mumbai University in India and has been working as a postdoctoral fellow with Dr. Tash since 2007. Her work focuses on the male contraceptive agent H2-Gamendazole and the effects of microgravity on reproductive health.

- **Prabhu Ramamoorthy, Ph.D.** joined the department at the assistant professor level from the University of Kansas, Lawrence. His research interest is the regulation of hypoxia protein-1 (HIF-1) in cortical neurons during ischemia. He will be working closely with Dr. Anant as a mentor.
**JOINT AND ADJUNCT APPOINTMENTS:** Several secondary appointments to the department were made.

Danny Welch, Ph.D., was given a joint appointment as professor in the department. He is Chair of the new Department of Cancer Biology and also serves as Associate Director of Basic Science within the University of Kansas Cancer Center. His research interest is tumor progression and metastasis. He interacts closely with the cancer biology members of our department.

Alan Yu, MB, BChir, was given a joint appointment as professor in the department. Alan is the new Director of the Kidney Institute and also division director of nephrology within the department of Internal Medicine. Before joining KUMC, Alan was an associate professor of medicine, physiology and biophysics at the Keck School of Medicine at the University of Southern California. His research interest is the molecular and structural basis of paracellular epithelial transport and its regulation. Paracellular transport refers to transport in between cells.

Rachel Williams, Ph.D., is a recent graduate of our department. She was given an adjunct appointment as research instructor. Her current position is senior research scientist with the Midwest Neuroscience Institute in Lenexa, KS. She is involved with the research program of the Institute which includes animal studies that utilize some of the resources of the Medical Center.

**FACULTY PROMOTIONS:** Congratulations to Dr. Paige Geiger who was promoted to associate professor with tenure. Paige’s research focuses on the mechanism of insulin resistance and its role in type II diabetes. In addition to her NIH funded research program, she makes an integral contribution to both the medical and graduate education programs of the department.

**FACULTY/STAFF DEPARTURES:**

*Linda Carr retires as department administrator:* After 31 years and 11 months of service to the Physiology Department, Linda Carr decided the time was right to retire. Linda had a very difficult year starting in June of 2010 with acute and severe stricture of the colon requiring surgery and hospitalization for many weeks. The good news is that Linda has made a complete recovery and is enjoying retirement immensely. Linda was a storehouse of knowledge about the department and medical center. She led the Physiology office with great efficiency and dedication throughout her tenure. We all deeply appreciate her contributions to the department and her continuing friendship.

**FACULTY AWARDS/ACCOMPLISHMENTS:**

Merrill Tarr wins three teaching awards: Congratulations to Dr. Tarr on winning three teaching awards over the past year and a half. Merrill won the Bohan...
Teaching Award in 2009, which was presented at the annual Education retreat. He also won the Chancellor's Club Distinguished Teaching award, which was recognized at the 2010 Commencement in May; and the Kemper teaching award, which was presented at a medical student lecture in September. Merrill has done a remarkable job as Director of Medical Education in the Department and these awards are well deserved.

Numerous members of our faculty served on NIH grant review panels, editorial boards for journals and gave invited lectures at other Universities and at national and international meetings.

GRADUATE PROGRAM AND PHYSIOLOGY SOCIETY: The graduate students in the department had another active year. The “Physiology Society” leadership included Eva Selfridge as President, Ed Urban as Vice President and Valentine Agbor as Social Event Coordinator. We are very pleased with the growth of the graduate program in Physiology. In August of 2010, six new students were recruited to the department. Including students who are working at Stowers with faculty members who have their academic appointment in Physiology, we now have forty doctoral students actively enrolled in the department.

Nine students completed their degrees during the year. Emily McDonald (July 12, 2010) received her degree with Dr. Wolfe. The title of her dissertation was “A Role for Adiponectin in Trophoblast Function.” Emily has a post-doctoral position at Brown University. Jie Chao (August 20, 2010) received his degree with Dr. Gonzalez. The title of his dissertation was “Mechanisms of Microvascular Inflammation Induced by Alveolar Hypoxia.” Jie is now a post-doctoral research associate in the Cellular and Integrative Physiology Department at the University of Nebraska Medical Center. Sarah Tague (March 21, 2011) received her degree with Dr. Smith. The title of her dissertation was “Vitamin D Deficiency causes Musculoskeletal Hypersensitivity: The Role of Nociceptor Hyperinnervation.” Sarah decided to stay at KUMC for a post-doctoral fellowship with Dr. Peter Smith. Heather Hudson (April 12, 2011) received her Ph.D. with Dr. Cheney. The title of her dissertation was “Cortiospinal Output to Hindlimb Muscles in the Primate.” Heather is now a post-doctoral fellow in the Neurology Department at the University of Minnesota. Brittany Gorres (April 15, 2011) received her degree with Dr. Geiger. The title of her dissertation was “Estrogen Receptor Regulation of Glucose and Fat Metabolism in the Skeletal Muscle and Adipose Tissue.” Brittany is now an Assistant Professor of Physiology at Cleveland Chiropractic College. Tamara Jimenez Alarcon (June 7, 2011) received her degree with Dr. Blanco. The title of her dissertation was “The Na,K-ATPase α4 Isoform: Mechanisms of Action, Regulation and Relevance to Male Fertility.” Tamara also decided to stay at KUMC as a post-doctoral fellow with Dr. Gustavo Blanco. Won-Mee Park (June 10, 2011) received her degree with Dr. Belousov. The title of her dissertation was “Interplay of Chemical Neurotransmitters Regulates Developmental Increase in Electrical Synapses.” Won-Mee is now a post-doctoral fellow in the Department of Internal Medicine at the University of Texas Southwestern Medical
Center in Dallas, TX. **Jill Morris** (June 17, 2011) received her degree with Dr. Geiger. The title of her dissertation was “Nigrostriatal Dopamine Function and Insulin Resistance.” Jill stayed at KUMC for a post-doctoral fellow with Dr. Paige Geiger. And finally, **Kendall Smith** (June 29, 2011) received her degree with Dr. Hawley. The title of her dissertation was “Characterization of Matrimony’s Role as a Polo Kinase Regulator during Drosophila Female Meiosis.” Kendall is an MD/PhD student and is now finishing up her medical degree at KUMC. Congratulations to all of them 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 Krizsan-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

Department of Molecular & Integrative Physiology Graduate Students
2010-2011

Front Row (left to right): Beth Dille, Keke Pounds, J.B. Fitzgerald, Valentine Agbor, David Guggenmos, Bliss O’Bryhim, William Messamore

Back Row (left to right): Argenia Doss, Evan Janzen, Li Chen, Anand Venugopal, Edward Urban, Scooter Plowman

Not Pictured: Crystal Bethel-Brown, Aritra Bhattacherjee, Guangbo Chen, Timothy Donohue, Jitu George, Jason Gill, Kyle Jansson, Tamara Jimenez, Ram Kannan, Lacey Luense, Aracely Lutes, Elizabeth Moran, Jill Morris, Lili Pan, Carrie Quinn, Eva Selfridge, Sarah Smith, Ji Hoon Song, Philip Stevenson, Sarah Tague, Wen Tang, Gustaf Van Acker, Huan Yang, Chuankai Zhou
DEPARTMENT ROSTER
July 1, 2010 – June 30, 2011

a. Faculty
Primary Appointment in Physiology
Paul D. Cheney, Ph.D., Professor & Chairman
David F. Albertini, Ph.D., Professor
Shrikant Anant, Ph.D., Professor & Associate Director of Cancer Prevention and Control
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., Associate Professor
Norberto C. Gonzalez, M.D., Professor
Leslie L. Heckert, Ph.D., Professor
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 of the Institute for Neurological Disorders, Co-Director of the 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 of the 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
Navneet Dhillon, Ph.D., Research Assistant Professor
Shawn Frost, Ph.D., Research Assistant Professor
Vijayalaxmi Gupta, Ph.D., Research Assistant Professor
Dora Krizsan-Agbas, Ph.D., Research Assistant Professor
Melissa Larson, Ph.D., Research Assistant Professor & Director of Transgenic Facility
Lynda McGinnis, Ph.D., Research Assistant Professor
Mihai Popescu, Ph.D., Research Assistant Professor
Satish Ramalingam, Ph.D., Research Assistant Professor
Dharmalingam Subramaniam, Ph.D., Research Assistant Professor
Stan Svojanovsky, Ph.D., Research Associate Professor

Adjunct and Joint Appointment in Physiology
Richard Barohn, Ph.D., Professor (Chair, Neurology)
Sandra Billinger, PT, Ph.D., FAHA, Research Assistant Professor (Physical Therapy and Rehabilitation Science)
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)
Jill Jacobson, M.D., Professor (Chief, Endocrinology/Diabetes, Children’s Mercy Hospital)
Gregory Kopf, Ph.D., Associate Vice Chancellor for Research
Benyi Li, Ph.D., Assistant Professor (Internal Medicine)
Joshua Mammen, M.D., Assistant Professor (General Surgery)
Ajay Nangia, Associate Professor (Urology Surgery)
Jules Nazzaro, M.D., Associate Professor (Neurosurgery)
Warren Nothnick, Ph.D., Associate Professor (Ob-Gyn)
Brian Petroff, DVM, Ph.D., Assistant Professor (Internal Medicine & Scientific Director, Breast Cancer Prevention Center)
Janet Pierce, D.S.N., Professor (School of Nursing)
Cary Savage, Ph.D., Director, CHBN and John H. Wineinger Professor of Psychiatry and Behavioral Sciences (Center for Health Behavior Neuroscience)
William (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)
Adjunct and Joint Appointments in Physiology (continued)
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)
Mark Weiss, Ph.D., Professor (Kansas State University)
Danny Welch, Ph.D., Professor & Chairman (University of Kansas Cancer Center)
Rachel Williams, Ph.D., Research Instructor (Senior Research Scientist, MidAmerica Neuroscience Institute)
Alan Yu, MB, BChir, Professor & Director (Nephrology and Hypertension)
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<th>b. Graduate Students</th>
<th>Joined Physiology</th>
<th>Prelims</th>
<th>Candidate</th>
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<tr>
<td>Valentine Agbor</td>
<td>11/07</td>
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<td>Ph.D.</td>
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<td>Crystal Bethel-Brown</td>
<td>08/06</td>
<td>01/11</td>
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<td>Aritra Bhattacherjee</td>
<td>05/07</td>
<td>12/08</td>
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<tr>
<td>Jie Chao</td>
<td>08/07</td>
<td>05/09</td>
<td>Ph.D.</td>
<td>08/10</td>
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<td>Guangbo Chen</td>
<td>08/08</td>
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<td>Elizabeth Dille</td>
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<tr>
<td>Timothy Donohue</td>
<td>08/06</td>
<td>12/07</td>
<td>M.D./Ph.D.</td>
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<tr>
<td>Argenia Doss</td>
<td>08/06</td>
<td>11/07</td>
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<td>J.B. Fitzgerald</td>
<td>08/08</td>
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<tr>
<td>Jitu Wilson George</td>
<td>12/06</td>
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<td>Jason Gill</td>
<td>06/09</td>
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<td>Brittany Gorres</td>
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<td>08/08</td>
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<tr>
<td>David Guggenmos</td>
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<td>Heather Hudson</td>
<td>08/03</td>
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<tr>
<td>Kyle Jansson</td>
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<td>Tamara Jimenez</td>
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<td>Ram Kannan</td>
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<td>Megan Kreitner</td>
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<td>Lacey Luense</td>
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<td>Aracely Lutes</td>
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<td>Emily McDonald</td>
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<td>William Messamore</td>
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<td>Elizabeth Moran</td>
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<td>Jill Morris</td>
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<td>Bliss O'Bryhim</td>
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<td>Lili Pan</td>
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<td>Won-Mee Park</td>
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<td>Carrie Quinn</td>
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<td>Kendall Smith</td>
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<td>Sarah Smith</td>
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<td>Ji Hoon Song</td>
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<td>Phillip Stevenson</td>
<td>06/08</td>
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<td>Sarah Tague</td>
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<td>09/07</td>
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<td>Wen Tang</td>
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<td>Edward Urban III</td>
<td>07/07</td>
<td>01/11</td>
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<td>Gustaf Van Acker</td>
<td>07/07</td>
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<td>Anand Venugopal</td>
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<td>Huan Yang</td>
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<td>Chuankai Zhou</td>
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c. Postdoctoral Fellows
Lesya Holets, Ph.D.
Vijayalaxmi Gupta, Ph.D.
David McNeal, Ph.D.
Cate Moriasi, Ph.D.
Parasarathy Rangarajan, Ph.D.
Huizhen Wang, Ph.D.
Youngfu Wang, Ph.D.
Gwenaelle Wernli, Ph.D.
Rachel Williams, Ph.D.
Bing Xue, Ph.D.

d. Temporary Students
Sommer Amudsen
Kyle Brost
Sydney Byrne
Edward Doyle
Elizabeth Echalier
Elizabeth Esco
Cody Heston
Jessica Hogan
Cassandra Johnson
Jessica Johnson
Christopher Leto
Laura Kelly
Stefanie Kennon-McGill
Navid Khodaorast
Catlin Maloney
Ashley May
Molly McGraw
Joel Mermis
Mariko Nishibe
Andrea Pack
Jonathan Pankow
Ramesh Padmanabhan
Nairita Roy
Michael Seim
Audrey Shamet
Miranda Starr
Dane Stephens
Nancy Stiles
Rong Tao
Derek Taylor
Lalit Venkatesan
Ashley Ward
Kelsey Weigel
Kathleen White
Malissa Wolfe
e. Research Staff
Julie Allen – Research Associate
Janna Belousova – Senior Research Assoc.
Gregory Bomhoff – Research Associate
Mandy Burks – Research Technician
Anuradha Chakrabarty – Senior Scientist
Anindita Chatterjee – Research Assistant
Steven Curry – Research Technician
Ian Edwards – Research Assistant
Stan Fernald – Research Associate
Haihua Gu – Research Assistant
Todd Hall – Research Assistant
Ramakrishna Hegde – Senior Scientist
Xiaoman Hong – Senior Research Assoc.
Lovella Inisienmay – Research Assistant
Fenglan Jia – Research Assistant
Tatiana Karpova – Senior Scientist
Jill Koehler – Research Assistant
Brian Kern – Research Assistant
Sarika Kshirsagar – Research Associate
Zhaoxui Liao – Research Assistant
Darlene Limback – Research Associate
Jeff McDermott – Research Associate
Sivapriva Ponnurangam – Research Assoc.
Daren Rice – Research Associate
Gladis Sanchez – Research Associate
Adam Schooley – Clinical Res. Coordinator
Madhulika Sharma – Senior Scientist
David Standing – Research Technician
Lovella Tejada – Research Assistant
Binny Varghese – Research Associate
Suwen Wei – Senior Research Associate
Jonathan Wheatley – Research Associate
Hongyu Zhang – Senior Scientist

f. Support Staff
Leigh Ann Arbuckle – Senior Coordinator
Linda Carr – Administrative Officer
Lynn LeCount – Managing Editor
Cindy Martin – Editorial Coordinator
Barbara Shull – Administrative Assistant
Linda Spears – Finance Officer
Shari Standiferd – Operations Manager
Jennifer Wallace – Administrative Assistant
Notes Concerning Graduate Students

Valentine Agbor won the United States National Institutes of Health Trainee Travel Award to support a presentation at the 36th Annual Conference of ASA in Montreal, Quebec, Canada. He also attended the XXI Testis Workshop and gave a poster and platform presentations at the 36th Annual ASA Conference.

Aritra Bhattacherjee received two KUMC Biomedical Training Program Grants from July 2010 to June 2011 and from July 2011 to June 2012. He presented a talk at the Gilbert S. Greenwald Symposium in September 2010 entitled Estrogen induces female reproductive tract sensory nerve plasticity by modulating BMP4. Also, he was a first author on an abstract entitled, Bone Morphogenetic Protein 4 as a mediator of estrogen induced sensory axon plasticity for the Society for Neuroscience annual meeting in November 2010.

Crystal Bethel-Brown was first author on a paper entitled "HIV-1 Tat-mediated Induction of Platelet-derived growth factor-BB in astrocytes: Role of Early Growth Response Gene 1" published in the Journal of Immunology. Crystal attended the Society for Neuroimmune Pharmacology's annual meeting held in Clearwater, Florida in April where she was awarded a first place young investigator award and gave a platform presentation entitled "Platelet-derived growth factor in astrocytes: what's Tat about?" Crystal successfully defended her dissertation titled: "Astrocyte-Endothelial interactions: implications for HIV-associated Neurocognitive Disorders (HAND)" on July 11th, 2011.

Tamara Jimenez was the first author on a paper entitled "Na,K-ATPase alpha4 isoform is essential for sperm fertility" published in the Proceedings of the National Academy of Sciences. Tamara was also first author on a paper pushed in Biology of Reproduction and entitled "Increased expression of the Na,K-ATPase alpha4 isoform enhances sperm motility in transgenic mice". She also co-authored a apaper entitled "MAP/ERK kinase kinase 1 (MEKK1) mediates transcriptional repression by interacting with polycystic kidney disease-1 (PKD1) promoter-bound p53 tumor suppressor protein" published in the Journal of Biological Chemistry. Tamara was the first author of an abstract presented at the annual meeting of the Society for the Study of Reproduction entitled "Na,K-ATPase alpha4 isoform is essential for sperm fertility". Tamara gave presentations entitled "Na,K-ATPase alpha4 isoform is essential for sperm fertility" at the Student Research Forum and "Increased expression of the Na,K-ATPase alpha4 isoform enhances sperm motility in transgenic mice" at the Gilbert S. Greenwald Symposium. She also was the first author of an abstract presented at the Gilbert S. Greenwald Symposium entitled "The Na,K-ATPase α4 isoform is regulated during sperm capacitation"

Lacey Luense was selected as a finalista for the Cornelia Channing New Investigator award at the Ovarian Workshop in Milwaukee, WI in July of 2010, where she was invited to give a talk on Developmental Programming: Maternal Testosterone Excess Alters Fetal Ovarian mRNA and microRNA Gene Expression. Lacey also received a USDA NRI CSREES Merit Award and was selected to give a platform presentation for
her abstract *Developmental Programming: Gestational Testosterone Treatment Alters Fetal Ovarian Steroidogenic Gene Expression* at the 43rd Annual Society for the Study of Reproduction in Milwaukee, WI. She also presented at the KUMC Student Research Forum, Greenwald Symposium, and received a Graduate Student Travel Research grant.

Will Messamore received the Graduate Studies Student Union Corporation Travel Award and the School of Medicine Student Union Corporation Travel Award to present his abstract at the Society for Neuroscience Meeting 2010, titled “Output effects in hindlimb muscles assessed with spike triggered averaging of EMG activity from individual M1 cortical cells.” He also presented the talk "Postspike effects of hindlimb muscle activity by primate corticomotoneuronal cells" at the last Student Research Forum.

Jill Morris was first author two papers, "*Insulin resistance impairs nigrostriatal dopamine function,*" published in Experimental Neurology, and "*Neurodegeneration in an animal model of Parkinson’s disease is exacerbated by a high fat diet,*" published in the American Journal of Physiology: Regulatory and Integrative and Comparative Physiology. She was also co-author on two papers: "*Insulin Receptor Substrate 2 Expression and Involvement in Neuronal Insulin Resistance in Diabetic Neuropathy,*" published in Experimental Diabetes Research, and "*In vivo stimulation of estrogen receptor alpha increases insulin-stimulated skeletal muscle glucose uptake,*" published in the Journal of Physiology. She presented a poster: "*A high fat diet attenuates dopamine function and impairs iron homeostasis in the substantia nigra*" at the Society for Neuroscience national meeting in San Diego, CA in November. Jill successfully defended her dissertation titled "*Nigrostriatal Dopamine Function and Insulin Resistance*" on June 17, 2011.

Bliss O’Bryhim won first place in the paper session of the Midwest Eye Research Symposium held at the University of Iowa on July 29th for her presentation, "*Endothelial Progenitor Cell Recruitment in Retinal Revascularization*. She was the first author on an abstract, "*Modification of Endothelial Progenitor Cell Recruitment by Tyrosinase in Oxygen Induced Retinopathy*," presented at the Gordon Research Conference on Angiogenesis in August. She also presented her abstract "*Genetic Control of Avascular Area in Oxygen-Induced Retinopathy*," at the annual Association for Research in Vision and Ophthalmology (ARVO) international conference in May. She passed her comprehensive exam on April 26th. Bliss also served as Co-President of the Student Governing Council and President of the MD/PhD Student Council.

R. Scooter Plowman was a co-author on a paper entitled "Sixteen-year single-surgeon experience with coil embolization for ruptured intracranial aneurysms: recurrence rates and incidence of late rebleeding," published in March in the Journal of Neurosurgery. He was awarded a Medical Student Travel Scholarship to present his first author poster entitled “*Durotomy: the effects of breaching the dura on behavioral recovery, lesion volume, and cellular morphology following acute TBI*" at the 29th annual National Neurotrauma Society Symposium held in Ft. Lauderdale, FL. In March, Scooter also
delivered a slide presentation entitled "Effects of dural patency on behavioral recovery and lesion morphology following acute traumatic brain injury in rats," for which he received a first place award for best student presentation. Scooter served as Co-President for the Student Governing Council (SGC) during the 2010-11 year and was also Vice-President and then Co-President of the Radiology Student Interest Group (RSIG). He had the opportunity to sit on the Steering Committee for the 2010-2011 Strategic Planning Council and also participated as the student member of the 2011 five-year performance review committee for the Executive Vice Chancellor, Dean Atkinson. On May 24th, 2011 Scooter spoke at the Governor’s Life Science Summit and he served as an active member of both the KU Honor Council and the Graduate Student Council. Scooter also worked as a teaching assistant for the Medical School in the fall and spring semesters.

Sarah Tague renewed a ’Ruth L. Kirschstein National Research Service Award for Individual Predoctoral Fellowship’ (F31) from the National Institute on Aging. She was first author on a manuscript entitled “Vitamin D receptor and enzyme expression in dorsal root ganglia of adult female rats: modulation by ovarian hormones” published in the Journal of Chemical Neuroanatomy. She was also a co-author on a paper entitled “β-adrenoceptor blockers increase cardiac sympathetic innervation by inhibiting autoreceptor suppression of axon growth” published in the Journal of Neuroscience. She presented seminars to the KUMC Department of Nutrition and the Institute for Neurological Disorders. On March 21st, 2011 she successfully defended her dissertation titled: “Vitamin D Deficiency Causes Musculoskeletal Hypersensitivity: The Role Of Nociceptor Hyperinnervation.”

Anand Venugopal submitted a fellowship application to NIDDK. He also presented a poster at the AACR 102nd annual meeting entitled “Novel splicing activity for RNA binding protein CUGBP2 in radiation-induced mitotic catastrophe.” Also, he is a co-author on a paper entitled, “Overexpression of proto-oncogene RMB induces potent tumor formation by converting normal cells to cancer stem cells” submitted to Nature Medicine. Finally, he is a co-author on a paper entitled, “Suppression of tumor growth and metastasis: Therapeutic implications for RNA binding protein CUGBP2” under preparation for PNAS.

Huan Yang was first author on a poster "RDE-10 and RDE-11 compose a novel complex required for RNAi-induced mRNA turnover in C. elegans" for 2011 18th International Worm Meeting held in UCLA.
COURSES TAUGHT

**Medical Curriculum Core Courses**
CORE 815 – *Cardiopulmonary*. Drs. Geiger, Gonzalez, Tarr, Wood

CORE 820 – *Gastrointestinal Tract and Nutrition*. Dr. LeVine

CORE 825 – *Renal and Endocrine System*. Dr. Blanco and Wolfe

CORE 830 – *Reproduction and Sexuality*. Dr. Albertini and Wolfe


**Departmental Graduate Courses**
PHSL 834 – *Reproductive Physiology*. Drs. Chennathukuzhi, Heckert, Kumar and Wolfe


PHSL 846 – *Advanced Neuroscience*. Drs. Cheney, Enna, Lee, Smith and Stanford

PHSL 848 – *Molecular Mechanisms of Neurological Disorders*. Drs. Dhillon, LeVine and Stanford

PHSL 851 – *Seminar*. Dr. Christenson

**IGPBS Courses**
GSMC 851 – *Molecular Genetics*. Drs. Christenson and Kumar

GSMC 852 – *Introduction to Biomedical Research I*. Dr. Christenson

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

GSMC 854 – *Cell Communication*. Dr. Albertini

GSMC 855 – *Introduction to Biomedical Research II*. Dr. Albertini
DEPARTMENT SEMINARS

The Department Seminar program was directed by Dr. David Albertini. Thirty nine speakers made presentations, twelve 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 Mary Ann Handel from the Jackson Laboratory. The Fred Samson Jr. Memorial Lectureship sponsored Eberhard Fetz from the University of Washington.

07/12/10 Emily McDonald
Graduate Student
Molecular & Integrative Physiology
KUMC
A Role for Adiponectin in Trophoblast Function

08/20/10 Jie Chao
Graduate Student
Molecular & Integrative Physiology
KUMC
Mechanisms of Microvascular Inflammation Induced by Alveolar Hypoxia

09/13/10 Barry B. Kaplan, Ph.D
Senior Investigator
Laboratory of Molecular Biology
NIMH
Bethesda, MD
Subcellular Compartmentation of Neuronal Protein Synthesis: New Insights into the Biology of the Neuron

09/20/10 Mark L. Weiss, Ph.D.
Associate Professor of Neuroscience
Department of Anatomy & Physiology
Kansas State University
School of Veterinary Medicine
Manhattan, KS
Using Embryonic Stem Cells to Generate Models of Human Disease

09/24/10 Timothy J. Donohue
Graduate Student
Molecular & Integrative Physiology
KUMC
Heart Failure Reduces Parasympathetic Prejunctional Modulation of Sympathetic Nerves: Implications Regarding Sinoatrial Node Volume and Relative Sympathetic Nerve Increases
09/27/10  Lisa Stethno-Bittel, Ph.D.  
Professor & Chair  
Physical Therapy & Rehabilitation Sciences  
KUMC

What Makes a Perfect Islet

10/04/10  Paige C. Geiger, Ph.D  
Assistant Professor  
Molecular & Integrative Physiology  
KUMC

Heat Shock Proteins and the Pathogenesis of Insulin Resistance

10/18/10  Sonia C. Flores, Ph.D.  
Associate Professor of Medicine  
Division of Pulmonary Sciences and Critical Care Medicine  
University of Colorado Health Sciences Center  
Denver, CO

Inflammation in HIV-Related Pulmonary Hypertension: Cause or Effect? Lessons from Animal Models

10/25/10  Satish Ramalingam, Ph.D.  
Research Assistant Professor  
Molecular & Integrative Physiology  
KUMC

RNA Binding Proteins in Radiation-Mediated Autophagy

11/01/10  Charlotte Vines, Ph.D.  
Assistant Professor  
Microbiology, Molecular Genetics & Immunology  
KUMC

Chemokine Receptor CCR7 and Models of Human Disease

11/08/10  Sherry Fleming, Ph.D.  
Assistant Professor  
Division of Biology  
Kansas State University  
Manhattan, KS

Innate Immune Response to Ischemia/Reperfusion-Induced Injury

11/15/10  Barry Zirkin, Ph.D.  
Professor  
Department of Biochemistry & Molecular Biology  
Johns Hopkins University  
Baltimore, MD

Leydig Cell Development and Aging Mechanisms and Consequences
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<td>11/22/10</td>
<td>T. Rajendra Kumar, Ph.D.</td>
<td>Genetics &amp; Pathophysiology of Gonadotrope Tumors</td>
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<td>11/29/10</td>
<td>Shui Qing Ye, M.D., Ph.D.</td>
<td>Role of Nicotinamide</td>
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<td>Phosphoribosyltransferase in Type II Diabetes and Obesity</td>
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<td>Medical Research, Pediatrics, Informatic Medicine and Personalized Health Director</td>
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<td>Medical Genetic Research &amp; Core of Personalized Genomics</td>
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<td>12/06/10</td>
<td>Annabelle Rodriguez, M.D.</td>
<td>A Link between Lipids and Fertility: Scavenger Receptor Class B Type I</td>
<td>A Link between Lipids and Fertility: Scavenger Receptor Class B Type I</td>
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<td>12/13/10</td>
<td>Lacey Luense</td>
<td>Effects of Excess Maternal Testosterone on mRNA and microRNA Gene Expression in the Ovary</td>
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<td>02/07/11</td>
<td>Bryan Copple, Ph.D.</td>
<td>Role of Hypoxia-Inducible Factors in Fibrosis</td>
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<td>02/14/11</td>
<td>Hao Zhu, Ph.D.</td>
<td>ER Stress and Oxidative Stress in Ncb5or Diabetes Mouse Model</td>
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02/21/11 Ajay Nangia, M.D.  
Associate Professor  
Urology Surgery  
KUMC  
Azoospermia – Clinical, Scientific and Ethical Dilemma

02/28/11 Matthew Anway, Ph.D.  
Research Assistant Professor  
Molecular & Integrative Physiology  
KUMC  
Fetal Basis of Prostate Disease via Alterations in Epigenetics

03/07/11 Eberhard E. Fetz, Ph.D.  
Professor, Department of Physiology & Biophysics  
Core Staff, Regional Primate Research Center  
University of Washington  
Seattle, WA  
Applications of Recurrent Brain-Computer Interfaces

03/21/11 Sarah Tague  
Graduate Student  
Molecular & Integrative Physiology  
KUMC  
Vitamin D Deficiency causes Musculoskeletal Hypersensitivity: The Role of Nociceptor Hyperinnervation

03/21/11 Pauline Kay Lund, Ph.D.  
Sarah Graham Kennan Professor  
Department of Cell & Molecular Physiology  
University of North Carolina  
School of Medicine  
Chapel Hill, NC  
IGF/Insulin Axis: Intestinal Growth, Cancer & Stem Cells

03/28/11 Valentine Agbor  
Graduate Student  
Molecular & Integrative Physiology  
KUMC  
DMRT1 Regulates Distinct Biological Pathways in Sertoli Cells and Germ Cells

04/04/11 Timothy M. Miller, M.D., Ph.D.  
Assistant Professor  
Department of Neurology  
Washington University School of Medicine  
St. Louis, MO  
Mitochondria and Lou Gehrig’s Disease
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<td>Mary Ann Handel, Ph.D.</td>
<td>Regulation of Meiotic Progression</td>
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<td>Brittany Gorres</td>
<td>Estrogen Receptor Regulation of Glucose and Fat Metabolism in the Skeletal Muscle and Adipose Tissue</td>
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<td>Elizabeth Dille</td>
<td>cis-Regulation of the Follicle Stimulating Hormone Receptor Gene</td>
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<td>Gerald Carlson, Ph.D.</td>
<td>Structural Evidence for Co-Evolution of the Regulation of Contraction and Energy Production in Skeletal Muscle</td>
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<td>Biochemistry &amp; Molecular Biology KUMC</td>
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<td>04/28/11</td>
<td>Ramamurthi Rallapalli, Ph.D, FNA, FNASc, FNAAS</td>
<td>Psoriasis: Current Trends in Biotechnological Interventions</td>
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<td>Sri Ramaswamy Memorial University</td>
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<td>Former Vice Chancellor, Sri Venkateswara University</td>
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<td>Former Vice Chancellor, Sri Venkateswara University</td>
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<td>Scientist, Indian Space Research Organization</td>
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<td>05/02/11</td>
<td>Berl R. Oakley, Ph.D.</td>
<td>An Unexpected Role for Gamma-Tubulin in Cell Cycle Regulation</td>
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<td>Lawrence, KS</td>
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05/09/11 Harvey Fisher, Ph.D.
Professor
Biochemistry & Molecular Biology
KUMC

The Odyssey of an Enzyme Chemist

05/16/11 G. Stennis Watson, Ph.D.
Research Clinical Neuropsychologist
VA Puget Sound Health Care System
Assistant Professor
Department of Psychiatry & Behavioral Sciences
University of Washington School of Medicine
Seattle, WA

ASNIFF of Insulin: From Nose to Brain

05/23/11 Dharmalingam Subramaniam, Ph.D.
Research Assistant Professor
Molecular & Integrative Physiology
KUMC

Gastrin Mediated Carcinogenesis: Novel Target for Cancer Prevention

06/07/11 Tamara Jimenez-Alarcon
Graduate Student
Molecular & Integrative Physiology
KUMC

The Na,K-ATPase α4 Isoform: Mechanisms of Action, Regulation and Relevance to Male Fertility

06/11/11 Won-Mee Park
Graduate Student
Molecular & Integrative Physiology
KUMC

Interplay of Chemical Neurotransmitters Regulates Developmental Increase in Electrical Synapses

06/17/11 Jill Morris
Graduate Student
Molecular & Integrative Physiology
KUMC

Nigrostriatal Dopamine Function and Insulin Resistance

06/29/11 Sarah Kendall Smith
Graduate Student
Molecular & Integrative Physiology
KUMC

Characterization of Matrimony’s Role as a Polo Kinase Regulator during Drosophila Female Meiosis
PUBLICATIONS

a. Manuscripts Published


Christenson, L.K. MicroRNA regulation of Ovarian Function (Minireview) *Animal Reproduction* 2010 (July 1) 7(3): 129-133.


Dhillon, N.K*, Li, F., Xue, B., Tawfik, O., Morgello, S., Buch, S., O’Brien-Ladner, A. (*Corresponding Author). Effect of cocaine on HIV-mediated pulmonary endothelial and smooth muscle dysfunction. *Am J Respir Cell Mol Biol.* 2011 Jul; 45(1):40-52. Epub 2010 Aug 27. **Figure selected for the journal’s cover page.**


b. Manuscripts in Press


c. Abstracts


Belousov A. The role and regulation of neuronal gap junction coupling during development and neuronal injury. Conference "From Electrical Synapses to the Clinics". Bochum, Germany, 2011.


Gorres BK, Bomhoff GL, Geiger PC (2010) Activation of estrogen receptor α potentiates insulin-stimulated glucose uptake into skeletal muscle of female rats. ACSM Integrative Physiology of Exercise, Miami, FL


Graham ZA, Touchberry CD, Bomhoff GL, Geiger PC, Gallagher PM (2010) Integrin signaling following skeletal muscle damage. ACSM Integrative Physiology of Exercise, Miami, FL.


Jimenez T, Sanchez G and Blanco G. Activity of the Na,K-ATPase α4 isoform increases with sperm capacitation to support sperm motility. The Gilbert S.
Jimenez T, Sanchez G and Blanco G. 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, July 2010
Moran, E., Ramalingam, S., Subramaniam, D., Moriasi, C., and Anant, S., RBM3
Prevents Radiation-Induced Mitotic Catastrophe By Promoting Anaphase. The University of Kansas Cancer Center Research Symposium, Kansas City, KS, 2010.


Moriasi, C., Trevino, C., Subramaniam, D., Ramalingam, S., Awasthi, V., Aswathi, S., and Anant, S. Curcumin regulates Interleukin-6 expression in colon cancer cells. AACR Annual Meeting, Orlando, FL, 2011


Subramaniam, D., Awasthi, V., Houchen, C.W., Jensen, R.A., and Anant, S. A
novel curcumin derivative DiFiD prevents pancreatic cancer growth \textit{In vivo} by suppressing Notch-1. AACR Annual Meeting, Orlando, FL, 2011


Truog WE, Svojanovsky SR, Bloomer C, Norberg M, Smith PG. Single Nucleotide Polymorphisms (SNPs) and BPD: Possible New Associations. Abstract accepted for a poster and a presentation at the meeting of the Pediatric Academic Societies in Oct., 2010.


Wang Y., Denisova J.V., Kang K.S., Zhu B.T., Belousov A.B. Neuronal gap junctions are required for NMDA receptor-mediated excitotoxicity. \textit{SFN}


RESEARCH SUPPORT


NIH U54 Center for male contraceptive research and drug discovery grant supplement, Project II – Cardenolide inhibition of Na,K-ATPase alpha4 isoform as contraceptive agents, 2009-2011.


NIH-NICHD – “Program for a Research Center in Mental Retardation. P30 Center Grant.” August 1, 2006-July 31, 2011. Theme Leader, Dr. John Colombo (PI). 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.” April 01, 2010 – March 31, 2011. Principal Investigator: A. Bansal, Co-Investigator: L.K. Christenson. Direct only $30,000 and $5,000.


**S.J. Enna:** Elsevier – Editorial Office. Direct costs $183,360, indirect costs $12,318.

NICHHD – “Kansas University Training Program in Neurological and Rehabilitation.” Principal Investigator: R.J. Nudo, Co-Chair: S.J. Enna. Total award $1,144,745 (Year 01 $168,229).


**P.C. Geiger:** NIA/NIAMS – “Targeting stress-mediated pathways in the treatment of muscle insulin resistance.” Principal Investigator: P.C. Geiger. Direct costs $164,000, Indirect costs $82,000

NIH/NCRR – “Kansas IDeA Network of Biomedical Research Excellence (K-INBRE)” Major Starter Grant Title: Protective role of heat shock proteins in insulin resistance. Principal Investigator: J. Hunt. Direct costs $100,000, Indirect costs $50,000

NIH/NINDS – “Painful versus insensate diabetic neuropathy.” Principal Investigator: D. Wright. Direct costs $218,000 (0.6 calendar months), Indirect costs $109,000.


**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/year.

**M.A. Larson:** Center of Biomedical Research Excellence (COBRE) Institutional Development Award (IDeA), National Center for Research Resources, NIH – “Molecular regulation of cell development and differentiation.” September 27, 2007-June 30, 2012. Principal Investigator: D. Abrahamson. Total costs $11,000,000

Core B – “Transgenic Facility.” Principal Investigator: M.A. Larson. Total direct costs for entire project period $533,795.


Kansas IDeA Network of Biomedical Research Excellence (K-INBRE) – “Influences of the mTOR Pathway on the Development of Krabbe Disease.” May 1, 2011 – April 30, 2012. Catlin Maloney (Senior at Rockhurst University in Kansas City, MO), Faculty Sponsor: S.M. LeVine. Direct costs $4,000, indirect costs $2,000.


NASA – Long Term Space Flight Impacts on Male Reproductive Health. Costs $80,572


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

NIH – “Training Program in Environmental Toxicology.” Principal Investigator: C. Klaassen, Co-Investigator: J.G. Wood (5% effort)
ACTIVITIES OF STAFF

David F. Albertini, Ph.D., 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:
- September 2010 – Federation of Fertility Societies, Munich Germany
- December 2010 – International Human Oocyte IVM Meeting, Milan, Italy
- February 2011 – IMSI IVF Symposium, Guadalajara, Mexico
- April 2011 – NIH Symposium on Biotechnology, Pullman, WA

Committee Activities:
- Departmental
  - Chair, Seminar Committee
- KUMC
  - Member, Executive Faculty Council
- National
  - Ad hoc, NIH CMIR Study Section
  - Study Section Chair, TEDCO Stem Cell Program, Maryland State
  (February 8-9, 2011)

Editorial and Grant Reviews:
- Editorial Board, 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
Dr. Albertini (continued)

Editorials and Grant Reviews (continued)
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*
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

Seminars Presented:
September 13, 2010 – “DNA damage repair in aging gametes.” International Federation of Fertility Societies, Munich, Germany
November 26, 2010 – “What are objective quality markers for oocytes?” McGill University Symposium on Human IVF sponsored by Serono International
December 2-4, 2010 – “Synchronizing oogenesis and folliculogenesis,” and “How oocyte-cumulus interactions impact nuclear and cytoplasmic maturation.” International Human Oocyte IVM Meeting, sponsored by Biogenesi, Ltd, Milan, Italy
February 4, 2011 – “Mechanisms of oocyte maturation,” and “Oocyte cryopreservation: making young eggs old.” Named lecture, Department of OB/GYN, Wayne State University, Detroit, MI
February 10, 2011 – “Regulating in vitro maturation of oocytes,” IMSI IVF Symposium, Guadalajara, Mexico
February 18, 2011 – “Linking oocyte history to embryo performance,” Graduate program in Reproductive Endocrinology, University of Wisconsin, WI
March 8, 2011 – “Linking oocyte quality to fetal aneuploidies,” Department of OB/GYN, University of Texas Southwestern, Dallas, TX
April 29, 2011 – “Human ARTs: past, present and future,” Washington State University, NIH Symposium on Biotechnology, Pullman, WA

Academic Honors:
Lecturer and Lab Instructor, Fronteirs in Reproduction Course Marine Biological Laboratory, Woods Hole, MA
Dr. Albertini (continued)

Teaching Activities:
   CORE 830 – Reproduction and Sexuality
       First year medical students (lecture and discussion group)
   GSMC 854 – Cell Communication
       2, 2 lecture hours
   GSMC 855 – Introduction to Biomedical Research II
       Module Coordinator
Shrikant Anant, Ph.D., Professor & Associate Director of Cancer Prevention and Control

I am an RNA biologist with interests in understanding the mechanisms that regulate gene expression at the posttranscriptional levels of mRNA stability and translation during tumorigenesis. My laboratory has been a leader in the identification of novel RNA binding protein protooncogenes and tumor suppressors. My lab members primarily focus their work on gastrointestinal cancers. Specific areas of research include: a) Regulation of gene expression at the levels of mRNA stability and translation, b) Cancer Stem Cells, and c) mechanisms of chemoprevention by dietary factors and its novel derivatives.

Meetings Attended:
October 4, 2010 – Roswell Park Cancer Institute, Buffalo, NY
October 22, 2010 – Dreams of Hope, Grandview, MO
November 10, 2010 – Lenexa Chamber of Commerce, Lenexa, KS
November 21-22, 2010 – CAMM Study Section, Washington DC
December 7, 2010 – Mariner Wealth Advisers, Leawood, KS
December 15-22, 2010 – ICR Symposium, India
January 3-8, 2010 – ISC 2011, India
January 20, 2011 – Men’s Cancer Event, Kansas City
February 2-5, 2011 – NCI SPORE Review, Washington DC
February 10-11, 2011 – NIH CDP Study Section, Washington DC
February 16-17, 2011 – NIDDK Fellowship, Washington DC
February 26, 2011 – IGPBS Recruitment Weekend, KUMC
February 28, 2011 – Kansas Legislators Talk, Topeka, KS
March 2, 2011 – Wayne State SPORE Review, Detroit, MI
March 24-25, 2011 – Visiting Professor NYU, New York
March 28, 2011 – NCI Kick Off Reception, Kansas City, KS
April 2-6, 2011 – AACR 102 Annual Meeting, Orlando, FL
April 14-15, 2011 – Invited Speaker Purdue, Indianapolis, IN
May 6, 2011 – Resident, Postdoc & Fellow Research Day, KUMC.
May 7-10, 2011 – DDW-GI Meeting, Chicago, IL.
June 3-5, 2011 – ASCO Annual Meeting, Chicago, IL
June 9-10, 2011 – NIH CDP Study Section, Washington DC
June 13, 2011 – GAST Study Section, Washington DC
June 16, 2011 – Biomedical Research Training Program Symposium, KUMC
June 23-24, 2011 – Study Section NCAMM PK19, Washington DC
June 30, 2011 – UMKC AAPS Student Chapter, KUMC.
Dr. Anant (continued)

Committee Activities:
Departmental
   Member, Phillip Stevenson Thesis Committee
   Member, Finance Officer Search Committee
KUMC
   Interviewer, Cancer Center and Molecular Regulation of Cell Development and Differentiation
KU
   Member, Amanda Erlund Thesis Committee, Molecular Biosciences
   Oklahoma University Health Sciences Center
   Member, Prachi Vilaker Thesis Committee, Pharmaceutical Sciences
   Member, Beverly Holden Thesis Committee, Cell Biology

Editorials and Grant Reviews:
   Ad hoc Reviewer, EMBO Journal
   Ad hoc Reviewer, PNAS USA
   Ad hoc Reviewer, Gastroenterology
   Ad hoc Reviewer, American Journal of Physiology-GI
   Ad hoc Reviewer, Digestive Diseases and Science
   Ad hoc Reviewer, American J. Physiology
   Ad hoc Reviewer, GI and Liver
   Ad hoc Reviewer, Cancer Research
   Ad hoc Reviewer, Digestion
   Ad hoc Reviewer, Cancer Letters
   Ad hoc Reviewer, International Journal of Cancer
   Editorial Board Member, Gastroenterology (2006-2011)
   Editorial Board Member, Amer J Physiol-GI and Liver (2009-2013)
   Editorial Board Member, eCAM (2006-present)
   Editorial Board Member, International Journal of Oncology (2008-present)
   Editorial Board Member, Clinical Medicine: Gastroenterology (2007-present)
   Editorial Board Member, European Journal of Clinical Medicine (2010-present)
   Reviewer, NIH CDP Study Section, Washington DC, October 6-8, 2010,
     February 9-11, 2011
   Reviewer, CAMM Study Section, Washington DC, November 21-22, 2010
   Reviewer, CON-CC-GC-KC Study Section, On-line, December 6-13, 2010
   Reviewer, NCI Spore Review – Study Section, Washington DC, February 2-5, 2011
   Reviewer, NIDDK Fellowship Study Section, Washington DC, February 16-17, 2011
   Reviewer, Wayne State SPORE Review, Detroit, MI, March 2, 2011
   Reviewer, NCAMM PK19 Study Section, Washington DC, June 9, 2011
   Reviewer, GAST Study Section, Washington DC. June 13, 2011
Dr. Anant (continued)

Seminars Presented:
October 10, 2010 – “RNA Binding Proteins: Backseat drivers in total control.” Roswell Park Cancer Institute, Buffalo, NY
December 7, 2010 – “Update on Areas of Research.” Mariner Wealth Advisers, Leawood, KS
December 15-22, 2010 – “RNA binding protein inhibiting tumor progression and Metastasis.” ICR Symposium, India
January 3-8, 2011 – “Utilizing the NF-B pathway.” ISC 2011, India
February 26, 2011 – “Cancer Biology.” IGPBS Recruitment Weekend, KUMC
March 24-25, 2011 – “RNA binding proteins: targets for inhibiting tumor progression and metastasis.” Visiting Professor at NYU, New York
March 30, 2011 – “Colon Cancer.” Carcinogenesis and Cancer Bio, KU Cancer Center
April 14-15, 2011 – “RNA Binding Proteins: Novel Target for Chemo Prevention.” Purdue University, Indianapolis, IN
May 7-10, 2011 – “GI Stem Cells.” DDW-GI Meeting, Chicago, IL
June 30, 2011 – “Novel inhibitors of cancer stem cells.” UMKC AAPS Student Chapter, KUMC

Teaching Activities:
Carcinogenesis and Cancer Biology course
1 lecture

Trainees:
Elizabeth Moran – Graduate Student
Anand Venugopal – M.D./Ph.D. Graduate Student
Cate Moriasi, Ph.D. – Post Doctoral Fellow
Parasarathy Rangrajan, Ph.D. – Post Doctoral Fellow
Jessica Johnson – Lab Rotation
Sydney Byne – Summer Student
Laura Fogt – APS Summer Research Host
Andrei B. Belousov, Ph.D., Associate Professor

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

Meetings Attended:
  November 13-17, 2010 – Society for Neuroscience. San Diego, CA

Committee Activities:
  Departmental
    Member, Graduate Student Advisory Committee
  KUMC
    Member, KUMC Information Resources Committee
    Member, School of Medicine Faculty Council

Editorial and Grant Reviews:
  Ad hoc Reviewer, FEBS
  Ad hoc Reviewer, Journal of Neurophysiology
  Ad hoc Reviewer, Journal of American Physiology
  Ad hoc Reviewer, Journal of Cerebral Blood and Metabolism
  Ad hoc Reviewer, PlosOne
  Ad hoc Reviewer, European Journal of Neuroscience
  Editorial Board Member, The Open Neuroscience Journal (ON), Bentham Science Publishers

Academic Honors:
  Invited Speaker, From electrical synapses to the clinics: a translational perspective, Bochum, Germany 2011

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

Trainees:
   Youngfu Wang, Ph.D. – Post-Doctoral Associate
   Won-Mee Park – Ph.D. Graduate Student
   Ji Hoon Song – Ph.D. Graduate Student
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 specifically expressed in the testis and abundant 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, is important for sperm motility and essential for male fertility. A variety of molecular and cellular biology methods are being used to study the regulation, activity and mechanisms of action of alpha4. These studies are important to understand 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 ADPKD.

Committee Activities:

**Departmental**
- Member, Ph.D. Thesis Committee for Brittany Gorres
- Member, Ph.D. Thesis Committee for Jie Chao
- Member, Ph.D. Thesis Committee for Won-Mee Park
- Member, Ph.D. Thesis Committee for Valentine Agbor
- Member, Ph.D. Thesis Committee for Crystal Bethel-Brown

**KUMC**
- Member, Ph.D. Thesis Committee for Yi Miao (Pharmacology)
- Member, Ph.D. Thesis Committee for Binu Paul (Anatomy)
- Member, Ph.D. Thesis Committee for Christopher Tanzie (Anatomy)
- Member, Institutional Animal Care and Use Committee (IACUC)
- Member, Committee to oversee the Biotechnology Support Facility at KUMC
- Member, Medical Students Wescoe Academic Society
- Member, Admissions Committee for MD/PhD Program
Dr. Blanco (continued)

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

Seminars Presented:
September 2010 – “Cardedolides inhibition of the sperm Na,K-ATPase α4 isoform as contraceptive agents,” EAB Meeting, Minneapolis, MN
September 2010 – “Cardedolides inhibition of the sperm Na,K-ATPase α4 isoform as contraceptive agents,” U54 Quarterly Meeting, KUMC
April 2011 – “Functional relevance of the Na,K-ATPase α4 isoform,” Aarhus, Denmark
May 2011 – “Cardedolides inhibition of the sperm Na,K-ATPase α4 isoform as contraceptive agents,” Tampa, FL

Teaching Activities:
Medical Physiology
  11 hours lecture
  4 hours Interactive clinical cases in renal physiology
  2 hours review for renal physiology for Board preparation
GSMC 853 – Cellular Structure
  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
PHSL 842 – Comprehensive Human Physiology
  8 hours lecture
Dr. Blanco (continued)

Trainees:
  Kyle Jansson – Graduate Student
  Tamara Jimenez – Graduate Student
  Nairita Roy – Rotation Student
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 21, 2010 – Annual Greenwald Symposium, Kansas City, MO
- November 13-17, 2010 – 40th Annual Meeting of the Society for Neuroscience, San Diego, CA
- December 2-5, 2010 – Association of Chairs of Physiology Departments annual meeting, Bonita Springs, FL
- April 6-10, 2010 – Society for Neuroimmune Pharmacology annual meeting, Clearwater, FL

Committee Activities:
Comprehensive Exam Committees:
- Dissertation Advisor, Ph.D. Committee for Heather Hudson
- Dissertation Advisor, MD/Ph.D. Committee for Gustaf Van Acker
- Member, Ph.D. Committee for Crystal Bethel-Brown
- Member, Ph.D. Committee for David Guggenmos
- Member, Ph.D. Committee for Jill Morris
- Member, Ph.D. Committee for Carrie Quinn
- Member, Ph.D. Committee for Edward Urban
- Co-Dissertation Advisor, Ph.D Committee for Sommer Amudson (Biomedical Engineering, Co-Advisor: Dr. Carl Luchies)
- Member, DPT/Ph.D. Committee for Mariko Nishibe (Physical Therapy)
- Member, Ph.D. Committee for Lalit Venkatesan (Neuroscience)
- Member, Ph.D. Committee for Emily Zimmerman (Hearing & Speech)

Departmental
- Coordinator, Fred Samson Annual Memorial Lecture

School of Medicine
- Member, Dean’s Leadership Committee
- Member, Internal Advisory Committee, Neuroscience Rehabilitation Training Grant, Dr. Nudo, PI.
- Member, Executive Committee of the SOM Faculty Council
- Member, SOM Faculty Council
- Member, Mentoring Awards review committee
- Member, Educational Funding Model Committee
- Member, Search Committee for Director of Research in Neurosurgery
- Member, Pharmacology Dept Chair Search Committee
Dr. Cheney (continued)

Committee Activities (continued)

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
Member, Strategic Planning Research Committee, part of the Universities
overall strategic planning effort facilitated by TSI Consulting
Partners.
Member, Neural Prosthesis/Spinal Cord Injury Project

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

KU Chancellor’s Office
Member, Chancellor’s Scholarly Achievement Award Committee

Editorials and Grant Reviews:
Ad hoc Reviewer, J. Neurophysiology
Ad hoc Reviewer, J. Physiology
Ad hoc Reviewer, Cerebral Cortex
Ad hoc Reviewer, J. Comp Neurology
Ad hoc Reviewer, Brain
Ad hoc Reviewer, Behavior and Immunity
Grant Reviewer, NIH IFCN-E – NIH, CRS, Special Emphasis Panel, November
3-4, 2010
Grant Reviewer, NIH NINDS – A Study Section, Review of Center grants, June
22, 2011

Seminars Presented:
March 4, 2011 – “Progress in understanding corticospinal organization and
function,” Neurology Grand Rounds, KUMC
Dr. Cheney (continued)

Teaching Activities:
  REHS 962 – Advanced Rehabilitation Science
    1 hour lecture
  PHSL 846 – Advanced Neuroscience
    6 hours lecture
  CORE 840 – Brain and Behavior
    Served as a back-up for the small groups in this course
    2 small group sessions
  PTRS 863 – Pathobiology of Human Function
    2 hours lecture

Trainees:
  Heather Hudson – Ph.D. Student
  Will Messamore – M.D./Ph.D. Student
  Gustaf Van Acker – M.D./Ph.D. Student
  Sommer Amudson – Ph.D. Bioengineering Student, co-advisor
Vargheese M. Chennathukuzhi, Ph.D., Assistant Professor

My research interests include uterine fibroids, fertility and contraception. Our laboratory is currently trying to understand the regulation and function of GPR10, a G protein-coupled receptor aberrantly expressed in uterine fibroids. Activation of GPR10 by its cognate ligand promotes cell proliferation, specifically in cultured primary leiomyoma (fibroid) cells. We have generated transgenic mice overexpressing GPR10 in the myometrium in order to understand its role in the pathogenesis of fibroids. Our laboratory is also interested in molecules that regulate sperm function and male fertility. We are studying functional regulation of the sperm specific sodium-proton exchanger (sNHE) in expression systems that utilize chimeric channels.

Meetings Attended:

July 30-August 3, 2010 – 43rd Annual Meeting of the Society for the Study of Reproduction, Milwaukee, WI
November 22-23, 2010 – Advances in Uterine Leiomyoma Research, 3rd NIH International Congress, NIH, Bethesda, MD
June 13-14, 2011 – Conference on Reproduction and Regeneration, University of Pennsylvania, Philadelphia, PA

Committee Activities:

Departmental
Member, Thesis Committee for Tamara Jimenez
Member, Thesis Committee for J.B. Fitzgerald
Member, Physiology Faculty Mentoring Site Committee

KUMC
Member, Cancer Center Faculty Recruitment Committee (Dr. Shahid Umar)

Seminars Presented:


Teaching Activities:

PHSL 834 – Reproductive Physiology
Co-Director
15 hours lecture
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 also remains interested in understanding how cholesterol metabolism impacts ovarian function, we have established collaborations with two other laboratories to pursue this line of study. In conjunction with Dr. Annabelle Rodriguez (John Hopkins) we currently are studying single nucleotide polymorphisms in the scavenger receptor class B type 1 (SRB1) and the effects on cholesterol transport from HDL and LDL particles. Additionally, in conjunction with Dr. Brad Van Voorhis at U. of Iowa, we are identifying markers of embryo quality from spent medium of human in vitro fertilization (IVF) using high throughput proteomic approaches. Lastly, because of our interest in miRNA research, my laboratory has partnered with a clinician, Dr. Ajay Bansal at the Kansas City VA Hospital to use next generation sequencing and our established miRNA methods to identify biomarkers involved in the transition of gastric reflux disease (GERD) to the benign Barrett's Esophagus and ultimately esophageal cancer.

Meetings Attended:
July 2010 – 43rd Annual Society for Study of Reproduction, Milwaukee, WI
July 27-29, 2010 – XVII Ovarian Workshop, Milwaukee, WI
October 22-24, 2010 – III International Symposium on Animal Biology of Reproduction, Brazil, Aguaus de Sao Pedro, Sao Paulo

Committee Activities:
Departmental
Director, Graduate Program
Member, Greenwald Symposium Planning Committee – Completed October 2010
Advisor, Jon B. Fitzgerald, Ph.D. Dissertation Committee
Advisor, Lacey Luense, Ph.D. Dissertation Committee
Member, Huan Yang, Ph.D. Dissertation Committee
Member, Jitu George, Ph.D. Dissertation Committee
Member, Ram Kannan, Ph.D. Dissertation Committee

KUMC
Member, Ashleigh Fritz, Ph.D. Dissertation Committee
Member, Advisory Committee for the Microarray Facility
Member, Mass Spectrometry Oversight Committee
Member of the Kansas Intellectual and Developmental Disabilities Research Center (KIDDRC) Integrative Imaging Core
Dr. Christenson (continued)

Committee Activities (continued):
  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
  Editorial Board Member, Journal of Assisted Reproduction and Genetics
  Ad hoc Reviewer, Biology of Reproduction
  Ad hoc Reviewer, Endocrinology
  Ad hoc Reviewer, Molecular Endocrinology
  Ad hoc Reviewer, Journal for Assisted Reproductive Technologies
  Ad hoc Reviewer, Molecular and Cellular Endocrinology
  Ad hoc Reviewer, Molecular Human Reproduction
  Ad hoc Grant Reviewer, National Institute of Health - U54 Pilot Project Grant
  May 2010 and November 2010
  Grant Reviewer, National Institute of Health U54 Project Grant, November 3-5, 2010
  Ad hoc Reviewer, National Institute of Health – RPG Study Section, June 2011

Seminars Presented:

Academic Honors:
  Adjunct Professor in Department of Animal Sciences at University of Nebraska-Lincoln
Dr. Christenson (continued)

Teaching Activities:
  Director, Physiology Departmental Graduate Program
  PHSL 851 – Seminar
       Course Director
  Frontiers in Reproduction Course Director – April 30-May 14, 2011
       4 hours lecture
       3 days laboratory instruction
  GSMC 851 – Molecular Genetics
       4 hour lecture
  GSMC 852 – Introduction to Biomedical Research 1
       2 hour lecture

Trainees:
  Jon 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. However, 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.

Meetings Attended:
April 6-10, 2011 – 17th Annual Meeting of the Society on NeuroImmune Pharmacology, Clearwater Beach, FL

Committee Activities:
KUMC
Grant Reviewer, KUMC Biomedical Research Training Program

Editorial and Grant Reviews:
Ad hoc Reviewer, Am. J. Respir, Cell Mol Biol.
Ad hoc Reviewer, Thrombosis Research

Seminars Presented:
March 9, 2011 – “Lost in Translation: KU Pulmonary Investigation into Characteristics of Pulmonary Arteriopathy,” Interdisciplinary Medical Research Conference at Internal Medicine Grand Rounds, KUMC

Teaching Activities:
PHSL 848 – Molecular Mechanisms in Neurological Disorders
4.5 hours lectures
1.5 hours journal club

Trainees:
Bing Xue, Ph.D. – Post Doctoral Fellow
Joel Mermis, M.D. – 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 GABA<sub>B</sub> receptor expression and function in human brain autopsy material and laboratory animals.

Meetings Attended:
July 2010 – International Union of Basic and Clinical Pharmacology Congress, Copenhagen, Denmark
August 2010 – Nebraska INBRE Meeting, Grand Island, Nebraska
October 2010 – Wiley Editorial Board Meeting, New York
October 2010 – NC-IUPHAR Meeting, Paris, France
November 2010 – PhRMA Foundation Meeting, Washington DC
December 2010 – American College of Neuropsychopharmacology, Miami Beach, Florida
April 2011 – Elsevier Executive Editors Meeting, New York
April 2011 – Experimental Biology Meeting, Washington DC
April 2011 – NC-IUPHAR Meeting, Paris, France
May 2011 – Symposium on Medicinal Chemistry: Today and in the 21<sup>st</sup> Century, Copenhagen, Denmark
June 2011 – Integrated Organ System Pharmacology Course, Omaha, Nebraska

Committee Activities:
Departmental
Member, Promotions and Tenure Committee
KUMC
Co-Chair, Internal Advisory Committee Kansas University Training Program in Neurological and Rehabilitation Sciences
Member, Research and Training Committee
Associate Dean, Research and Graduate Training
Member, KU Transformation Advisory Committee
Member, Andrew Ralya Ph.D. Dissertation Committee (Pharmacology, Toxicology & Therapeutics)
National
Member, Nebraska-BRIN External Advisory Committee
Member, PhRMA Foundation Pharmacology Advisory Panel
Member, Research Advisory Council, University of Missouri-Kansas City School of Pharmacy
International
Chair, Secretary General, International Union of Basic and Clinical Pharmacology Executive Committee
Member, International Union Basic and Clinical Pharmacology Nomenclature Committee
Dr. Enna (continued)

Editorials 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*
  Series Editor, *Advances 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*
  Editorial Advisory Board, *Current Opinion in Pharmacology*
  Grant Reviewer, PhRMA Foundation
  Consultant, H. Lundbeck A/S
  Consultant, Leydig, Voit & Mayer, LTD

Seminars Presented:
  May 2011 – GABA and Nociception: The Krogsgaard Connection, Royal Danish Academy of Sciences, Copenhagen, Denmark
  May 2011 – Manuscript Preparation and Revision, University of Kansas School of Medicine
  June 2011 – Behavioral Assay Systems, University of Nebraska Medical Center, Omaha, Nebraska

Academic Honors:
  Elected to a Second Term as Secretary-General, International Union of Basic and Clinical Pharmacology

Teaching Activities:
  Faculty Advisor
    Orr Society: A.J. Strickland and Brandon Carlson
  Psychiatry Residents Lectures: Neurochemistry, Neurotransmitters and Psychiatric Illness
    4 hours lecture
  Integrative and Organ Systems Pharmacology Course (University of Nebraska)
    1 hour lecture
  Medical School, Small Group Leader, Respiratory Physiology
    4 hours
  Graduate School, Advanced Neuroscience
    6 hours lecture
Shawn 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.

Editorial and Grant Reviews:
- Ad hoc Reviewer, Somatosensory and Motor Research
- Ad hoc Reviewer, Neurobiology of Aging

Teaching Activities:
- PHSL 846 – Advanced Neuroscience
  4 hours lecture
- CORE 840 – Brain and Behavior
  24 hours lab
- PHTH 863 – Pathobiology of Human Function II
  1 hour lecture

  Lectured during Brain Awareness week in a local High School and participated in Brain Awareness Week at KU Medical Center, Kansas City, KS (March 2010)

Trainees:
- Edward Urban, III – Graduate Student
- David Guggenmos – Graduate Student
- David McNeal, Ph.D. – Post doctoral fellow
- Navid Khodaorast – UT Dallas Graduate Student
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:
- September 2010 – Integrative Physiology of Exercise, Miami, FL
- January 2011 – Keystone Symposia on Type 2 Diabetes, Insulin Resistance and Metabolic Dysfunction, Keystone, CO
- May 31-June 4, 2011 – American College of Sports Medicine Annual meeting, Denver, CO

Committee Activities:
  Departmental
  - Member, GSAC
  - Member, Dissertation Committee for Argenia Doss
  - Member, Dissertation Committee for Carrie Quinn
  KUMC
  - Vice President, SOM Faculty Council
  - Secretary, WIMS
  - Member, Landon Center on Aging and Department of Physical Therapy and Rehabilitation Sciences Faculty Search Committee (Chair: Dr. Randolph Nudo)
  - Member, Dissertation Committee for Amanda Obaidat (Pharmacology)
  - Member, Dissertation Committee for Caleb Grote (Anatomy)
  - Member, Dissertation Committee for Brianne Guilford (Anatomy)
  - Member, Dissertation Committee for Floyd Huang (Physical Therapy, School of Allied Health)
  - Member, Dissertation Committee for David Burnett (Physical Therapy, School of Allied Health)
  - Advisor, Orr Academic Society to Cody Heston M1
  National
  - NIH Integrative Physiology of Obesity and Diabetes (IPOD) study section, ad hoc member for meeting in January 2011
  - APS Conference Committee – meeting in Bethesda, MD September 2010, conference calls throughout the year.
  - Integrative Biology of Exercise conference planning committee – conference calls for planning symposia
Dr. Geiger (continued)

Editorials and Grant Reviews:
- Editorial Board Member, *American Journal of Physiology Regulatory, Integrative and Comparative Physiology*
- Ad hoc Reviewer, *Journal of Applied Physiology*
- Ad hoc Reviewer, *American Journal of Physiology Endocrinology and Metabolism*
- Ad hoc Reviewer, *Journal of Physiology*
- Ad hoc Reviewer, *Journal of Cellular Physiology*
- Ad hoc Reviewer, *Medicine and Science in Sports and Exercise*
- NIH, NIH Integrative Physiology of Obesity and Diabetes (IPOD) study section, ad hoc member for meeting in January 2011

Seminars Presented:
- September 30, 2010 – “Heat shock proteins and the pathogenesis of insulin resistance” Invited Speaker, University of Missouri, Columbia, Department of Nutrition and Exercise Physiology
- October 4, 2010 – “Heat shock proteins and the pathogenesis of insulin resistance” Department of Molecular and Integrative Physiology
- October 24, 2010 – “Heat shock proteins and the pathogenesis of insulin resistance” American College of Sports Medicine, Central States Chapter Annual meeting, Lawrence, KS
- May 31-June 4, 2011 – “ERα and ERβ in the regulation of glucose metabolism” Featured Symposium *Novel insights on the role of female sex steroids in regulating physiological and metabolic function of striated muscle*. American College of Sports Medicine Annual meeting, Denver, CO

Academic Honors:
- Invited Speaker, featured symposium at Experimental Biology 2012 Symposium: Thermal Physiology: Basic mechanisms to clinical applications
  - Featured Talk: Therapeutic effects of heat: glucose regulation and insulin resistance in skeletal muscle
Dr. Geiger (continued)

Teaching Activities:
- CORE 815 – Cardiopulmonary
  4 hours lecture
  4 hours small group interaction, non-didactic
- PHSL 842 – Comprehensive Human Physiology
  11 hours lecture

Trainees:
- Brittany Gorres – Graduate Student
- Jill Morris – Graduate Student
- Cody Heston – Medical Student, M1
- Jonathan Pankow – Summer Student, Medical Student, M1
- Nancy Stiles – IGPBS Rotation Student
- Kyle Brost – KU Lawrence Undergraduate
- Kathleen White – Summer Student (Undergraduate KU)
- Ashley Ward – Graduate Student (Truman University)
Norberto C. Gonzalez, M.D., Professor

My research centers on the mechanisms of adaptation of entire organisms to hypoxia. This includes the study of the effects of acute and chronic 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:
  February 15-20, 2011 – International Hypoxia Symposium, Lake Louise, Alberta Canada

Committee Activities:
  Departmental
    Member, Promotion and Tenure Committee

Editorial and Grant Reviews:
  Reviewer, The Journal of Applied Physiology
  Reviewer, American Journal of Physiology, Lung Cellular and Molecular Physiology
  Reviewer, International Journal of Sports Medicine
  Reviewer, American Journal of Physiology, Regulatory, Integrative and Comparative Physiology
  Reviewer, Journal of Cellular & Molecular Medicine
  Reviewer, Journal of Physiology
  Ad hoc Reviewer, Special Emphasis Panel/SRA Biomedical Research Review Subcommittee, National Institute on Alcohol Abuse and Alcoholism, NIH, June 14, 2011

Seminars Presented:
  February 19, 2011 – “Dexamethasone Blocks the Systemic Inflammation of Alveolar Hypoxia at Several Sites in the Inflammatory Cascade,” Invited talk at the International Hypoxia Symposium, Lake Louise, Alberta Canada
Dr. Gonzalez (continued)

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

Trainees:
   Jie Chao – Graduate Student, received Ph.D. on August 20, 2010
   Elizabeth Esco – Frontiers in Physiology Fellow
Vijayalaxmi Gupta, Ph.D., Research Assistant Professor

The first project that I am working on is to synthesize and test reversible non-hormonal non-steroidal male contraceptive agents. Specifically, my role involves testing novel compounds (in-vitro as well in-vivo) as potential male contraceptives. I also work on determining the mechanism of action of potent compounds and facilitating toxicology, fertility studies for the compound likely to advance towards clinical trials.

A second major research interest, concerns whether reproductive potential is affected by space flight. To this effect, we examined the effects of microgravity on the female reproductive tract of mice that were flown on the space shuttle on flights STS-131, STS-133 and STS-135. Our studies on these three space shuttle missions were the first to examine the consequences of space flight on ovaries and uteri of mice. We found that with 12-15 days of space-flight exposure, female mice showed significantly small ovaries. Histological analysis showed that flight mice ovaries had fewer corpora lutea and most of the growing follicles in flight ovaries were atretic, indicative of blocked estrous cycle. Ground and flight mice had no significant difference in number of uterine glands, but there was a trend to-ward smaller uteri in flight mice based on the gross pictures, which correlates with the low estrogen receptor alpha (ERα) level. This sets the foundation for our hypothesis that drop in estrogen in reproductive system may be the cause of other estrogen regulated effects seen in the body (bone and muscle loss, wound-healing, immune functions etc.) when exposed to space-flight.

Meetings Attended:
- July 2010 – Society for the Study of Reproduction
- September 2010 – U54/U01 Steering Committee Meeting
- October 2010 – Greenwald Symposium
- August, November 2010 – Male Contraceptive Program Quarterly Meetings
- November 2010 – ASGSB Annual Meeting
- March, May 2011 – Male Contraceptive Program Quarterly Meetings

Academic Honors:
- 2011 Resident, Postdoc and Fellow (RPF) Research Day, Second Place Award for Postdoc Research-Oral Presentation
- Abstract, submitted to 44th SSR Meeting to be held on July 30-August 3, 2011 in Portland, Oregon was selected for the final rounds for trainee awards for platform presentation
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:

- July 30-August 3, 2010 – 43rd Annual Meeting of the Society for the Study of Reproduction, Milwaukee, WI
- August 15-20, 2010 – Reproductive Tract Biology Gordon Research Conference, Proctor Academy, Andover, NH
- September 2-4, 2010 – Society for Reproduction and Development, Kitasato University, Tawada, Japan
- March 30-April 2, 2011 – XXI North American Testis Workshop, Montreal, Quebec Canada
- April 2-5, 2011 – 36th Annual Meeting of the American Society of Andrology, Montreal, Quebec, Canada

Committee Activities:

- 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
  - Member, Ph.D. Dissertation Committee for Jitu George
Committee Activities (continued):

KUMC
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
Member, Transgenic Advisory Committee
Director, Center for Idiopathic Male Infertility (CIMI)
Member, Ph.D. Dissertation Committee for Aaron Gottschalk, Biochemistry and Molecular Biology

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

Seminars Presented:
August 15-20, 2010 – “Transcriptional Regulation of Testicular Genes,” Reproductive Tract Biology Gordon Research Conference, Proctor Academy, Andover, NH
August 23, 2010 – “Cell-specific functions of DMRT1 in the testis,” The Population Council, Rockefeller University
September 2-4, 2010 – “Cell-specific Functions of DMRT1 in Sertoli Cells and Germ Cells of the Testis,” Society for Reproduction and Development
May 7, 2011 – “Autonomous and non-autonomous functions of DMRT-1 in differentiation and maintenance of the germ line,” Marine Biology Laboratory

Academic Honors:
Invited Speaker, *Crosstalk between Sertoli and Germ Cells – How Does This Lead to Testicular Cell Differentiation?* 37th Annual Meeting of the American Society of Andrology, Tucson, AZ, April 21-24, 2012
Dr. Heckert (continued)

Teaching Activities:
- BCHM 922 – Advanced Molecular Genetics
  6 lecture hours
- PHSL 834 – Reproductive Physiology
  4.5 lecture hours
- Frontiers in Reproduction course at Marine Biology Laboratory, Woods Hole, MA.
  May 1-14, 2011
  2 – 1.5 lecture hours
  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
- Elizabeth 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.

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

Trainees:
  Stefanie Kennon-McGill – Neuroscience Graduate Program PhD student. Dianne Durham serves as her advisor
Dora Krizsan-Agbas, Ph.D., Research Assistant Professor

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

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

Editorial and Grant Reviews:
Ad hoc Reviewer, J. Anatomy
T. Rajendra Kumar, Ph.D., Associate Professor

Our laboratory studies development and regulation of the reproductive axis using mouse models. Specific projects include understanding the pathophysiology and genetics of human pituitary null cell tumors, 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 – 43rd Annual Meeting of Society for the Study of Reproduction, Milwaukee, WI
August 2010 – Gordon Research Conference on Reproductive Tract Development

Committee Activities:

Departmental
Member, At-Large Department Member, Faculty Executive Council
Member, Department Physiology/Cancer Center Faculty Recruitment Committee, 2010
Member, Thesis Committee for Tamara Jimenez
Member, Thesis Committee for Valentine Agbor

KUMC
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, Planning Committee, Jim Voogt Annual Lectureship in Neuroendocrinology
Member, Society for the Study of Reproduction: Committee on Reproduction and the Environment
Member, Publication Committee, Journal of Andrology, American Society of Andrology
Member, Thesis Committee for Todd Bradley (Department of Pathology)

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
Dr. Kumar (continued)

Editorial and Grant Reviews (continued):
  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
  Manuscript Reviewer, Oncogene
  Manuscript Reviewer, Peptides
  Manuscript Reviewer, PLoS One
  Manuscript Reviewer, PNAS (USA)
  Manuscript Reviewer, Physiology & Behavior
  Manuscript Reviewer, Physiological Genomics
  Manuscript Reviewer, Reproduction
  Manuscript Reviewer, Reproductive Biology and Endocrinology
  Manuscript Reviewer, RNA
  Manuscript Reviewer, Science
  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
  Mail-in Reviewer, Development-2 (DEV2) Study Section Panel, National Institutes of Health
Dr. Kumar (continued)

Editorial and Grant Reviews (continued):
Ad hoc Review Member, Special Emphasis Panel on Molecular and Integrative Signal Transduction (MIST) Study Section, National Institutes of Health, 02/2011

Seminars Presented:
August 15, 2010 – “Studies of the male germ cell niche,” Gordon Research Conference on Reproductive Tract Biology, Andover, NH
November 2010 – “Genetics & Pathophysiology of Gonadotrope Tumors,” Department of Physiology, KUMC

Academic Honors:
October 15, 2011 – Invited Speaker, Division of Cancer Biology, National Cancer Institute, Frederick, MD
October 19, 2011 – Invited Speaker, Department of Biomedical Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY
November 2011 – Invited Speaker, Department of Anatomy and Cell Biology, KUMC

Teaching Activities:
PHSL 834 – Reproductive Physiology
38 hours lecture
GSMC 851 – Molecular Genetics
6 hours lecture
PATH 803 – Stem Cell Biology
4 hours lecture
BCHM 922 – Advanced Molecular Genetics
6 hours lecture
PATH 805 – Seminar in Pathology
4 hours lecture

Trainees:
Hui Zheng 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:
   May 16-17, 2011 – Mizzou Advantage Conference “Advances in Reproductive Biology and Genetics,” Columbia, MO

Committee Activities:
   Departmental
      Member, Molecular & Integrative Physiology Mentoring Website Committee
   KUMC
      Member, Institutional Animal Care and Use Committee
      Member, Women in Medicine and Science Mentoring Committee

Editorial and Grant Reviews:
   Manuscript Reviewer, Reproduction, Fertility and Development
Phil Lee, Ph.D., Assistant Professor

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, Dr. Lee’s one of research goals is early diagnosis and identification of changes in functional and physiological aspects of Alzheimer's diseases 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 (Ab) plaques in transgenic animal models of Alzheimer's disease, therapeutic responses can be objectively quantified and new treatment strategies can be developed.

Meetings Attended:
May 7-13, 2011 – 19th Scientific Meeting & Exhibition of International Society of Magnetic Resonance in Medicine (ISMRM), Quebec, Canada

Committee Activities:
KUMC/Ku-Lawrence
Member, Doctoral Thesis Committee for Department of Mechanical Engineering
Member, Master’s Thesis Committee for Department of Mechanical Engineering

Editorials and Grant Reviews:
Ad hoc Reviewer, Magnetic Resonance in Medicine
Ad hoc Reviewer, NeuroImage
Ad hoc Reviewer, NMR in Biomedicine
Ad hoc Reviewer, The Springer Neuroscience Handbook Series “Advances in Neurobiology”
Ad hoc Reviewer, Handbook of Neurochemistry and Molecular Neurobiology

Seminars Presented:
July 16, 2010 – “Axonal transport deficits in Alzheimer’s disease”, The Neuroscience & MR Research Program of the John A. Burns School of Medicine, University of Hawaii, Honolulu, HI
November 12, 2010 – “In vivo measurement of glutathione in the human brain with secondary progressive multiple sclerosis using selective multiple quantum chemical shift imaging of GSH”, 2010 Faculty Research Day and Poster Session, KUMC Research Institute, Kansas City, KS
November 12, 2010 – “Quantification of Microtubule Stabilizing Drug Treatment Effect on Axonal Transport Rate in a Transgenic Mouse Model of Alzheimer’s Disease”, 2010 Faculty Research Day and Poster Session, KUMC Research Institute, Kansas City, KS
Seminars Presented (continued)
techniques” National Multiple Sclerosis Society Research Meeting,
Kansas City, KS

Academic Honors:
  Invitation from Pathology Department, Taub Institute at Columbia University in
New York, NY – Presentation date to be determined

Teaching Activities:
  ME 643 – Mechanical Engineering: Project Option C
    6 hours lecture
  PATH/PTRS 863 – Pathology of Human Function
    2 hours lecture
  CHEM 775/PTX 775 – Chemistry of the Nervous System
    1.5 hour lecture
  PHSL 846/ANAT 846 – Advanced Neuroscience
    2 hours lecture

Trainees:
  Nathan Dormer – Graduate Student (Bio-engineering, KU), Teaching MRI
  Heather Hudson – Graduate Student (Molecular & Integrative Physiology),
    Teaching Neuroimaging
  Abbey Hughes – Graduate Student (Psychology, KU), Teaching MRI
  Joshua Johnson – Graduate Student (Mechanical Engineering, KU), Teaching
    MRI
  Donica Stadum – Graduate Student (Mechanical Engineering, KU), Teaching
    MRI
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 declines. We also study novel interventions for this disease. Our research incorporates a team approach that includes clinical samples, immunology, and animal models. Additional studies address intervention strategies for globoid cell leukodystrophy. We also examine mechanisms of toxin-induced vessel injury.

Meetings Attended:
  February 15-20, 2011 – Keystone Symposia: Genetics, Immunology and Repair in Multiple Sclerosis, Taos, NM

Committee Activities:
  Departmental
    Member, Department Promotions and Tenure Committee
    Member, Graduate Student Advisory Committee
    Member, Thesis Committee for Wen Tang
    Member, Thesis Committee for Crystal Bethel-Brown

Editorial and Grant Reviews:
  Reviewer, Analytical Chemistry
  Reviewer, Journal of Neuroscience Research
  Reviewer, Journal of Neurochemistry
  Reviewer, Journal of Neuroinflammation
  Reviewer, Scandinavian Journal of Infectious Disease
  Ad hoc Grant Reviewer, Tobacco-Related Disease Research Program, University of California, March 2010

Teaching Activities:
  CORE 820 – Gastrointestinal Tract and Nutrition
    4 hours lecture to first year medical students
  CORE 840 – Brain, Mind and Behavior
    1 hour lecture
    ~6 hours of Neuropathology Labs for second year medical students
  PHSL 842 – Comprehensive Human Physiology
    4 hours lecture to graduate students
    1 hour paper discussion
  PHSL 848 – Molecular Mechanisms of Neurological Disorders
    Course Director
    Mentor for 6 student presentations
    1.5 hours lecture
Dr. LeVine (continued)

Trainees:
Rachel Williams, Ph.D. – Post Doctoral Fellow
Edward Doyle – Student Employee (enrolled at Rockhurst University)
Laura Kelly – Student Employee (enrolled at Rockhurst University)
Catlin Maloney – Student Employee (enrolled at Rockhurst University)
Kelsey Weigel – Student Employee (enrolled at Rockhurst University)
Lynda K. McGinnis, Ph.D., Research Assistant Professor

Over 4 million children have been born from artificial reproductive techniques (ARTs). To protect the health of children born by ARTs, we need to improve our understanding of gamete biology, embryology and the signaling pathways essential for normal healthy development. Our research focuses on tyrosine kinase signaling in the oocyte during maturation and fertilization. Several of these kinases are activated in cultured somatic cells in response to stress. While some of these kinases, such as FYN and FER are very highly expressed in oocytes, their response to in vitro culture stress of oocytes and embryos is unknown. The long-term goal of my research is to define the regulation and targets of these kinase signaling pathways in oocytes and to determine if these pathways function properly during clinical in vitro maturation and fertilization procedures.

Meetings Attended:
- July 28-30, 2010 – Ovarian Workshop, Milwaukee, WI
- July 30 – August 3, 2010 – Annual Meeting of the Society for Study of Reproduction, Milwaukee, WI.
- October 21-22, 2010 – Gilbert Greenwald Symposium, Kansas City, KS

Committee Activities:
- KUMC
  - Member, Post-doctoral Association Planning Committee (2010-2011)

Editorial and Grant Reviews:
- Ad hoc Reviewer, Biology of Reproduction
- Ad hoc Reviewer, Developmental Biology
- Ad hoc Reviewer, Fertility and Sterility
- Ad hoc Reviewer, Human Reproduction
- Ad hoc Reviewer, Journal of Assisted Reproduction and Genetics
- Ad hoc Reviewer, Molecular Human Reproduction
- Ad hoc Reviewer, Reproduction

Seminars Presented:
- September 10, 2010 – Invited speaker: “Fyn and related protein tyrosine kinases in the regulation of mammalian oocyte maturation”. Friday Harbor labs, University of Washington, Friday Harbor, WA.
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:
November 9, 2010 – Ibsen Conference, Iowa Health, Des Moines, IA
November 13-17, 2010 – Society for Neuroscience Annual Meeting, San Diego, CA
March 31, 2011 – Brain Injury Association of Kansas and Greater Kansas City Annual Professional Conference, Overland Park, KS
May 12, 2011 – MARS-State of the Science (SOS) Meeting, Chicago, IL

Committee Activities:
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
International Stroke Conference Program Committee, American Heart Association
Dr. Nudo (continued)

Editorial and Grant Reviews:
  Deputy Editor, *Brain Stimulation*
  Associate Editor, *Neurorehabilitation and Neural Repair*
  Editorial Board, *Restorative Neurology and Neuroscience*
  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, *Stroke*
  Ad hoc Reviewer, *Cerebral Corte*
  Ad hoc Reviewer, Fondazione Italiana Sclerosi Multiple (Italian Multiple Sclerosis Foundation)
  Abstract Grader, American Heart Association International Stroke Conference
  Ad hoc Reviewer, Veterans Affairs Rehabilitation Research and Development Merit Review Panel

Seminars Presented:
  February 21-March 4, 2011 – Guest Faculty, Fourth DST-SERC School on Systems and Cognitive Neuroscience, National Brain Research Centre, Manesar, India
Dr. Nudo (continued)

Seminars Presented (continued):
  March 31, 2011 – Invited Speaker, Current Research in Brain Injury Recovery, Brain Injury Association of Kansas and Greater Kansas City Annual Professional Conference, Overland Park, KS
  May 12, 2011 – Invited Speaker, Cortical Reorganization and Neural Recovery, MARS-State of the Science (SOS) meeting, Chicago, Illinois
  June 16, 2011 – Keynote Speaker, Plasticity of Brain Networks and Relationship to Recovery after Injury, Rehabilitation Institute Annual Research Day, University of Pittsburgh, Pittsburgh, Pennsylvania
  June 20, 2011 – Invited Speaker, Brain Prosthetics for Treatment of Stroke and Brain Injury, Frontiers in Regenerative Medicine Symposium, Duke Translational Research Institute, Duke University, Durham, North Carolina

Academic Honors:
  Invited Speaker, Neuroprosthetic tools for repair of the injured brain, American Society for Neurorehabilitation Clinician Scientist Award lecture, ASNR-ACRM Joint Educational Conference, Atlanta, Georgia, October 14, 2011.
  Invited Speaker, Repairing the Brain after Injury, Annual War and Recovery Day, Brain Injury Association of Kansas and Greater Kansas City, November 4, 2011.

Teaching Activities:
  NEUS 840 – Medical Neuroscience
    6 lecture hours
  Faculty Research Series
    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, III – M.D./Ph.D. Graduate Student
  Mariko Nishibe – Graduate Student (Rehabilitation Sciences)
  Derek Taylor – Graduate Student (Bioengineering)
  David McNeal, Ph.D. – Post-doctoral fellow
  Andrea Pack – Undergraduate summer student (U Vermont)
  Dane Stephens – Blue Valley high school CAPS program
Mihai Popescu, Ph.D., Research Assistant Professor

I am using multi-channel biomagnetic (MEG) recordings to study the cortical network dynamics underlying sensory and cognitive processing under normal and disease conditions. Current experimental studies are focusing on the correlation between the evoked brain activity and behavioral profiles in children and adolescents with Asperger syndrome, and the effects of language interventions on the evoked brain responses in children with primary language disorder. Another area of research focuses on multi-channel biomagnetic recordings of the fetal heart activity. We are currently developing new computational approaches to the analysis of fetal magnetocardiographic (fMCG) signals, using realistic volume conductor models derived from ultrasound images of the fetal-maternal anatomy. The clinical validation of this methodology is conducted on fetuses with 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.

Committee Activities:
  KU
  Member, Comprehensive Exam Committee for Lalit Venkatesan (Neuroscience Program, KU)
  Member, Comprehensive Exam for Huizhong Cui (BioEngineering Program, KU)

Editorial and Grant Reviews:
  Ad hoc Reviewer, IEEE Transactions on Biomedical Engineering
  Ad hoc Reviewer, IEEE Transactions on Neural Systems and Rehabilitation Engineering
  Ad hoc Reviewer, Annals of Biomedical Engineering

Trainees:
  Rong Tao – Ph.D. Student (BioEngineering Program, KU)
  Lalit Venkatesan – Ph.D. Student (Neuroscience-Program KU), Main advisor: Professor Steven Barlow
Satish Ramalingam, Ph.D., Research Assistant Professor

I am currently the Research Assistant Professor in the Department of Molecular and Integrative Physiology at the University of Kansas Medical Center. I am working on posttranscriptional gene regulation in tumor progression and metastasis. I am interested in understanding the role of RNA binding proteins in splicing of Pyruvate kinase and its effect on glycolysis. I am also interested in identifying the factors regulating lymphangiogenesis and metastasis.

Meetings Attended:
- April 2-6, 2011 – AACR 102 Annual Meeting, Orlando, FL
- May 6, 2011 – Resident, Postdoc and Fellow Research Day, KUMC
- May 7-10, 2011 – DDW-GI Meeting, Chicago, IL

Committee Activities:
- Member, IACUC Committee
- Just obtained Graduate Faculty Status

Editorial and Grant Reviews:
- Ad hoc Reviewer, American Journal of Physiology
- Ad hoc Reviewer, European Journal of Clinical Investigation
- Ad hoc Reviewer, Letters in Drug Design & Discovery
- Ad hoc Reviewer, Environmental Toxicology
- Ad hoc Reviewer, Chemical Biology & Drug Design
- Ad hoc Reviewer, Journal of Cellular and Molecular Medicine
- Editorial Board Member, Frontiers in Pharmacotherapy of Inflammation

Trainees:
- Sydney Byrne – Summer Student
**Peter G. Smith, Ph.D.,** Professor, Director of the Institute for Neurological Disorders, Co-Director of the Kansas Intellectual and Developmental Disabilities Research Center

**Nerves regulate function and structure of peripheral cells. In turn, target cells provide molecular signals that govern the quantity and type of innervation they receive. Our research is concerned with this interplay between nerve and target in a variety of systems including the cardiovascular system, skin, and reproductive tract. We 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:
- July 18-23, 2010 – FASEB Symposium on Neural Control of Circulation, Saxtons River, Vermont
- October 2, 2010 – Vulvodynia Research Planning Workshop, Chicago, IL

Committee Activities:
- Departmental
  - Chair, Student Advisory Committee for Argenia Doss
  - 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
  - Member, Student Advisory Committee for Bliss O’Bryhim

- KUMC
  - Director, Institute for Neurological Disorders
  - Co-Director, Kansas Intellectual and Developmental Disabilities Research Center
  - Director, Communications Core, 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, LAR Advisory Committee
  - Chair, KUMC Research Institute Research Committee
  - Member, Research Institute Board of Directors
  - Member, Liver Center Advisory Committee
  - Chair, Search Committee for Department of Microbiology, Molecular Genetics and Immunology Chair
  - Member, Student Advisory Committee for Kevin Farmer

- National
  - North American Representative to the Executive Committee, International Society for Autonomic Neuroscience
Dr. Smith (continued)

Editorials and Grant Reviews
Ad hoc Reviewer, *Journal of Comparative Neurology*
Ad hoc Reviewer, *British Journal of Pharmacology*
Ad hoc Reviewer, *Brain Research*
Ad hoc Reviewer, *Regulatory Peptides*
Ad hoc Reviewer, *Journal of Neuroscience Methods*
Ad hoc Reviewer, *Journal of Endocrinology*
Ad hoc Reviewer, *Pharmacological Research*
Reviewer, NIH BDCN Study Section
Reviewer, NIH Neurological, Aging and Musculoskeletal Epidemiology Study
Section
Reviewer, KUMC Research Institute

Seminars Presented:
July 21, 2010 – “Estrogen and sensory and sympathetic neuroplasticity”. FASEB
Symposium on Neural Control of Circulation, Saxtons River, Vermont
February 14, 2011 – “Rewiring the nervous system – for better or for worse”.
State of Kansas Legislators, Topeka, KS

Teaching Activities:
PHSL 800 – Medical Physiology
  3 hours lecture
  4 hours conference
PHSL 846 – Advanced Neuroscience
  4 hours lecture

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

*My research is focused on preclinical models of normal aging and age-related diseases and conditions that affect motor function, such as Parkinson’s disease (PD), Amyotrophic Lateral Sclerosis (ALS) and stroke. 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. Our most recent studies involve characterizing orolingual motor deficits and cortical motor plasticity following ischemic damage to tongue regions of the motor cortex.*

Meetings Attended:
- November 13-17, 2010 – 40th Annual Meeting of the Society for Neuroscience, San Diego, CA

Committee Activities:
- Departmental
  - Member, Graduate Student Affairs Committee
- KUMC
  - Member, KIDDRC Rodent Behavior Advisory Committee
  - Member, KUMC IACUC
  - Member, KIDDRC Core B Advisory Committee
  - Member, Neuroscience Graduate Program Advisory Committee
  - Member, Society for Neuroscience Kansas City Chapter Executive Committee
  - Member, Society for Neuroscience Kansas City Chapter Treasurer

Editorial and Grant Reviews:
- Reviewer, *Age*
- Reviewer, *Journal of Neuroscience Methods*
- Reviewer, *Neurochemistry International*
- Reviewer, *Pharmacology, Biochemistry and Behavior*
- Ad hoc Reviewer, Research Grants Council (Hong Kong, China)
- Ad hoc Reviewer, ZDC1 SRB-Y NIH Special Emphasis Panel on NIDCD R03 Review

Seminars Presented:
Dr. Stanford (continued)

Teaching Activities:
- CORE 840 – Brian and Behavior
  25 hours small group teaching
- PHSL 846 – Advanced Neuroscience
  Course Director
  6 hours lecture
- PHSL 848 – Molecular Mechanisms of Neurological Disorders
  Faculty Mentor

Trainees:
- Jill Morris – Graduate student (Co-mentor: Paige Geiger, Ph.D.)
- Christopher Leto – Summer Student
- Nolan Seim – Summer Student
- Miranda Starr – High School Student
- Cassandra Johnson – Undergraduate Research Assistant
Dharmalingam Subramaniam, Ph.D., Research Assistant Professor

My research is focused on gastrin mediated carcinogenesis and chemoprevention. My specific areas of research includes: a) aim to determine the different gastrin-induced cellular signaling response in gastric and colon epithelial cells and its subsequent effects on the expression of proinflammatory gene COX-2 and IL-8 expression at the transcriptional and posttranscriptional levels. b) aim to determine the signaling mechanisms by dietary phyto-chemicals and its novel derivatives that inhibit the growth of colon and pancreatic cancer cells.

Meetings Attended:
   December 15-22, 2010 – ICR Symposium, India
   January 3-8, 2011 – Indian Science Congress 2011, India
   April 1-5, 2011 – American Association of Cancer Research 2011

Editorial and Grant Reviews
   Reviewer, Current Medicinal Chemistry
   Reviewer, European Journal of Clinical Investigation

Seminars Presented:
   December 15-22, 2010 – “RNA binding protein CUGBP/CELF2 mediates curcumin induced mitotic catastrophe of pancreatic cancer cells,” ICR Symposium, India
   January 3-8, 2011 – “DiFiD, a novel curcumin derivative prevents pancreatic tumor growth in vivo and by surpressing compnents of the Notch-1 γ-secretase complex,” ICR, India

Trainees:
   Elizabeth Moran – Graduate Student
   Anand Venogopal – MD/Ph.D. Student
   Cate Moriasi, Ph.D. – Post doctoral fellow
   Parasarathy Rangarajan, Ph.D. – Post Doctoral Fellow
   Jessica Johnson – Lab rotation
   Sydney Byrne – Summer intern
   Laura Fogt – APS summer research host
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 applied in solving bioinformatics problems including quantitative structure-activity relationships (QSAR), computer assisted drug design (CADD), high throughput screening (HTS) and genome mapping.

Meetings Attended:
- July 21, 2010 – K-INBRE Bioinformatics GRA Summit, Kansas State University, Manhattan, KS
- May 21, 2011 – K-INBRE GRA Summit, University of Kansas, Lawrence, KS

Seminars Presented:
- February 1, 2011 – “Microarray Technology in Biomedical Research” Johnson County Community College, Kansas City, KS
- February 3, 2011 “Artificial Intelligence Application in Computer-Assisted Molecular Design” Johnson County Community College, Kansas City, KS
- February 10, 2011 “Genomic Expression Analysis at KUMC: Bioinformatics, Microarrays and Biomedical Research” Johnson County Community College, Kansas City, KS
- April 27, 2011 – “Biomedical Research and Bioinformatics at KUMC”, Pittsburg State University, Pittsburg, KS

Academic Honors:
- Recipient of the JCCC “College Scholars Program for 2010-2011”

Teaching Activities:
- GI Physiology Lecture – Microarray data analysis and interpretation (KUMC) 1 hour lecture
- EECS 833 – Neural Networks and Fuzzy Logic (KU-Lawrence) 4 hours lecture 4 hours review
C. Merrill Tarr, Ph.D., Professor

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

Committee Activities:
   KUMC
       Director, Cardiopulmonary Module in Year 1 Medical Curriculum
       Director, Renal-Endocrine Module in Year 1 Medical Curriculum
       Member, Phase 1 Committee
       Member, Education Council
       Member, Angel Advisory Board

Academic Honors:
   Student Voice Award – Cardiopulmonary Module voted “The Outstanding First Year Module”

Teaching Activities:
   Cardiopulmonary Module Year 1 Medical
       7 hours lecture
       4 hours small group teaching
   Integration and Consolidation Module Year 2 Medical
       1 hour lecture
Joseph S. Tash, Ph.D., Professor, Director of 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.

Meetings Attended:
- July 2010 – Society for the Study of Reproduction
- August 2010 – External Advisory Board Meeting
- September 2010 – U54/U01 Steering Committee Meeting
- October 2010 – Greenwald Symposium
- November 2010 – ASGBS Annual Meeting
- April 2011 – U54 External Advisory Board Meeting
- April 2011 – International Academy of Astronautics – Human in Space Conference

Committee Activities:
- 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
  - Member of Board of Governors, American Society for Gravitational and Space Biology (2009-2012)

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

Seminars Presented:
  September 2010 – “New U-Program Collaborations and Projects (NIH Contract efforts moved to U54 by CRH)” U54/U01 Steering Committee Meeting, Portland, Oregon
  September 2010 – “H2-Gamendazole Project: Mechanism of action, drug development, & alternative scaffold discovery,” U54/U01 Steering Committee Meeting, Portland, Oregon
  February 2011 – “Reproductive Physiology in relation to space flight,” Urology Resident Seminar Series, KUMC
  April 2011 – “H2-Gamendazole: A reversible non-hormonal oral male contraceptive, moving forwards on the pipeline to clinical trials.” Baylor College of Medicine, Department of Cell Biology, Houston, TX
  April 2011 – “Impacts of Altered Gravity on Male and Female Reproductive Health”, Johnson Space Center, Astronauts Flight Surgeons, Clear Lake, TX
  May 2011 – “H2-Gamendazole – A reversible non-hormonal oral male contraceptive, moving forwards on the pipeline to clinical trials,” Urology Resident Seminar Series, KUMC

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

Trainees:
  Vijayalaxmi Gupta, Ph.D. – Post Doctoral Fellow
  Lesya Holets, Ph.D. – Post Doctoral Fellow
Michael W. Wolfe, Ph.D., Associate Professor

Proper regulation of the hypothalamo-pituitary-gonadal axis as well as development and regulation of the placenta are essential to mammalian reproduction. Research in my laboratory is directed towards understanding the cellular and molecular mechanisms involved in pituitary and placenta function as well as tissue-specific and endocrine regulation of genes encoding hormones within these tissues. This involves studying the mechanisms regulating cell differentiation, elucidation of transcription factors regulating basal expression, and identifying the signal transduction pathways involved in gonadotropin-releasing hormone, retinoid, growth factor, cytokine and adipokine regulation of gene expression.

Meetings Attended:
- July 2010 – 43rd Annual Meeting of the Society for the Study of Reproduction, Milwaukee, WI
- October 2010 – 7th 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
  - Member, Dissertation Committee for Jitu George, Ph.D. candidate
  - Chair, Dissertation Committee for Emily McDonald, Ph.D. candidate
  - Chair, Oral Comprehensive exam for Elizabeth Dille, Ph.D. candidate
  - Chair, Oral Comprehensive exam for Valentine Agbor, Ph.D. candidate
  - Member, Co-Director, 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)
  - Member IGPBS Admissions Committee
  - Member of IACUC
  - Member SOM Elections Committee
  - Chair, 8th Annual Gilbert S. Greenwald Symposium Committee
  - Judge, Student Research Forum
- National
  - Chair, By-laws Committee, Society for the Study of Reproduction
Dr. Wolfe (continued)

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

Teaching Activities:
PHSL 834 – Reproductive Physiology
  9 hours lecture
PHSL 842 – Comprehensive Human Physiology
  7 hours lecture
CORE 825 – Renal-Endocrine Module
  7 hours lecture
  2 hour review session
  4 hour review for students retaking module
CORE 830 – Reproduction and Sexuality Module
  3 hours lecture
**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. Dr. Leone Mattioli and I are also examining mechanisms of fructose-induced microvascular inflammation.

Meetings Attended:
- October 3-7, 2011 – American College of Surgeons Meeting, Washington DC
- April 10-14, 2011 – Experimental Biology meeting, Anaheim, CA

Committee Activities:
- **Departmental**
  - Member, Jie Chao Thesis Committee
  - Member, Kyle Jansson Thesis Committee
  - Member, Bliss O’Bryhim Thesis Committee
  - Member, Carrie Quinn Thesis Committee
  - Member, Timothy Donohue Thesis Committee
- **KUMC**
  - Member, Katy Allen Thesis Committee
  - Member, Brad Sullivan Thesis Committee
  - Member, Prematriculation Planning Committee
  - Member, Academic and Professionalism Committee
  - Vice-Chair, Promotions Sub-Committee
  - Member, Department of Surgery Education Committee
  - Co-Chair, Department of Surgery Research Committee
  - Member, IACUC Committee Member
  - Member, Strategic Planning Education Committee
  - Member, Academy of Medical Educators Taskforce
  - Member, Delp Academic Society Mentor (Elizabeth Echalier – 1st year medical student and Austin Koch – 2nd year medical student)
  - Member, Medical Student Applicant Interviews
  - Member, Student Leaders Committee

Editorial and Grant Reviews:
- Ad hoc Reviewer, *PLoS One*
- Ad hoc Reviewer, *Microcirculation*
Dr. Wood (continued)

Seminars Presented:
July 22, 2010 – “Novel approaches to attenuate microvascular inflammation,” KU Lawrence Drug Discovery Institute
September 16, 2010 – “Microvascular inflammation during systemic hypoxia,” University of Missouri, Kansas City School of Medicine
April 4, 2011 – “Microvascular inflammation and acclimatization during systemic hypoxia,” Department of Anatomy and Physiology, Kansas State University

Academic Honors:
Student Voice Award for Outstanding First Year Teaching

Teaching Activities:
First Year Medical Curriculum
13.5 hours lecture
2 hours review
4 hours conference
Second Year Medical Curriculum
2 hours lecture
PHSL 842 – Comprehensive Human Physiology
10 lecture hours
1 paper discussion
1 hour laboratory
First Prep Board Review
2.5 hours lecture
Pre-Matriculation Program
21 hours lecture
16 hours problem sessions
1 hour laboratory
2 hours review
Vascular Surgery Program, Department of Surgery
2 hours lecture
Department of Medicine, Cardiology Fellows
1 hour lecture
Pharmacology graduate student course
2 hours lecture
2 hours paper discussion

Trainees:
Al Casillan, Ph.D., M.D. – Resident in the Department of Surgery
Casey Hertzenberg, M.D. – Resident in the Department of Surgery
Jessica Hogan – Fourth Year Medical Student
Elizabeth Echalier – Second Year Medical Student