Annual Report of the
Department of
Molecular & Integrative
Physiology
University of Kansas Medical Center

July 1, 2016 - June 30, 2017
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The Department of Molecular and Integrative Physiology continues under the leadership of Dr. V. Gustavo Blanco. After serving as Interim Chair for almost one and a half years, Dean Robert Simari confirmed Dr. Blanco as the Kathleen M. Osborn Chair of the Physiology Department in November of 2016. Another leadership change was the creation of a vice chair position, which is historically new for the department. The vice assists the chair with strategic vision, planning and growth of all the various departmental programs. In April of 2017, Dr. Blanco offered this position to Dr. Warren Nothnick, who accepted to serve.

During this past year the Physiology Department has successfully continued working towards its academic goals, which include: 1) engaging in high quality research to generate new discoveries of physiological relevance in basic and translational science, 2) training of new generations of physicians, graduate students, and postdoctoral fellows on the basis of physiology and pathophysiology, and 3) providing service through participation in different committees and task forces that help the functioning of our department and institution. The Physiology Department has also undergone some challenges. This consisted in difficulties related to obtaining extramural funding, which is a problem common to other departments and schools, caused by the continuous reduction in research awards from local and national agencies. Another issue this past year was the reduction in size of the department, with the retirement of Dr. Paul Cheney and the decision of Dr. Joseph Tash to enter the Phased Retirement Program. Despite this, our department continues to be a relatively large size with 16 tenured faculty members, 3 research track faculty, 3 postdoctoral fellows, 3 senior scientists, and 16 pre-doctoral graduate students. After discussions with the university leadership to resolve this issue, Dr. Simari approved a plan to recruit new faculty. We have started the process of recruiting a faculty member at the assistant professor level in the area of reproduction, providing needed enhancement to an area several of our departing faculty members had specialized in. We are very excited about how new faculty will further develop our research and teaching mission.

Research programs in the various areas have continued to be vibrant and the department has maintained a consistent level of publications. This past year, a total of approximately 60 peer reviewed original articles were published in top research journals and as book chapters. In addition, a textbook for medical students was published by Dr. Blanco.

The department has had another important year with respect to teaching. Our faculty continued to maintain its high presence in medical education, with Drs. John Wood and Michael Wolfe leading the Cardiopulmonary and Renal-Endocrine modules, and most of our faculty teaching in different areas of physiology. The hard work of our faculty in teaching has been recognized with important awards given to individual lecturers and to course directors for their excellence in teaching. Besides teaching the Medical Legacy Curriculum, several of our faculty were involved in the development of the new Medical Active, Competency based and Excellence driven (ACE) curriculum. Members of our
department have also continued playing a major role in the education of graduate students by their participation in the core Integrated Graduate Program in Biological Sciences (IGPBS) curriculum and in other advanced courses, including the Comprehensive Human Physiology and Human Pathophysiology courses, led by Drs. Andrei Belousov and Steve LeVine respectively. As a testament to the work of our faculty these courses have received excellent teaching reviews from the students. Moreover, several of our faculty were invited to give educational seminars at other universities and we have been teaching in the prestigious Frontiers in Reproduction international course taught every year at the Marine Biological Laboratories in Woods Hole, Massachusetts.

We are proud that members of the Physiology Department have continued serving in numerous key committees at the university level which are essential to the overall mission of our school. In addition, we have maintained our presence at the national and international level. Our faculty have served on different review panels of the National Institutes of Health as well as of other funding agencies and they have participated as editors for, or in the editorial boards of, a variety of different journals. We are very grateful to our faculty who with their talent and hard work, have continued to maintain the high academic standards and success of our department during the 2016-2017 period.

Regarding administration, the Department of Physiology implemented a salary compensation plan based on the Allocation Model created by the School of Medicine. The plan evolved from numerous meetings between the Physiology Chair and members of the Department of Physiology Finance Advisory Committee. The resulting plan proved to be useful for a better, effort based distribution of departmental funds. It is also important to note the excellent administrative support of our office staff. A particular thank you goes to our Director of Operations, Shari Standiferd and our Senior Coordinators, Jennifer Wallace and Liam Higgins, whose hard work and continuous dedication is crucial for our department.
We would like to especially recognize our benefactor and continuous supporter, Mr. Jim Osborn. His generous contributions over the years, in memorial of his daughter, Kathleen, and wife, Marion, as well as his recent new commitment have significantly contributed to our success. The Kathleen M. Osborn Endowed Chair, the Marion M. Osborn Professorship, and the lectureship in honor of Kathleen M. Osborn that Mr. Osborn has established have made a great difference to our department. These funds contribute to support the department’s goals and our students. We all immensely appreciate the exceptional support Jim Osborn has given in honor of his family.
HIGHLIGHTS FROM THE 2016-2017 ACADEMIC YEAR

RESEARCH FUNDING: The loss of faculty, as well as the difficulties in obtaining new grants, has resulted in a decrease in research funding to the department. Most universities today face a climate of low general funding levels. Currently members of our department continue to work hard to produce high quality research grant proposals and it is anticipated that this will result in new funds for the department. Based on data provided by KUMC Enterprise Analytics, total NIH funding was $2,571,231, which is lower than that of last year ($3,765,688). The latest data available shows that our Department was ranked 58th at the national level for NIH research funding among 82 medical schools receiving NIH funding. While this is a good position, we would like to improve this ranking. During fiscal year 2017, grant requests from the Department indicated total costs of $37,695,630 (which included a $28,167,177 in direct costs and $9,528,453 in indirect costs). From these, $34,251,602 corresponded to grant proposals submitted to the National Institutes of Health.

EDUCATION: Continuing a long tradition, the Physiology Department has had another outstanding year with respect to teaching. As mentioned previously, Dr. John Wood and Dr. Michael Wolfe led modules, Cardiopulmonary and Renal-Endocrine, that are key to the medical curriculum. Cardiopulmonary was awarded best module by the medical students; this was presented to the department at the Grande Affair celebration on March 18, 2017. At this same event, two of our faculty members, Dr. John Wood and Dr. Gustavo Blanco were recognized with Student Voice Awards for their excellence in teaching. These awards are a testimony of the long lasting commitment of our faculty members to education. As a continuation of our commitment to education, our faculty had a great participation in developing the new ACE medical curriculum. Dr. John Wood served as a Discipline Leader and several other faculty (Drs. Stanford, Nothnick and Blanco) have participated as Threadheads to develop the objectives that will represent the core of the ACE curriculum. Due to the importance of physiology in year 1 of the medical curriculum, Faculty in our Department will continue having an important presence in teaching new generations of physicians. Regarding the Graduate Student curriculum, we started a new course titled: “Human Pathophysiology”, which was organized and run by Dr. LeVine.

TENURE TRACK APPOINTMENTS: No new primary tenure track appointments were made this year. We have however new appointments from The Stowers Institute of Medical Research. These include:

Ariel Bazzini, Ph.D., started as Assistant Professor on January 1, 2017. His research focuses on the regulation of gene expression in vertebrates, using as a system zebrafish.

Sarah Zanders, Ph.D., started as Assistant Professor on November 14, 2016. Her work involves the study of selfish genes, which are genes that spread by forming additional copies of itself within the genome. Her studies uses yeast as a model system.
RESEARCH TRACK APPOINTMENTS: E. Matthew Morris, Ph.D. was appointed as Research Assistant Professor, beginning on July 1, 2016. Dr. Morris investigates the role of liver energy metabolism in the development of obesity, type-2 diabetes, and cardiovascular disease.

JOINT AND ADJUNCT APPOINTMENTS: The following researchers received joint appointments at their current ranks.

Courtney Marsh, M.D., M.P.H. Clinical Associate Professor, Obstetrics and Gynecology, Reproductive Endocrinology and Infertility Division.

FACULTY PROMOTIONS: Dr. John Wood was promoted to full professor with tenure starting July 1, 2017. Dr. Wood’s work focuses on the mechanisms responsible for microvascular inflammation during acute system hypoxia as well as the mechanisms involved in adaptation to chronic hypoxia.

Dr. Kausik Si from Stowers was promoted to full professor on July 1, 2017. Dr. Si’s work focuses on prion-like protein and their role in the formation of stable, long-term memories in the brain. He uses Drosophila fruit flies as a research model.

FACULTY/STAFF DEPARTURES:

Paul D. Cheney, Ph.D. finished his phased retirement period and fully retired on June 30, 2017. He was recruited to KUMC on July 1, 1978. Dr. Cheney was named Emeritus Professor on July 1, 2017 and we wish him the best retirement after 39 years of dedicated service as Professor and Chair of Physiology.

FACULTY AWARDS/ACCOMPLISHMENTS: Numerous members of our Department have been serving on review panels from NIH and other agencies. They have also served as editors or on the editorial board of different journals and presented invited lectures at different national and international meetings and seminars at other universities. Dr. Leslie Heckert has been involved with the organization of the “Testis Workshop”, an international meeting in the area of male reproduction held in Miami, FL, in April of 2017. Drs. G. Blanco and L. Christenson have been involved with the international Frontiers in Reproduction course.

GRADUATE PROGRAM AND PHYSIOLOGY SOCIETY: The student led “Physiology Society” continued functioning well this year. A new President was elected and a new committee was chosen. The leadership of the Physiology Society is currently the following:

Zahraa Alali, President
Younshim Park, Vice-President/Stowers Chair
Joshua Curry, Social Chair
The graduate students in the department had another active year. In 2016-2017 two new students were recruited to the department. These include students who are working with our affiliate members at Stowers Research Institute. Currently, our Department has a total of 22 enrolled doctoral students. Several of our students were able to obtain external fellowships to support their training. Funding came from different sources, including the SELF Fellowship program, the KUMC Biomedical Training Program, NSF, and NIH.

The new graduate students that joined the Department in the 2016-2017 fiscal year included the following individuals (their respective mentors are listed in parenthesis):

Cameron Fox  (Dr. Peter Baumann)
Jianzheng Wu (Dr. Randal Halfmann)

Ten students completed their PhD degrees during the fall of 2016 and the spring of 2017. Congratulations to all of them and their mentors. These are listed below:

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<td>Jessica Venugopal - PhD</td>
<td>Mina Farahbakhsh – PhD</td>
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Chuankai Zhou, Ph.D. (May 24, 2016) received his degree with Dr. Rong Li at Stowers. The title of his dissertation was “Proteostasis in Budding Yeast”. Dr. Zhou is now a postdoctoral researcher in Dr. Kausik Si’s lab at the Stowers Institute.

Lei Pei, PhD. (June 9, 2016) received her degree with Dr. Alan Yu in the Kidney Institute. The title of her dissertation was “Paracellular Epithelial Transport Maximizes Energy Efficiency in the Kidney”. Dr. Pei is now a MD/Ph.D. and an internal medicine resident physician at KU Medical Center.

Wei-Ting Hung, Ph.D. (July 28, 2016) received his degree with Dr. Lane Christenson in Physiology. The title of his dissertation was “Extracellular Vesicles in Ovarian Antral Follicles: Characterization and Functions”. Dr. Hung is now a Postdoctoral Fellow in the laboratory of Dr. Miles Wilkenson at UCSD.

Michelle McWilliams, Ph.D. (September 16, 2016) received her degree with Dr. Vargheese Chennathukuzhi in Physiology. The title of her dissertation was “A Novel ocular Pathway Involving GPR10, Rest and Prickle1 in the Pathogenesis of Uterine Leiomyoma”. Dr. McWilliams is now taking some time away from research and resides in Reno, Nevada.

Jessica Venugopal, Ph.D. (November 29, 2016) received her degree with Dr. V. Gustavo Blanco in Physiology. The title of her dissertation was “Contributions of Ouabain to the Autosomal Dominant Polycystic Kidney Disease Phenotype”. Dr. Venugopal is a postdoctoral fellow at University of Michigan, Department of Internal Medicine, Cardiology Department.
JP McGinnis, Ph.D. (January 9, 2017) received his degree with Dr. Kausik Si from Stowers. The title of his dissertation was “Memory: From Sensory Circuits to Protein Conformations”. Dr. McGinnis is currently in his third year of medical school at KU.

Asona Lui, Ph.D. (March 28, 2017) received her degree with Dr. Joan Lewis-Wambi in Cancer Biology. The title of her dissertation was “Role of IFITM1 in Aromatase Inhibitor-Resistant Breast Cancer Agression”. Dr. Lui is currently in her third year of medical school at KU doing clinical rotations. She plans to go into Radiation Oncology.

Kelsey Hampton, Ph.D. (April 12, 2017) received her degree with Dr. Danny Welch from Cancer Biology. The title of her dissertation was “Characterization of Novel Metastasis Suppressor Kisspeptins”. Dr. Hampton is working as a research associate in the Welch lab through September 2017.

Mina Farahbakhsh, Ph.D. (April 14, 2017) received her degree with Dr. Vargheese Chennathukuzhi in Physiology. The title of her dissertation was “Role of MicroRNA-29 and ADAM12 in the Regulation of REST Dependent Signaling Pathways in Uterine Fibroids”. Dr. Farahbakhsh is part of the MD/Ph.D program and she is currently working on completing her MD degree at KUMC with plans to graduate in Spring of 2019.

Amanda Brinker, PhD. (April 18, 2017) received her degree with Dr. Danny Welch in Cancer Biology. The title of her dissertation was “Mitochondrial Haplotype Affects Tumorigenesis and Metastatic Efficiency Through Cell-Autonomous and Non-Cell Autonomous Mechanisms”. Dr. Brinker is currently a postdoctoral fellow in Cancer Biology working to determine the mechanism behind mitochondrial DNA influence on the metastatic cascade.

Prepared by:

V. Gustavo Blanco, MD/PhD
Professor and Kathleen M. Osborn Chair
Molecular & Integrative Physiology
Chairs of the Department

E. B. Brown Jr., PhD
Chair (1961-1973)

A. M. Thompson, PhD
Interim Chair (1973-1976)

G. S. Greenwald, PhD
Chair (1976-1993)

J. L. Voogt, PhD
Chair (1993-2001)

P. D. Cheney, PhD
Interim Chair /Chair (2001-2012)
Kathleen M. Osborn Chair
(2012-2014)

P. G. Smith, PhD
Interim Chair
(2014-2015)

V. G. Blanco, MD/PhD
Interim Chair (2015-2016)
Kathleen M. Osborn Chair
(2016-Present)
Molecular & Integrative Physiology
Emeritus Professors

Paul D. Cheney, PhD
Norberto C. Gonzalez, MD
Gilbert S. Greenwald, PhD†
Thomas Imig, PhD
Frederick Eugene Samson Jr., DO, PhD†
Lawrence Sullivan, PhD
Paul F. Terranova, PhD
James L. Voogt, PhD
Mr. James Osborn

Mr. Osborn’s relationship with our department began through his daughter Kathleen. She developed an interest in science and biology in high school and while attending college at the University of Missouri. During the summers of 1968 and 1969, Kathleen worked in the reproductive physiology lab of Gilbert Greenwald at the KU School of Medicine. This experience was particularly meaningful to Kathleen and might have motivated her to enter a career in science had she not been taken prematurely in an automobile accident in 1970. At the time of her death, Kathleen was in her junior year at the University of Missouri.

Mr. Osborn and his late wife Marion, had such high regard for Dr. Greenwald, who died in 2004, and deep gratitude for Kathleen’s experience, that they made plans to benefit the medical center through KU Endowment. Their generosity started with the Kathleen M. Osborn Lectureship in 1971. This lectureship remains as the longest running and most successful lectureship in the history of the medical center. It has attracted a long list of preeminent scientists from around the world and funds from the Kathleen Osborn Lectureship have also supported the annual Gilbert S. Greenwald Symposium.

In 2006, in memory of his beloved wife, Mr. Osborn established the Marion M. Osborn Professorship to support reproductive science within the department. The inaugural and current recipient is Dr. Leslie Heckert.

Mr. Osborn continued his generosity in honor of his daughter in 2012, establishing the Kathleen M. Osborn Chair to support the leadership position of the department. Dr. Paul Cheney was the inaugural recipient and in 2016 Dr. Gustavo Blanco was named the second Kathleen M. Osborn Chair.

This year we are again the thankful beneficiaries of Mr. Osborn’s philanthropy with the establishment of the Kathleen M. Osborn Fellowship in Reproductive Physiology. This fellowship will support graduate students in our department interested particularly in reproductive science. The fellowship will enable recipient students to discover the same enthusiasm for science and love of learning that Kathleen found so many years ago. The first student to receive this great honor is Rikki Nelson.
"Life is so precious and exciting, and there is so much to be learned, that I dislike to waste a minute."
Louis R. Fletcher, M.D.

Dr. Louis R. Fletcher left an unforgettable and generous mark on the University of Kansas. Described as a farm boy from Harper, Kansas, Dr. Louis R. Fletcher attended University of Kansas and Southwestern College for Medical School. Hardworking, humble, and adventurous are just a few words to describe the life Dr. Louis R. Fletcher lived. Dr. Fletcher was a modest man who worked extremely hard for his opportunities and income. Throughout college he paid for his expenses by washing dishes, lawn keeping, and working wheat fields. Additionally, he took breaks in his schooling to save money by working in various employment opportunities in Alaska including working in the gold mines, ore processing mills, and as a bridge carpenter. He returned to KU for the 1917-18 school year and then finished his last 2 years of education at Rush Medical College of the University of Chicago where he received his degree in medicine.

He spent much of his professional career (26 years) working for the United Fruit Company in hospitals in Panama, Guatemala, and Honduras. He served his country as a commissioned Lieutenant Commander in the Navy. Additionally, he also served as chief of surgery at the Camp White Naval Hospital in Medford, Oregon. He had a lifelong love of learning. He returned to KU for postgraduate study in anatomy, not for a degree, but for the inner desire to learn.

Dr. Fletcher rarely stayed idle in his work as he then served in many different medical positions. His adventurous spirit served as a driving factor as he traveled and worked in many different countries. He returned to the United Fruit Company for a few years, served at a hospital at Superior, Arizona, worked as the medical superintendent of the Valdez Community Hospital, was the project physician at the Naval Base at Point Barrow, and served as a surgeon for a construction company in the Marshall Islands. Following retirement from the medical profession, Dr. Fletcher spent time traveling to grand places. He began by sailing from New Orleans to South Africa and then continued his travels to Asia, Australia, and New Zealand.

Throughout his life, Dr. Louis R. Fletcher became intrigued with the prospect of being a “millionaire.” Fletcher made this happen through “frugality, skimping, and strict economy.” He invested his money and was very conservative with his spending and lifestyle. He lived modestly, ate low cost substantial food, and chose to travel by bus instead of train or plane. Dr. Fletcher humbly achieved that goal of a million dollars, in which he then said, “As you know, I have always dreamed of acquiring a million dollars. This has finally been accomplished and today I have given this million dollars to Kansas
University, the school that I love so deeply and which has had such a tremendous good
influence on my life. I have done this with the greatest of pleasure and satisfaction.” His
donation to the Kansas University Endowment Association has provided support of
research for physiology, biochemistry, pharmacology, and anatomy at the University of
Kansas Medical Center as well as construction of the Dr. Louis R. Fletcher Research
Laboratories. The Physiology Department wants to extend a gracious and continued
thank you to Dr. Louis R. Fletcher for the opportunities and support his generosity
continues to provides.
Dr. Walter Joseph Meek (1878 – 1963)

Dr. Walter Joseph Meek demonstrated academic excellence throughout his life. Dr. Meek and his families generosity is continually valued and honored in the Physiology Department. Walter Joseph Meek was born in Dillion, KS in 1878. At age eight, Dr. Meek’s father passed away followed by his mother’s passing a few years later. Following their passing, he was raised with his first cousins. From a young age, Dr. Meek showed strong educational aspirations.

Dr. Meek graduated from the University of Kansas in 1902 where he was senior class president and editor of the school paper. As of 1983, Dr. Meek held the highest grade point average of a University of Kansas Graduate. He continued his educational pursuits at Penn College and the University of Chicago obtaining his Ph.D. in Physiology in 1909. While pursuing his Ph.D. he taught at Penn College from 1903 – 1908 where he attained the rank of professor of biology. Dr. Meek then began teaching at the University of Wisconsin. He served as instructor in physiology (1908-1910), assistant professor (1910-1912), associate professor (1912-1918), and professor (1918-1948). He then assumed the position of chairman of Physiology Department until his retirement in 1948.

Additional professional accomplishments at the University of Wisconsin include assistant dean of medicine from (1920 – 1942), acting dean (1942 – 1945), and associate dean from 1945 until his retirement. Dr. Walter Joseph Meek also held the commission of major in the Chemical Warfare Service during the World War I. A chemical warfare unit was set up at the University, and Dr. Meek assisted with discovering the biological effects of mustard gas, lewisite, and phosgene.

Dr. Meek married Crescence Eberley on December 26, 1906. Six years later, they had their first child, Joseph Walter Meek, born in 1912. Joseph became a law school professor at the University of New Mexico. Their second child, Mary Crescence Meek, born in 1917, worked as a stewardess for American Airlines. Their third and final son, John Sawyer Meek, was born a year later in 1918. He became a professor of chemistry at the University of Colorado. The Meek family was very adventurous, embarking on many different outdoor endeavors. They visited Switzerland to hike over the high passes and climbed Pikes Peak. They also spent time at Yellowstone and Glacier National Parks. Additionally, Dr. Meek enjoyed side hobbies including photography, gardening, repairing and refinishing antique furniture, and collecting shells and stamps.

Dr. Meek's contributions to the study of the history of medicine are nothing short of extraordinary. His bibliography consisted of 110 scientific papers and one of his most clinically relevant contributions was the discovery, in collaboration with Maurice H.
Seevers and Ralph M. Waters, that catecholamines cause ventricular fibrillation in dogs anesthetized with cyclopropane.

Upon Dr. Meek’s retirement in 1948 he remained at the University of Wisconsin as a research professor for an additional year. He continued to lecture at the University of Texas and served on a committee to establish a medical school in Gainesville, Florida. His death occurred quietly in 1963 at the age of 84. Mrs. Meek passed away in 1973 at the age of 92. His ashes are buried with his wife’s in her family’s burial plot in Pennsylvania. The Physiology Department extends remembrance and sincere gratitude to Dr. Meek and his family for the generosity bestowed upon the Physiology Department. The allocation of funds is still greatly valued and utilized within the Department to continue Dr. Meek’s passion of advancing medicine.
Abrahams Lectureship Established
Mr. J. Hambleton Abrahams (1913-1996)

The Security Benefit Group of Companies, headquartered in Topeka, started an annual gift of $7,500 to the KU Endowment Association to fund the J Hambleton Abrahams lectureship in Physiology at KUMC. The lecture series honors Abrahams’ 50 years with Security Benefit.

According to Gilbert S. Greenwald, Ph.D., chairman of the Physiology Department in KUMC: “the funds will be used to bring annually to the center a person of national and international reputation in one of the physiology subspecialties: cardiovascular physiology, renal physiology, neuro-physiology, endocrinology, biophysics or epithelial transport physiology”.

Security Benefit is the parent company of the Security Benefit Group of Companies, a financial services organization that maintains more than $13 billion of life insurance in force and has $2 billion in assets under management.

Abrahams and his wife, Julie, live in Topeka, where he was born and raised. Mrs. Abrahams is a KU Endowment Association trustee.

“Security Benefit is delighted to establish the J Hambleton Abrahams lectureship in physiology to recognize Mr. Abrahams’ half-century of service to our company,” said Archi R. Dykes, president and chief executive of Security Benefit and former KU chancellor. “We hope that the lectureship, consistent with Mr. Abrahams’ wishes, will enrich the educational program of all KU Medical Center students.”
(Left to right): E. Matthew Morris, John Thyfault, Phil Lee, Lane Christenson, Michael W. Wolfe, Gustavo Blanco, Andrei Belousov, Steven LeVine, John Stanford, Warren Nothnick, Peter Smith, Vargheese Chennathukuzhi, Melissa Larson

Not Pictured:
Leslie Heckert, Sam Enna, Paul Cheney, Joseph S. Tash, John G. Wood, Sumedha Gunewardena, Paige Geiger
Department of Molecular & Integrative Physiology Graduate Students
2016-2017

Front Row (left to right): Zahraa Alali, Page Hayley, Rikki Nelson, Consuelo Perez Sanchez

Back Row (left to right): Joshua Curry, Ashley Cloud, Elizabeth Thoenen, Younshim Park, Alex Von Schulze

Not Pictured: Amanda Brinker, Blake Ebner, Kelsey Hampton, Liying Li, John McGinnis, Michelle McWilliams, Amy Cantilena, Mina Farahbakhsh, Asona Lui, Margaret Pruitt, Archana Raman; Jessica Venugopal, Fatimah Aljubran, Ashley Archer, Li Chen, Blake Ebner, Cameron Fox, Jianzheng Wu, Zelha Nil, Wei-Ting Hung, Lei Pei, Chuankai Zhou
DEPARTMENT ROSTER
July 1, 2016 – June 30, 2017

a. Faculty

Primary Appointment in Physiology
V. Gustavo Blanco, M.D., Ph.D., Professor & Kathleen M. Osborn Chair
Andrei Belousov, Ph.D., Associate Professor
Paul D. Cheney, Ph.D., Professor
Vargheese M. Chennathukuzhi, Ph.D., Associate Professor
Lane K. Christenson, Ph.D., Associate Professor
Salvatore J. Enna, Ph.D., Professor; Associate Dean for Research and Graduate Education
Paige C. Geiger, Ph.D., Associate Professor
Leslie L. Heckert, Ph.D., Marion M. Osborn Professor for Reproductive Sciences
Phil Lee, Ph.D., Associate Professor
Steven M. LeVine, Ph.D., Professor
Warren Nothnick, Ph.D., Professor, Vice Chair, Director of the Center for Reproductive Sciences
Peter G. Smith, Ph.D., Professor, Co-Director of the Kansas Intellectual and Developmental Disabilities Research Center, Senior Associate Dean for Research
John A. Stanford, Ph.D., Associate Professor, (Associate-director of KINBRE
Joseph S. Tash, Ph.D., Professor
John P. Thyfault, Ph.D., Associate Professor
Michael W. Wolfe, Ph.D., Associate Professor
John G. Wood, Ph.D., Professor, Director of Educational Programs

Emeritus
Norberto C. Gonzalez, M.D., Professor
Thomas J. Imig, Ph.D., Professor
Lawrence P. Sullivan, Ph.D., Professor
Paul F. Terranova, Ph.D., Professor
James L. Voogt, Ph.D., Professor

Stowers Affiliates
Peter Baumann, Ph.D., Professor
Ariel Bazzini, Ph.D., Assistant Professor
Randal Halfmann, Ph.D., Assistant Professor
Scott Hawley, Ph.D., Professor
Sue Jaspersen, Ph.D., Associate Professor
Nicolas Rohner, Ph.D., Assistant Professor
Kausik Si, Ph.D., Professor
Sarah Zanders, Ph.D., Assistant Professor

Research Track Faculty
Sumedha Gunewardena, D.Phil., Research Assistant Professor
Melissa Larson, Ph.D., Research Assistant Professor & Director of
Transgenic and Gene Targeting Institutional Facility
E. Matthew Morris, Ph.D., Research Assistant Professor

Joint Appointment in Physiology
Shrikant Anant, Ph.D., Professor of Surgery, (Vice Chair, Surgery Research)
Richard Barohn, M.D., Professor (Chair, Neurology)
Sandra Billinger, PT, Ph.D., FAHA, Associate Professor (Physical
Therapy and Rehabilitation Science)
William Brooks, Ph.D., Professor (Neurology, Director of Hoglund Brain Imaging
Center)
Jeffrey Burns, M.D., Professor (Neurology, Director of Alzheimer and
Memory Center & Alzheimer’s Disease Clinical Research Program)
In-Young Choi, Ph.D., Associate Professor (Neurology & Hoglund Brain Imaging
Center)
Buddhadeb Dawn, M.D., Professor (Medicine, Director of Cardiovascular
Research Institute, Division of Cardiovascular Disease, and Midwest Stem
Cell Therapy Center)
Animesh Dhar, Ph.D., Associate Professor (Cancer Biology)
Navneet Dhillon, PhD., Associate Professor (Internal Medicine – Pulmonary
Division)
Dan Dixon, Ph.D., Associate Professor (Cancer Biology)
Shawn Frost, Ph.D., Research Assistant Professor (Rehabilitation Medicine)
Tomoo Iwakuma, M.D., Ph.D., Associate Professor (Cancer Biology)
Jill Jacobson, M.D., Professor (Pediatrics)
Benyi Li, Ph.D., Associate Professor (Urology, Director of Basic Science
Research)
Joan Lewis-Wambi, Ph.D., Assistant Professor (Cancer Biology)
Joshua Mammen, M.D., Associate Professor (General Surgery and Vice Chair of
Surgery)
Courtney Marsh, M.D., M.P.H. Clinical Associate Professor (Obstetrics and
Gynecology, Reproductive Endocrinology and Infertility Division)
Ajay Nangia, M.B.B.S., FACS, Professor (Urology Surgery)
Jules Nazzaro, M.D., Associate Professor (Neurosurgery and Vice Chair of
Education)
Randolph Nudo, Ph.D., Professor and Vice Chair of Research (Rehabilitation
Medicine)
Janet Pierce, Ph.D., ARNP, CCRN, Professor (School of Nursing)
Jeff Radel, Ph.D., Associate Professor (Occupational Therapy)
Cary Savage, Ph.D., Professor (Psychiatry and Behavioral Science)
William (Zhiming) Suo, M.D., Research Associate Professor (Neurology)
Russell H. Swerdlow, M.D., Professor (Neurology)
Shahid Umar, Ph.D., Associate Professor (Surgery)
Darren Wallace, Ph.D., Associate Professor (Nephrology and Hypertension)
Carl Weiner, M.D., M.B.A., Professor & Chair Associate Director (OB/GYN)
Danny Welch, Ph.D., Professor & Chair (Cancer Biology)
Alan Yu, MB, B.Chir., Professor & Director (Kidney Institute)

Adjunct Appointment in Physiology
Mark Weiss, Ph.D., Professor (Kansas State University College of Veterinary Medicine)
### b. Graduate Students

<table>
<thead>
<tr>
<th>Joined Physiology</th>
<th>Prelims</th>
<th>Candidate</th>
<th>Requirements Fulfilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zahraa Alali</td>
<td>08/15</td>
<td>05/16</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Fatimah Aljubran</td>
<td>08/17</td>
<td></td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Ashley Archer (Ward)</td>
<td>08/14</td>
<td>04/15</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Amanda Brinker</td>
<td>08/13</td>
<td>04/14</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Amy Cantelina</td>
<td>06/12</td>
<td>04/13</td>
<td>M.D./Ph.D.</td>
</tr>
<tr>
<td>Li Chen</td>
<td>06/11</td>
<td>04/12</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Ashley Cloud</td>
<td>08/17</td>
<td></td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Joshua Curry</td>
<td>06/14</td>
<td>11/15</td>
<td>M.D./Ph.D.</td>
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<tr>
<td>Blake Ebner</td>
<td>06/14</td>
<td>11/15</td>
<td>M.D./Ph.D.</td>
</tr>
<tr>
<td>Mina Farahbakhsh</td>
<td>06/14</td>
<td></td>
<td>M.D./Ph.D.</td>
</tr>
<tr>
<td>Cameron Fox</td>
<td>06/15</td>
<td></td>
<td>M.D./Ph.D.</td>
</tr>
<tr>
<td>Kelsey Hampton</td>
<td>08/13</td>
<td>04/14</td>
<td>Ph.D.</td>
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<tr>
<td>Page Hayley</td>
<td>08/17</td>
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<td>Ph.D.</td>
</tr>
<tr>
<td>Wei-Ting Hung</td>
<td>08/11</td>
<td>04/13</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Liying Li</td>
<td>06/11</td>
<td>04/12</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Asona Lui</td>
<td>06/13</td>
<td>11/14</td>
<td>M.D./Ph.D.</td>
</tr>
<tr>
<td>John McGinnis</td>
<td>06/12</td>
<td>04/13</td>
<td>M.D./Ph.D.</td>
</tr>
<tr>
<td>Michelle McWillians</td>
<td>08/13</td>
<td>04/14</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Rikki Nelson</td>
<td>09/17</td>
<td></td>
<td>M.S.</td>
</tr>
<tr>
<td>Zelha Nil</td>
<td>08/14</td>
<td>05/15</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Younshim Park</td>
<td>08/15</td>
<td>05/16</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Lei Pei</td>
<td>08/11</td>
<td>04/13</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Margaret Pruitt</td>
<td>04/13</td>
<td>04/15</td>
<td>M.D./Ph.D.</td>
</tr>
<tr>
<td>Archana Raman</td>
<td>08/12</td>
<td>04/13</td>
<td>Ph.D.</td>
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<tr>
<td>Consuelo Perez Sanchez</td>
<td>08/17</td>
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<td>Ph.D.</td>
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<tr>
<td>Alex Von Schulze</td>
<td>08/17</td>
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<td>Ph.D.</td>
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<tr>
<td>Elizabeth Thoenen</td>
<td>08/17</td>
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<td>Ph.D.</td>
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<tr>
<td>Jessica Venugopal</td>
<td>06/11</td>
<td>04/12</td>
<td>Ph.D.</td>
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<tr>
<td>Jianzheng Wu</td>
<td>08/16</td>
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<td>Ph.D.</td>
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<tr>
<td>Chuankai Zhou</td>
<td>05/10</td>
<td>03/14</td>
<td>Ph.D.</td>
</tr>
</tbody>
</table>
c. Postdoctoral Fellows
Aritra Bhattacherjee, Ph.D.
Pavla Brachova, Ph.D.
Faezeh Koohestani, Ph.D.
Colin McCoin, Ph.D.
Robert Rogers, Ph.D.
Scott Sands, Ph.D.
Dr. Prabakar Singh, Ph.D.
Fu Chen (Jane) Yang, Ph.D.

d. Temporary Students
Olivia Dykes
Sean Ellis
Vendita Garimella
Weah Landford
Abril Lara
Adrianna Maurer
Hanna Meeks
Kavya Shivashankar
Alex Von Shulze
e. Research Staff
Peter Adany – Senior Research Associate
Julie Allen – Senior Research Associate
Janna Belousova – Senior Research Assoc.
Illya Bronshteyn – Research Associate
Anuradha Chakrabarty – Senior Scientist
Khyati Dalal – Research Assistant
Julia Draper – Research Associate
Sornakala Ganeshkumar – Research Asst.
Subhra Gosh – Research Technician
Amanda Graham – Research Associate
Rebecca Heidker – Research Asst. Prof.
Lesya Holets – Senior Scientist
Naomi Holloway – Research Assistant
Xiaoman Hong – Senior Research Assoc.
Lovella Insisienmay – Research Asst.
Vincentaben Khristi – Research Assistant
Dora Krizsan-Agbas – Senior Scientist
Lin Kuang – Visiting Scientist
Zhaohui Liao – Research Associate
Jeff McDermott – Senior Research Associate
Ying Mu – Research Associate
Gladis Sanchez – Research Associate
Kimberly Stanford – Research Associate
Sarah Tague – Senior Scientist
Mariad Thatcher – Research Associate
Jonathan Warren – Resident in Dept. of Surgery
Joshua Wheatley – Research Assistant
Eric Yarns – Research Assistant
Wei Yu – Senior Scientist

f. Support Staff
Alexis Battershell – Student Assistant
MacKenzie Boone – Student Assistant
Liam Higgins – Accountant
Lynn LeCount – Managing Editor
Jennifer McNichols – Editorial Coordinator
Shari Standiferd – Director of Operations
Jennifer Wallace – Accountant
Activities of Graduate Students

**Zahraa Alali**

Publications:

Presentations:
12th Annual Gilbert S. Greenwald Symposium on Reproduction and Regenerative Medicine Role of RPLP1 in endometriosis (presentation). *The University of Kansas Medical Center, Kansas City, KS. October 22nd*, 2016.

Meetings Attended:

64th Annual Meeting for the Society for Reproductive Investigation. March 15th – 18th, 2017, Orlando, FL.

**Ashley Archer**

Publications:


Abstracts:
Presentations:

Honors/Awards:
1st Place Oral Presentation Student Research Forum – Platform Session A
Self-Graduate Fellowship Professional Development Award
Physiology Society Travel Award
American Physiological Society Minority Travel Fellowship Award April 2016
American Physiological Society Minority Travel Fellowship Award November 2016
The Physiological Society Travel Award
Student Governing Council Travel Award

**Joshua Curry**

Publications:
Veiras LC, Girardi ACC, Curry J, Pei L, Ralph DL, Tran A, Castelo-Branco RC,

Honors/Awards:
Top Oral Abstract by Trainees, American Society of Nephrology (ASN) Kidney Week 2016

Additional Accomplishments:
President, KUMC MD/PhD Student Council

**Asona Lui**

Publications:

Abstracts:


Presentations:

Harvard University New England Science Symposium/ Poster Presentation/ Boston, MA/ Mar 24-26 2017

KUMC Student Research Forum/ Oral Presentation/ Kansas City, KS/ Apr 6, 2017

Honors/Awards:

2017: BEST PRESENTATION BY FEMALE GRADUATE STUDENT
Women in Medicine and Science KUMC Chapter, Student Research Forum

2017: PHYSIOLOGY SOCIETY CRESCEENCE E. MEEK EXCELLENCE AWARD
Top Oral Presentation in Molecular and Integrative Physiology, Student Research Forum

2017: 1ST PLACE ALL SESSIONS
KUMC Student Research Forum

2017: GRADUATE STUDENT ACHIEVEMENT AWARD
KUMC Student Research Forum and Office of Graduate Studies

2017: TRAVEL AWARD, AMERICAN ASSOCIATION OF CANCER RESEARCHERS (AACR)
Geographical Management of Cancer Health Disparities Program (GMaP) Region 3

2016: 1ST PLACE STUDENT POSTER AND TRAVEL AWARD
The University of Kansas Cancer Center Research Symposium
Additional Accomplishments:
   Dissertation Defense March 28th, 2017

Michelle McWilliams

Publications:

Younshim Park

Publications:

Presentations:
   Young Investigators Science Retreat, Poster, Stowers Institute for Medical Research, September 8 – 9, 2016
   Axon Guidance, Synapse Formation & Regeneration, Poster, Cold Spring Harbor Laboratory, September 20 – 24, 2016
   Student Research Forum, Oral presentation, KU Medical Center, April 5 – 6, 2017

Seminars Presented:
   Open Mic Science, Stowers Institute for Medical Research, June 23, 2017

Meetings Attended:
   Cold Spring Harbor Laboratory, September 20 – 24, 2016

Honors/Awards:
   1st place Poster Presentation Session II, Young Investigator Science Retreat, Stowers Institute for Medical Research, September 2016
   Travel award from Stowers Institute for Medical Research ($1000), 2016
   2nd place Oral Presentation B, Student Research Forum, University of Kansas Medical Center, April 2017

Archana Raman

Publications:
   Archana Raman, Gail A. Reif, Yuqiao Dai, Aditi Khanna, Xiaogang Li, Lindsay Astleford, Stephen C. Parnell, James P. Calvet, and Darren P. Wallace. "Integrin-Linked Kinase Signaling Promotes Cyst Growth and Fibrosis in

Abstracts:


Presentations:

Experimental Biology 2017 - Chicago, IL (April 2017): Poster presentation (First author; APS Poster of distinction)

American Society of Nephrology (ASN) Kidney Week 2016 - Chicago, IL (November 2016): Poster Presentation (First author in 2 posters and co-author on one poster)

Seminars Presented:


Meetings Attended:

ASN Kidney week 2016 - November 2016, Chicago, IL
Experimental Biology 2017 - April 2017, Chicago, IL

Honors/Awards:

Poster of distinction at Experimental Biology, American Physiology Society - 2017
Travel Award - Dept. of Molecular and Integrative Physiology, KU Medical Center 2017
Travel Award, Student Governing Council, KU Medical Center - 2016
Jessica Venugopal

Publications:


Venugopal J. Contributions of ouabain to the autosomal dominant polycystic kidney disease phenotype. 2016 Dec; (Dissertation). http://hdl.handle.net/1808/24813

Presentations:

ASN Kidney Week, Poster Presentation, Chicago, IL, November 2016

Seminars Presented:

“Ouabain and autosomal dominant polycystic kidney disease” – KUMC Physiology Department Seminar, October 2016

“Ouabain-dependent calcium alterations in NHK and ADPKD cells” – KUMC Kidney Institute Seminar, May 2016

Meetings Attended:

ASN Kidney Week, Chicago IL, November 2016

Honors/Awards:

Travel award, KUMC Physiology Society, June 2016
COURSES TAUGHT

Medical Curriculum Core Courses
CORE 815 – Cardiopulmonary. Dr. Wood, Dr. Geiger, Dr. Gonzalez, and Dr. Smith
CORE 820 – Gastrointestinal Tract and Nutrition. Dr. LeVine
CORE 825 – Renal and Endocrine System. Dr. Wolfe and Dr. Blanco
CORE 830 – Reproduction and Sexuality. Dr. Wolfe
CORE 840 – Brain and Behavior. Dr. LeVine and Dr. Stanford
CORE 860 – Integration and Consolidation, Dr. Blanco, and Dr. Wood

Departmental Graduate Courses
PHSL 800 – Medical Physiology. Dr. Smith
PHSL 834 – Reproductive Physiology. Dr. Chennathukuzhi
PHSL 835 – Integrative Physiology of Exercise. Dr. Geiger, Dr. Thyfault, and Dr. Gonzalez
PHSL 842 – Comprehensive Human Physiology. Dr. Belousov, Dr. Christenson, Dr. Chennathukuzhi, Dr. Geiger, Dr. LeVine, Dr. Wolfe, Dr. Heckert and Dr. Nothnick
PHSL 843 – Physiology of Disease. Dr. LeVine, Dr. Nothnick, Dr. Christenson, Dr. Chennathukuzhi, Dr. Thyfault, Dr. Wolfe, Dr. Stanford, Dr. Heckert, Dr. Geiger, and Dr. Blanco
PHSL 846 – Advanced Neuroscience. Dr. Stanford, Dr. Cheney, Dr. Lee, and Dr. Smith
PHSL 848 – Molecular Mechanisms of Neurological Disorders. Dr. LeVine, Dr. Belousov, Dr. Stanford
PHSL 851 – Seminar Course. Dr. Christenson

IGPBS Courses
GSMC 851 – Molecular Genetics. Dr. Chennathukuzhi, Dr. Christenson
GSMC 853 – Cellular Structure. Dr. Belousov and Dr. Blanco
GSMC 854 – Cell Communication. Dr. Nothnick
GSMC 851 – *Molecular Genetics*. Dr. Christenson

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

GSMC 856 – *Introduction to Research Ethics*. Dr. Wolfe
DEPARTMENT SEMINARS

The Department Seminar program was directed by Dr. Vargheese Chennathukuzhi. Forty-five speakers made presentations, ten of which were from outside the university. In addition to support from the department, the J. Hambleton Abrahams Lectureship in Physiology Endowment Fund, Kathleen M. Osborn Memorial Lectureship in Physiology Endowment Fund, the Office of the Dean of the School of Medicine, the KIDDRC, Landon Center of Aging and the Center for Reproductive Sciences, Dr. Louis R. Fletcher Endowment Physiology Fund, and the School of Medicine Bohan Visiting Professor Program made important financial contributions to our program.

July 21, 2016
Gary L. Dunbar, Ph.D.
Distinguished Professor
Psychology & Neuroscience Program
Central Michigan University
Mount Pleasant, MI
Hosted by Dr. John A. Stanford, Associate Professor
Molecular & Integrative Physiology
KUMC

July 28, 2016
Dissertation Defense, 12:00 p.m. Lied Auditorium
Wei-Ting Hung
Graduate Student
Molecular & Integrative Physiology
KUMC

September 12, 2016
V. Gustavo Blanco, M.D., Ph.D.
Professor, Interim Chair
Molecular & Integrative Physiology
KUMC

September 16, 2016
Dissertation Defense, 10:00 a.m. Lied Auditorium
Michelle McWilliams
Graduate Student
Molecular & Integrative Physiology
KUMC

“Transplantation of mesenchymal stem cells to reduce behavioral deficits in rodent models of Huntington’s disease”

“Extracellular vesicles in ovarian antral follicles: Characterization and functions”

“Targeting Na, K-ATPase alpha4 to block sperm function”

“A Novel Molecular Pathway Involving GPR10, REST, and PRICKLE1 in the Pathogenesis of Uterine Leiomyoma”
September 26, 2016
Dan Dixon, Ph.D.
Co-Leader, Cancer Prevention Program
Cancer Biology
KUMC

“The RNA-Binding Protein Tristetraprolin Controls GI Homeostasis and Tumorigenesis”

October 3, 2016
Amanda Bruce, Ph.D.
Assistant Professor
Behavioral Pediatrics
KUMC

“Food Marketing, Food Motivation, and Functional MRI”

October 10, 2016
Joseph S. Tash, Ph.D.
Professor
Molecular & Integrative Physiology and Department of Urology
KUMC

“Novel approaches to Non-hormonal Male and Female Contraception: Three projects on the pipeline to clinical trials”

October 17, 2016
Margaret Pruitt
Graduate Student
Molecular & Integrative Physiology
KUMC

“Randomization of the Schizosaccharomyces pombe telomerase RNA template to define the role of telomere sequence in telomere maintenance and cellular survival”

October 24, 2016
Sarah Zanders, Ph.D.
Assistant Investigator
Stowers Institute for Medical Research
Assistant Professor
Molecular & Integrative Physiology
KUMC

“Meiotic Drive: How to Cheat at Sex and Win”

October 31, 2016
Jessica Venugopal
Graduate Student
Molecular & Integrative Physiology
KUMC

“Ouabain and Autosomal Dominant Polycystic Kidney Disease”
November 4, 2016
Jonathan Pinkston, Ph.D.
Associate Professor
Applied Behavioral Analysis
Department of Psychology
Western New England University
Hosted by Dr. John A. Stanford
Associate Professor
Molecular & Integrative Physiology
KUMC

“Caffeine’s Stimulant Effects: A Love Story”

November 7, 2016
Fariba Behbod
Associate Professor
Division of Cancer and Developmental Biology
KUMC

“The Identification of Molecular and Cellular Basis for the Invasive Phenotype in Human Ductal Carcinoma in Sita”

November 14, 2016
Kathleen M. Osborn Memorial Lectureship
Douglas M. Stocco, Ph.D.
Professor Emeritus
Cell Biology and Biochemistry Texas Tech University Health Sciences Center
Funded by Kathleen M. Osborn Memorial Endowment Fund
Hosted by Dr. Leslie Heckert
Marion M. Osborn Professor for Reproductive Sciences
KUMC

“The history of the Discovery of the StAR Protein”

November 28, 2016
Wen-Xing Ding, Ph.D.
Associate Professor
Pharmacology, Toxicology & Therapeutics
KUMC

“Autophagy in Alcohol and Drug-Induced Liver Injury: Lessons from Gene Knockout Animal Models”

November 29, 2016
Dissertation Defense, 1:00 p.m. Beller Conference Center
Jessica Venugopal
Graduate Student
Molecular & Integrative Physiology
KUMC

“Contributions of Oubain to the Autosomal Dominant Polycystic Kidney Disease Phenotype”
December 5, 2016
John A. Stanford, Ph.D.
Associate Professor
Molecular & Integrative Physiology
KUMC

“Anatomical, Neurochemical, and Metabolic Dysfunction with Hyperbilirubinemia in 21-day-old and 4-month-old Jaundiced Gunn Rats”

December 12, 2016
Joan Lewis-Wambi, Ph.D.
Assistant Professor
Cancer Biology
KUMC

“IFITM1: A Novel Marker and Molecular Target for Aggressive Breast Cancer”

December 19, 2016
Mizuki Azuma, Ph.D.
Associate Professor
Department of Molecular Biosciences
The University of Kansas – Lawrence

“Function of Ewing Sarcoma’ EWS Protein in Tumorigenesis and Skeletogenesis”

January 9, 2017
Courtney A. Marsh, M.D., M.P.H.
Clinical Associate Professor
Department of Obstetrics and Gynecology
Reproductive Endocrinology & Infertility Division
KUMC

“Limbic Activation in Polycystic Ovary Syndrome”

January 9, 2017
Dissertation Defense, 2:30 p.m. Stowers Institute for Medical Research Classroom
JP McGinnis
M.D. / Ph.D. Student
Molecular & Integrative Physiology
Stowers Institute for Medical Research
KUMC

“Memory: From Sensory Circuits To Protein Conformations”
January 23, 2017
Jeffrey M. Friedman, M.D., Ph.D.
Investigator, Howard Hughes Medical Institute
Marilyn M. Simpson Professor
Laboratory of Molecular Genetics
The Rockefeller University
New York, NY
Funded by the J. Hambleton Abrahams Lectureship
Hosted by the Physiology Society
"Leptin and the Regulation of Food Intake and Body Weight"

January 30, 2017
Lane Christenson, Ph.D.
Associate Professor
Molecular & Integrative Physiology
KUMC
“Studies of Extracellular Vesicle Function in Ovarian Biology”

February 6, 2017
Bony de Kumar, Ph.D.
Post-doctoral Fellow
Krumlauf Lab
Stowers Institute for Medical Research
“TALES of mapping Hos target”

February 20, 2017
Tiangang Li, Ph.D.
Pharmacology, Toxicology & Therapeutics
KUMC
“Bile Acid Signaling in Liver Metabolism"

February 27, 2017
Andrea Braundmeier, Ph.D.
Assistant Professor
Medical Microbiology, Immunology & Cell Biology
Department of Obstetrics and Gynecology
Southern Illinois University, School of Medicine
Carbondale, IL
Funded by the J. Hambleton Abrahams Lectureship
Hosted by Faezeh Koohestani
“The Host Microbiome: A Novel Tool to Diagnose Inflammation and Disease”

March 6, 2017
Prachee Avasthi, Ph.D.
Molecular & Integrative Physiology
KUMC
“Actin Redundancy is Required for Assembly of the Microtubule-Based Flagellum in Chlamydomonas”
March 13, 2017
Vargheese Chennathukuzhi, Ph.D.
Molecular & Integrative Physiology
KUMC

“REST- the Master Regulator of Tumorigenic Pathways in Uterine Fibroids”

March 16, 2017 James L. Voogt Lecture in Neuroendocrinology
Joseph S. Takahashi, Ph.D.
Professor and Chair
Department of Neuroscience
Investigator, Howard Hughes Medical Institute
Loyd B. Sands Distinguished Chair in Neuroscience
University of Texas Southwestern Medical Center
Funded by the Institute for Reproductive Health & Regenerative Medicine
James L. Voogt Lectureship Fund
Department of Molecular and Integrative Physiology
School of Medicine Bohan Visiting Professor Program

“Transcriptional Architecture of the Circadian Clock in Mammals”

March 20, 2017
School of Medicine Bohan Distinguished Lecturer
Steven Britton, Ph.D. Professor
Departments of Anesthesiology and Molecular & Integrative Physiology
University of Michigan Medical School
Ann Arbor, MI
Funded by the School of Medicine Bohan Visiting Professor Program
Dr. Louis R. Fletcher Endowment Physiology Fund
Hosted by Dr. John Thyfault, Associate Professor
Molecular & Integrative Physiology
KUMC

“Artificial Selection for Rat Models of Complex Disease Risks: An Evolutionary Strategy”

March 27, 2017
Jeremy Chien, Ph.D.
Assistant Professor, Cancer Biology Program Leader, Applied Genomics and Cancer Therapeutic (AGCT)
KUMC

“Targeting the Molecular Mechanisms of ‘Evolvability’ to Improve Chemotherapies for Ovarian Cancer”
March 28, 2017
Dissertation Defense, 1:30 p.m. Beller Conference Center
Asona Lui
Graduate Student
Molecular & Integrative Physiology
KUMC

“The Role of IFITM1 in Promoting Aromatase-Inhibitor Resistant Breast Cancer Aggression”

April 10, 2017
School of Medicine Bohan Distinguished Lecturer
Dexi Liu, Ph.D.
Panoz Professor of Pharmacy
Head, Department of Pharmaceutical and Biomedical Sciences
University of Georgia, College of Pharmacy
Athens, GA
Funded by the School of Medicine Bohan Visiting Professor Program
Dr. Louis R. Fletcher Endowment Physiology Fund
Hosted by Dr. Warren Nothnick, Professor
Molecular & Integrative Physiology
KUMC

“Hydrodynamic Gene Transfer and Its Applications”

April 12, 2017
Dissertation Defense, 9:00 a.m. Beller Conference Center
Kelsey Hampton
Graduate Student
Molecular & Integrative Physiology
KUMC

“Characterization of Novel Metastasis Suppressor Kisspeptins”

April 14, 2017
Dissertation Defense, 1:00 p.m. Beller Conference Center
Mina Farahbakhsh
Graduate Student
Molecular & Integrative Physiology
KUMC

“Role of MicroRNA-29 and ADAM12 in the Regulation of REST Dependent Signaling Pathways in Uterine Fibroids”

April 17, 2017
Julia Zeitlinger, Ph.D.
Associate Investigator
Stowers Institute for Medical Research

“Peeking into Transcription in vivo using High-Resolution Genomics Techniques”
April 18, 2017
Dissertation Defense, 1:30 p.m. Beller Conference Center
Amanda Brinker
Graduate Student
Molecular & Integrative Physiology
KUMC

“Mitochondrial haplotype affects tumorigenesis and metastatic efficiency through cell-autonomous and non-cell autonomous mechanisms”

April 24, 2017
Bret Freudenthal, Ph.D.
Assistant Professor
Laboratory of Genome Maintenance & Structural Biology
Department of Biochemistry & Molecular Biology
KUMC

“Structural Snapshots of DNA Damage Processing”

May 1, 2017
Tomoo Iwakuma, M.D., Ph.D.,
Associate Professor
Cancer Biology
Molecular & Integrative Physiology
KUMC

“Targeting Oncogenic Mutant p53 Through the Mevalonate Pathway-HSP40 Axis”

May 8, 2017
Voyages Seminar Series
Joe Lutkenhaus, Ph.D.
University Distinguished Professor & Chair
Director of COBRE Program – KUMC
Microbiology, Molecular Genetics & Immunology
KUMC

“A Bacteriologist’s Journey”

May 8, 2017
Dissertation Defense, 8:30 a.m.
Lied Auditorium
Amy Cantilena
Graduate Student
Molecular & Integrative Physiology
KUMC

“The Role of Endoglin in the Immunomodulatory Capacities of Mesenchymal Stem Cells and the Relationship to Hyperbaric Oxygen Therapy”
May 11, 2017
Dissertation Defense, 9:00 a.m.
Stowers Videoconference Room
Margaret R. Pruitt
Graduate Student
Molecular & Integrative Physiology
KUMC

"Interrogating telomerase activity and telomere function through in-flask template evolution"

May 15, 2017 School of Medicine Bohan Distinguished Lecturer
Nadine P. Connor, Ph.D.
University of Wisconsin
Molecular & Integrative Physiology
Funded by the School of Medicine Bohan Visiting Professor Program
J. Hambleton Abrahams Lectureship
Hosted by Dr. John Stanford, Associate Professor
Molecular & Integrative Physiology
KUMC

“Lingual Muscle Plasticity: What Happens with Rehabilitation”

May 22, 2017
Nikki Cheng, Ph.D.
Department of Pathology and Laboratory Medicine
Molecular & Integrative Physiology
KUMC

“Molecular Switching of DCIS to Invasive Ductal Carcinoma through CCL2/CCR2 Chemokine Signaling”

June 12, 2017
Dissertation Defense, 8:30 a.m. Lied Auditorium
Archana Raman
Graduate Student
Molecular & Integrative Physiology
KUMC

“The Role of Matricellular Signaling in Polycystic Kidney Disease”

June 22, 2017
Dissertation Defense, 1:00 p.m., Stowers Institute for Medical Research
Liying Li
Graduate Student
Molecular & Integrative Physiology
KUMC

“Drosophila CPEB, a Orb2, a Putative Biochemical Engram of Long-term Memory”
a. Manuscripts Published


Belousov, A.B. and J.D. Fontes, Role of neuronal gap junctions in NMDA receptor-mediated excitotoxicity and ischemic neuronal death. Neural Regen Res, 11(1): 75-6, 2016. PMID: 26981086, PMCID: PMC4774234


McWilliams MM, Chennathukuzhi VM; Recent Advances in Uterine Fibroid Etiology. Member of Transgenic Committee for the American Association of Laboratory Animal Science. Wrote text and edited four courses for the online AALAS Learning Library (Transgenic Library): Colony Management I: Breeding and Recordkeeping; Colony Management II: Daily Workflow; Colony Management III: Plans and Strategies; Transgenic and Gene-Targeting Technology. Published in last year. (Last course August 2017)


*** Selected for APSselect – editors choice in October 16 issue of *Am J Physiol Endocrinol Metab*


Thyfault JP, Wright DC. “Weighing” the effects of exercise and intrinsic aerobic capacity: are there beneficial effects independent of changes in weight? Appl Physiol Nutr Metab. 2016 Sep;41(9):911-16


b. Manuscripts in Press


Casillan AJ, Chao J, Wood JG, and Gonzalez NC. Acclimatization of the systemic microcirculation to alveolar hypoxia is mediated by iNOS-dependent increased nitric oxide availability. JAP, in press.


c. Abstracts


Jasmin Nwachokor, Sumedha Gunewardena, Alok De, Mukut Sharma, Prateek Sharma, Lane Christenson, Ajay Bansal. "Cellular Pathways are Differentially Activated in Black Versus White Patients with Gastroesophageal Reflux Disease: Implications for Race-Based Disease Pathogenesis". Gastroenterology, April 2017, Volume 152, Issue 5, Supplement 1, Page S663

Jasmin Nwachokor, Sumedha Gunewardena, Mukut Sharma, Alok De, Prateek Sharma, Lane Christenson, Ajay Bansal. "Use of Molecular Analysis to Inform Clinical Management of Black Patients with Barrett's Esophagus". Gastroenterology, April 2017, Volume 152, Issue 5, Supplement 1, Pages S455-S456


Yang, F-C, Riordan SM, Vivian, JL, Shapiro, SM, **Stanford, JA** (2017). Neural progenitor cell survival and neuritic outgrowth after transplantation into jaundiced and nonjaundiced rat brain. *Poster presented at the 24th Annual Meeting of the American Society for Neural Therapy and Repair in Clearwater Beach, FL.*


Yu, Wei, Geetu Tuteja, Yan Hong, Anamika Ratri, Shaon Borosha, **Michael Wolfe** and Mohammad Rumi. 2016. Regulation of SATB homeobox 1 gene expression in trophoblast stem cells. International Federation of Placenta Associations, Sept. 13-16, Portland, OR.
RESEARCH SUPPORT

A.B. Belousov: KUMC, LIED Basic Science Grant- “Do gap junctions play a role in neuronal death or neuronal survival?” July 1, 2016 - December 31, 2016. Annual Direct Costs: $10,000.


NIH – “Cell-cycle regulatory kinases as targets for male contraceptive drug development.” April 1, 2014 – March 31, 2019.


NIH – “Increased Protein at Breakfast for Weight Management in Overweight Adolescents.” May 1, 2017 – April 31, 2019. Principal Investigator: Heather J. Leidy. JP Thyfault (Col, 5%).

NIH – “Mechanisms Regulating Autophagy in Alcohol-Induced Liver Injury.” July 1, 2017 – June 20, 2022. Principal Investigator: Wen Xing Ding, JP Thyfault (Col, 5%).

J.G. Wood: NIH – “Teacher and Students for Community – Oriented Research and
Annual Direct Costs: $200,000.
ACTIVITIES OF FACULTY

**Andrei B. Belousov, Ph.D.,** Associate Professor

We are interested in the mechanisms of regulation of neuronal gap junctions (electrical synapses) during development and neuronal injury. We also study the role of neuronal gap junctions in death of neurons in the developing nervous system and in the secondary, glutamate-dependent neuronal death following ischemic stroke, traumatic brain injury and epilepsy. As a result of these studies, a novel model of the mechanisms of glutamate-dependent neuronal death has been proposed, where neuronal gap junctions play a critical role.

Meetings Attended:

April 30 – May 3, 2017 – Janelia conference on "Electrical Synapses", Janelia Research Campus, Ashburn, VA.

Committee Activities:

**KUMC**
- Physiology Department Representative, KUMC Faculty Council
- Departmental Seminar Series Organizer

**Community**
- Member, Greater Kansas City Chapter of the SFN

Editorial and Grant Reviews:

- Ad hoc Reviewer, Cellular and Molecular Neurobiology
- Ad hoc Reviewer, Frontiers in Molecular Neuroscience
- Ad hoc Reviewer, Neuroscience Letters
- Ad hoc Reviewer, Journal of Neuroscience Research
- Ad hoc Reviewer, Pharmacology and Therapeutics
- Ad hoc Reviewer, Neuropharmacology
- Ad hoc Reviewer, OncoTarget
- Editorial Board Member, the Open Neuroscience Journal (ON), Bentham Science Publishers
- Review Editor, the Editorial Board of Frontiers in Molecular Neuroscience (http://loop.frontiersin.org/people/162129/overview)
- Grant Reviewer, KUMC, Research Institute Clinical Pilot Grants
- Reviewer, Abstracts for the International Stroke Conference, American Heart Association

Invited Presentations:


Teaching Activities:

- PHSL 842 – Comprehensive Human Physiology
  - 9 – 2 hour lectures
Dr. Belousov (continued)

GSMC 853 – Cellular Structure
   2 – 2 hour lectures
   1 – 2 hour seminar
T32 Summer Journal Club
   1 – 2 hour lecture
PHSL 848 – Molecular Mechanisms of Neurological Disorders
   2 – 2 hour lecture

Research Personnel:
   Janna V. Belousova, M.S., Senior Research Associate
   Lin Kuang, Ph.D., Visiting Scientist, Hunan University of Traditional Chinese Medicine
Our laboratory studies the role of ion-transport proteins of the plasma membrane in cell function, with an emphasis on the Na,K-ATPase. The Na,K-ATPase or Na pump is an enzyme of the plasma membrane, that uses ATP to transport cytoplasmic Na\(^+\) out of the cell in exchange for extracellular K\(^+\). The transporter consists of different isozymes, each resulting from the association of distinct molecular forms of an \(\alpha\) (\(\alpha_1\), \(\alpha_2\), \(\alpha_3\) and \(\alpha_4\)) and a \(\beta\) (\(\beta_1\), \(\beta_2\) and \(\beta_3\)) polypeptide.

We have determined that different isoforms of the Na,K-ATPase have enzymatic properties that are unique. This suggested a specific role for the Na,K-ATPase isoforms. While the ubiquitously expressed Na,K-ATPase \(\alpha_1\) and \(\beta_1\) functions as the housekeeping Na,K-ATPase in the cell, the other isozymes mediate tissue-specific roles. We have identified \(\alpha_4\) as a catalytically active isoform of the Na,K-ATPase, which is only expressed in testis male germ cells and is abundant in the sperm flagellum. Using pharmacological tools and genetic approaches in transgenic mice, we have established that Na,K-ATPase \(\alpha_4\) is essential for sperm motility and male fertility. We are currently continuing experiments to understand the mechanisms of action and regulation of \(\alpha_4\), with the idea of using it as a biomarker for male fertility and a target for male contraception.

In addition, we are studying the role of the Na,K-ATPase in autosomal dominant polycystic kidney disease (ADPKD). ADPKD is characterized by the progressive enlargement of fluid filled cysts in the kidneys that compromise the function of the organ. We have found that the hormone ouabain, acting via the Na,K-ATPase stimulates ADPKD cyst formation and progression. We continue experiments to understand the role and mechanisms of action of ouabain in ADPKD, with the idea of finding approaches to slow ADPKD cystogenesis.

Meetings Attended:

- November 9-11, 2016 – American Society of Nephrology. Chicago.
- October 15 – 17, 2016 – U54 and U01 Steering Committee Meeting, New York.
- December 8 – 11, 2016 – Association of Chairs of Departments of Physiology. Cabo San Lucas, Los Cabos, Mexico.

Committee Activities:

- Interim Chair, Department of Molecular & Integrative Physiology
- Kathleen Osborn Chair, Department of Molecular & Integrative Physiology
- Director, Thesis Committee, Jessica Venugopal, Physiology, Ph.D
- Co-Director, Thesis Committee, Archana Raman, Physiology, Ph.D
- Member, Thesis Committee, Pei-Lei, Physiology, Ph.D
- Member, Thesis Committee, Felcy Selwyn, Pharmacology, Ph.D
- Member, Thesis Committee, Wen Zhao, Pharmacology, Ph.D
Dr. Blanco (continued)

Member, Thesis Committee, Kelli Boxberger, Pharmacology, Ph.D
Member, Thesis Committee, Yuchen Zhang, Pharmacology, Ph.D
Member, Thesis Committee, Younshim Park, Physiology, Ph.D
Member, Thesis Committee, Zahraa Alali, Physiology, Ph.D

KUMC
Director, K-INBRE Developmental Research Core (DRPP Core)
Member, Wescoe Society, serving as a mentor for medical students
Member, MD/PhD Admission Committee Program, helping to interview and select students
Member, Committee for the University Biotechnology Sequencing Facility
Member, Committee member for the organization of the Greenwald Symposium
Member, Wescoe Academic Society
Member, Review Committee for Pilot Grant Program of the Liver Disease COBRE
Member, KUMC Strategic Planning Committee
Member, K-INBRE Incentive and Awards Committee

Editorial and Grant Reviews:
Reviewer, American Journal of Physiology – Metabolism and Endocrinology Section
Reviewer, Journal of Assisted Reproduction and Genetics
Reviewer, Frontiers in Reproduction
Ad Hoc Reviewer, Journal Assisted Reproduction and Genetics
Ad Hoc Reviewer, American Journal of Physiology
Ad Hoc Reviewer, Biology of Reproduction
Ad Hoc Reviewer, Journal Biological Chemistry

Invited Presentations:
October 2017 – U54 Steering Committee. New York
April 6, 2017 – K-INBRE External Advisory Committee. KUMC

Seminars Presented:
November 9, 2017 – “Pro-cystogenic effects of ouabain in autosomal dominant polycystic kidney disease”, Wright State University, Dayton Ohio.
March 3, 2017 – “Na,K-ATPase α4: the ion pump that propels sperm and drives sperm fertility”, Washington University in St. Louis
Dr. Blanco (continued)

Academic Honors:

Students Voice Award for Excellence in Teaching

Teaching Activities:

CORE 825 – Renal and Endocrine System
  18 – 1 Hour Sessions
CORE 860 – Integration and Consolidation
  1 – 2 Hour Sessions
Renal Physiology – Remediation Course
  2 – 3 Hour Sessions
Renal Physiology – Step Prep Course
  1 – 1 Hour Sessions
Clinical Renal Physiology – Nephrology Fellow Boards
  4 – 1 Hour Sessions
GSMC 853 – Cellular Structure
  3 – 6 Hour Sessions
Frontiers of Reproduction
  2 – 16 Hour Sessions
Respiratory Physiology
  2 – 2 Hour Sessions
Introduction to Medical School
  2 – 2 Hour Sessions

Research personnel

Gladis Sanchez, Research Associate
Jeff McDermott, Research Associate
Jessica Venugopal, Ph.D. Student
Fatimah Aljubran, graduate student
Paul D. Cheney, Ph.D., Professor

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 or localized groups of neurons 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.

Committee Activities:
  Departmental
  Comprehensive Exam Committees:
    Max Murphy, Biomedical Engineering PhD program, comprehensive and dissertation committees
    Jordon Borell, Biomedical Engineering PhD program, comprehensive and dissertation committees
    Lying Li, Physiology PhD program, comprehensive and dissertation committees

Editorials and Grant Reviews:
  Ad hoc Reviewer, J. Neurophysiology
  Ad hoc Reviewer, J. Neuroscience
  Ad hoc Reviewer, Experimental Brain Research
  Ad hoc Reviewer, PLOS ONE
  Grant Reviewer, KUMC Biomedical Research Training Program
  Grant Reviewer, KUMC Woodyard Fellowship Applications, Institute for Neurological Disorders
  Grant Reviewer, Brain Research Foundation Reviews

Teaching Activities:
  PHSL 846 – Advanced Neuroscience
    Summer 2016
    6 lecture hours
My research interests include uterine fibroids, fertility and contraception. Uterine fibroids are the most common tumors of the female reproductive tract and are the leading indication for hysterectomies in the US. Sadly, there is no approved drug to treat uterine fibroids chronically. Our laboratory is trying to understand the regulation and function of GPR10, a G protein-coupled receptor, aberrantly expressed in uterine fibroids. We have generated transgenic mice overexpressing GPR10 in the myometrium in order to understand its role in the pathogenesis of fibroids. Transgenic-hGPR10 mice develop uterine fibroids that are phenotypically identical to the human disease. We plan to use this preclinical model for the development of small molecule modulators of GPR10 as treatment for fibroids. In addition, we have identified the molecular machinery that regulates aberrant expression of GPR10 in uterine fibroids. We recently developed a conditional knockout model for Rest, the transcriptional repressor of GPR10. Rest cKO mice are infertile and develop uterine fibroid phenotype. We have also identified PRICKLE1 as the upstream regulator of REST stability and function in the uterus. Our laboratory is trying to validate the role of environmental estrogens in the suppression of Prickle1 gene and REST protein expression using rodent models.

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:

Committee Activities:
Departmental
Member, Finance Committee
Member, GSAC
Coordinator, Physiology Seminar Series
Member, Faculty Search Committee

Student Service Committee
Member, Thesis Committee, Zahraa Alali, Physiology, Ph.D
Member, Thesis Committee, Younshim Park, Physiology, Ph.D
Member, Thesis Committee, Sara Pearson, Anatomy and Cell Biology, Ph.D
Member, Thesis Committee, Wei-Ting Hung, Physiology, Ph.D
Member, Thesis Committee, Saieed Safder, Microbiology, Ph.D
Member, Thesis Committee, Ashley Ward, Physiology, Ph.D
Member, Thesis Committee, Brittany Jack, Anatomy and Cell Biology, Ph.D

KUMC
Member, Faculty Council
Member, D3ET (Drug Discovery, Delivery and Experimental Therapeutics), IAM
Dr. Chennathukuzhi (continued)

Member, IGPBS Admissions Committee
Community
Member, SSR Awards Committee

Editorial and Grant Reviews:
Ad Hoc Reviewer, *Human Reproduction*
Ad Hoc Reviewer, Biology of Reproduction
Ad Hoc Member, *Cellular Molecular and Integrative Reproduction*
Member, *Endocrine and Reproductive Biology Special Emphasis Panel/Scientific Review Group 2016 ZRG1 EMNR-D (02) M*
Member, *Special Emphasis Panel/Scientific Review Group RFA-HD-16-003, RFA-HD-16-004*

Seminars Presented:

Teaching Activities:
PHSL 834 – Reproductive Physiology
   Course Director
   6 – 1.5 Hour Sessions
IGPBS 851 – Genetic Switches-Gene Expression
   3-2 Hour Sessions
PHSL 842 – Comprehensive Human Physiology
   2 – 2 Hour Sessions
PHSL 843 – Physiology of Disease
   2 – 2 Hour Sessions

Research personnel:
Faezeh Koohestani, Ph.D. (Postdoctoral Fellow): The Role of REST in the pathogenesis of uterine fibroids – Accepted a science and marketing manager position at GenScript.
Michelle McWilliams (Graduate Student): Estrogenic regulation of PRICKLE1 and its effect on REST in uterine fibroids – Submitted the graduate thesis, defended and graduated with PhD in Physiology during the year.
Mina Farahbakhsh (M.D./Ph.D. Graduate Student): Role of ADAM12 and other REST target genes in uterine fibroids – Submitted the graduate thesis, defended and graduated with PhD in Physiology during the year. Currently back in clinical rotations at KUMed.
Ashley Cloud (IGPBS Rotation Student): Spring 2017, Current Graduate Student
Sornakala Ganeshkumar (Research Assistant)
Kavya Shivashankar (Summer Intern, June – Aug 2016, Undergraduate Student, Columbia, NY): – Recently began the MD program of Thomas Jefferson University, Philadelphia, PA.
Dr. Chennathukuzhi (continued)

Abril Lara (Gear UP Summer Intern, June – Aug 2016)
Lane K. Christenson, Ph.D., Associate Professor

Fertility, infertility and ovarian cancer are major health concerns for women. Research in my laboratory focuses on understanding the terminal events involved in follicular development and ovulation. The studies have direct implications in development of a fertile healthy oocyte, contraception and disease conditions such as polycystic ovarian syndrome and ovarian cancer. Current studies focus on understanding the role extracellular vesicles (exosomes and microvesicles) play in ovarian function (oocyte maturation, granulosa cell function) and in ovarian cancer. The laboratory is also examining how post-transcriptional regulatory processes such as RNA editing impacts oocyte developmental competence. These studies use the latest state of the art technologies, including next-gen-sequencing, nanoparticle analysis in addition to standard molecular and biochemical techniques. The laboratory also uses a comparative approach using human, bovine and murine cells and animal studies in both cows and mice to gain further insights into the reproductive biology of the ovary.

Committee Activities:

Departmental
- Member, Departmental Finance Committee
- Member, Departmental Faculty Recruitment Committee

Student Service Committee
- Member, Advisory & Dissertation, Li Chen, Physiology, Ph.D.
- Member, Advisory & Dissertation, Zahraa Alali, Physiology, Ph.D.
- Member, Advisory Dissertation, Greg Burns, Animal Science, Ph.D. University of Missouri
- Member, Advisory & Dissertation, Jianzheng Wu, Physiology, Ph.D.
- Member, Advisory Committee, Jonathon Keck, Immunology, Ph.D. University of Texas San Antonio

KUMC
- Member, Advisory Committee for the Microarray Facility
- Member, Mass Spectrometry Oversight Committee
- Member, Member of Human Stem Cell Committee
- Member, KIDDRC Early Development Theme Leader

National
- Director on SSR Board, Society for Study of Reproduction Program Committee
- Co-Program Chair, 2016 SSR Meeting

Editorial and Grant Reviews:
- Reviewer, National Institute of Health- Reproduction, Andrology and Gynecology Study Section 2015-19 – Permanent member
- Special Review Panel, NIH – T32 Training Grant
- Editorial Board Member, Board of Reviewing Editors for Biology of Reproduction
- Editorial Board, Reproductive Endocrinology- Frontier in Endocrinology
- Associate Editor, Biology of Reproduction
Dr. Christenson (continued)

Editorials and Grant Review
Ad hoc Reviewer for 17 manuscripts of 11 different journals including:
Developmental Biology, PNAS, Scientific Reports, and Biology of Reproduction

Invited Presentations:

Seminars Presented:

Teaching Activities:
GSMC 851 - Molecular Genetics (IGPBS)
2-2 hour lectures
GSMC 852-Introduction to Biomedical Research (IGPBS)
1-2 hour lecture
PHSL 851-Seminar
6-1 hour lectures
Course Director
PHSL 843 – Physiology of Disease
2 – 2 hour lectures
PHSL 842 – Comprehensive Human Physiology
2 – 1.5 hour lectures

Meetings Attended:
October, 2016 – American Society for Gravitational and Space Research. Cleveland, OH.
March 14, 2017 – Midwestern Section of the American Society of Animal Science.
May 7-9, 2017 – International Society for Extracellular Vesicles. Toronto, CA.

Research personnel:
**Dr. Christenson (continued)**

Wei-Ting Hung – Ph.D. Advisor: Extracellular Vesicles in Ovarian Antral Follicles: Characterization and Functions
Pavla Brachova – Postdoctoral Fellow: Role of follicular fluid exosomes on induction of ovarian/fallopian carcinogenesis
Xiaoman Hong – Senior Research Associate
Weah Landford – Gear up/KINBRE Summer Scholar
Hanna Meeks – 2017 Summer Undergraduate Volunteer

Additional Activities:
Consultant, RO3 grant, Dr. Arulanandam at UTSA
**Salvatore J. Enna, Ph.D.,** Professor, Associate Dean for Research and Graduate Education

Research interest is focused on neurotransmitters and neurotransmitter receptors, with particular emphasis on the structure, function and pharmacology of GABA receptors.

Meetings Attended:
- August 2016 - Nebraska INBRE Meeting, Nebraska City, Nebraska
- October 2016 - Chinese Pharmacological Society Annual Meeting, Beijing, China
- November 2016 - PhRMA Foundation Grant Review Committee Meeting, Washington, D.C.
- November 2016 - Australian Pharmacology Society Annual Meeting, Melbourne, Australia
- April 2017 - Experimental Biology, American Society for Pharmacology and Experimental Therapeutics Annual Meeting, Chicago, Illinois
- April 2017 - International Union of Basic and Clinical Pharmacology Nomenclature Meeting, Edinburgh, UK

Committee Activities:
- **Departmental**
  - Chair, Departmental Appointments, Promotions, and Tenure Committee
- **KUMC**
  - Internal Advisory Committee (Co-Chair), Kansas University Training Program in Neurological and Rehabilitation Sciences
  - Member, Executive Research Committee
  - Member, Faculty Activity Collaborative Tool (FACT) Committee
  - Member, Medical School Extended Dean’s Committee
- **National**
  - Chair, Nebraska-BRIN External Advisory Committee
  - Member, PhRMA Foundation Pharmacology Advisory Panel
  - Member, British Pharmacological Society International Advisory Group
  - Member, GABA-B Nomenclature Database Committee
  - Member, UMKC School of Pharmacy Research Advisory Council
  - Member, GABA-B Nomenclature Database Committee
- **International**
  - President, International Union of Basic and Clinical Pharmacology (IUPHAR)
  - Member, International Union of Basic and Clinical Pharmacology (IUPHAR) Executive Committee
Dr. Enna (continued)

Editorials and Grant Reviews:
PhRMA Foundation Pharmacology/Toxicology Grant Review Committee
Grant Reviewer, Centre de Recherche Clinique, University of Geneva, Geneva, Switzerland

Editorial Boards of Scientific Journals:
Editor-in-Chief, *Biochemical Pharmacology*
Executive Editor-in-Chief, *Pharmacology & Therapeutics*
Co-Editor, *xPharm*
Co-Editor-in-Chief, *Current Protocols in Pharmacology*
Series Editor, *Advances in Pharmacology*
Guest Editor, *Biological and Pharmaceutical Bulletin*
Section Head, Neuropharmacology and Psychopharmacology, *Faculty of 1000 Pharmacology* Section Editor, *Reference Module in Biomedical Sciences*

Editorials and Grant Review (continued)
Editorial Advisory Board, *Brain Research*
Editorial Advisory Board, *Life Sciences*
Editorial Advisory Board, *CNS Drug Review*
Editorial Advisory Board, *Current Opinion in Pharmacology*
Editorial Advisory Board, *Chinese Medicine*
Editorial Advisory Board, *Pharmacology International*
Ad hoc Reviewer, *Brain Research*
Ad hoc Reviewer, *Life Sciences*
Ad hoc Reviewer, *Journal of Pharmacology and Experimental Therapeutics*

Invited Presentations:
2016 – Plenary Lecture “Alternative Approaches to Lead Generation”, Chinese Pharmacological Society Meeting, Beijing, China
2016 – “How to Prepare a Research Manuscript”, Beijing Institute for Materia Medica, Beijing, China
2016 – “Alternative Approaches to Lead Generation”, University of Perugia, Perugia, Italy
2016 – “Alternative Approaches to Lead Generation”, University of Bologna, Bologna, Italy

Seminars Presented:
2016 “Guidelines for Manuscript Preparation”, University of Bologna, Bologna, Italy
Dr. Enna (continued)

2016 “Guidelines for Manuscript Preparation”, University of Perugia, Perugia, Italy
2016 “Approaches to Drug Discovery: Physiological Versus Molecular”, University of Kansas Medical Center, Kansas City, Kansas

Teaching Activities:
Faculty Advisor Orr Society Mentor for:
  Lauren Arney
  Ojas Patel
  4 – 1 hour Group Sessions

Medical Education
  CORE 860 – Integration and Consolidation
    2 – 2 hour sessions
  CORE 815 – Cardiopulmonary Module
    2 – 2 hour group sessions

Graduate
  School of Pharmacy (Lawrence Campus)
    1 – 2 Hour Session
  Psychiatry Residents Lecture
    1 – 1 Hours Session
  PHSL 848 – Molecular Mechanisms of Neurological Disorders
    2 – 6 Hour Sessions
  T32 Summer Student Journal Club
    10 – 1 hour Group Sessions
  T32 Summer Student Lecture, Manuscript Preparation
    1 – 1 Group Sessions
  T32 Summer Student Discussion, Research Ethics Psychiatry Residents
    1 – 2 Group Sessions

Research Personnel
  Ms. Lynn LeCount, Managing Editor, Biochemical Pharmacology; Pharmacology & Therapeutics; Pharmacology International, and Advances in Pharmacology
  Ms. Jennifer McNichols, Editorial Coordinator, Biochemical Pharmacology; Pharmacology & Therapeutics, Pharmacology International, and Advanced in Pharmacology

Additional Accomplishments:

  Consultant – Orion Corporation, Orion Pharma, Turku, Finland
Paige C. Geiger, Ph.D., Associate Professor

My research focus is on the cellular mechanisms leading to the development of insulin resistance and type 2 diabetes. My laboratory examines insulin signaling pathways and the regulation of glucose uptake and mitochondrial function in skeletal muscle in response to obesity-inducing high fat diets as well as exercise training and heat treatment. Our research to date has contributed to an understanding of the role of heat shock proteins in metabolic disease with implications for future treatment of diabetes and neurodegenerative diseases.

Meetings Attended:
- August 2016 – Physiology 2016, Dublin, Ireland
- April 2017 – Experimental Biology, Chicago
- June 2017 – American Diabetes Association, San Diego

Invited Presentations:

Seminars Presented:
- April 2017 – “Heat shock proteins in the prevention of metabolic disease.” The National Obesity Research Center (NORC) and Department of Nutrition Sciences, University of Alabama, Birmingham.
- October 2016 – “The impact of low aerobic fitness on metabolic disease,” KUMC Faculty Research Day, University of Kansas Medical Center.

Committee Activities:
- Departmental
  - Member, Graduate Student Affairs Committee
- KUMC
  - Member, Emily Taylor Center for Women and Gender Equity Advisory Board
  - Faculty Advisor, Exercise is Medicine
  - Faculty Advisor, American Medical Women’s Association
  - Member, Lied Pilot grant review committee

Co-Organizer, Lied Pilot grant review committee
- Member, Cray Diabetes Center Advisory Board
- Member, KUMC Student Union Corporation Board
- Member, BRTP review committee
Student Committee Service:
   Member, Dissertation Committee, Jackie Thompson, Biochemistry, Ph.D.
   Member, Dissertation Committee, Michael Cooper, Anatomy, Ph.D.
   Member, Dissertation Committee, Olivia Eller-Smith, Anatomy, Ph.D.
   Member, Dissertation Committee, Isabella Fuentes, Anatomy, Ph.D.
   Member, Dissertation Committee, Asona Lui, Physiology, Ph.D.

National
   Member, APS Environmental and Exercise Physiology (EEP) Steering Committee
   Treasurer, Exercise Physiology Councilor and Secretary

Editorials and Grant Reviews:
   Member, NIH - Integrative Physiology of Diabetes and Obesity (IPOD)
   Special Emphasis Panel, NIH - National Institute of Aging
   Abstract Reviewer, American Diabetes Association 77th Scientific Sessions
   Editorial Board Reviewer, American Journal of Physiology
   Ad hoc Reviewer, Applied Physiology
   Ad hoc Reviewer, Diabetes
   Ad hoc Reviewer, Journal of Physiology

Teaching Activities:
   PHSL 842 – Comprehensive Human Physiology
      11 – 2 Hour Lectures
   CORE 815 – Cardiopulmonary Module
      8 – 5 Hour Lectures
      2 – 4 Hour Group Sessions
   PHSL 835 - Integrative Physiology of Exercise
      Course Director
      14 – 4 Hour Lectures
   PHSL 836 – Physiology of Disease
      12 – 2 Hour Lectures
   HSES 810 – Advanced Exercise Physiology
      3 – 1 Hour Lectures

Research Personnel:
   Ashley Archer, Doctoral student, Self-Fellow
   Alex Von Shulze, graduate student, Self-Fellow, IGPBS rotation student
   Alex Von Shulze,
   Vendita Garimella, Summer Student

Honors/Awards:
   American Physiological Society Research Career Enhancement Award
**Sumedha Gunewardena, Ph.D.,** Research Assistant Professor

*Research Interest: Bioinformatics and computational genomics: modeling protein-DNA interactions, biological sequence analysis, microarray data analysis, biological pathways and network analysis, development of computational tools and databases.*

**Publications:**


Rama Garimella, Priyanka Tadikonda, Ossama Tawfik, **Sumedha Gunewardena**, Peter Rowe, Peter Van Veldhuizen. "Vitamin D Impacts the Expression of Runx2 Target Genes and Modulates Inflammation, Oxidative Stress and Membrane Vesicle Biogenesis Gene Networks in 143B Osteosarcoma Cells". Int J Mol Sci. 2017 Mar 16;18(3). pii: E642. doi: 10.3390/ijms18030642


Leslie L. Heckert, Ph.D., Marion M. Osborn Professor of Reproductive Sciences

I and other Physiology faculty worked towards establishing an interdisciplinary research program focused on the biological intersection between metabolism and reproduction. In addition, I performed research on a mouse model to test the role of a regulatory element implicated in gonadotropin response. I continued research on gender and sexual development, with my collaborator Dr. Jill Jacobson at Children’s Mercy Hospital (CMH). I also extended my interactions and research capabilities at CMH, by strengthening ties with the CMH Center for Pediatric Genomic Medicine, which led to my taking sabbatical leave to learn human genetics and bioinformatics integrating multiple types of high throughput data to identify pathogenic variants in patients. My sabbatical at the Center began July 2017.

Meetings Attended:
September 22-23, 2016 - 13th Annual Gilbert S. Greenwald Symposium on Reproduction and Regenerative Medicine, Kansas City, MO.
April 19-22, 2017 - XXIVth North American Testis Workshop, Miami, FL.

Committee Activities:
Departmental
Member, Department Finance Committee
Member, Promotions & Tenure Committee
Member, Faculty Recruitment Committee
KUMC
Member, Institutional Biosafety Committee
Member, Transgenic and Gene Targeting Core Oversight Committee
Member, IGPBS Curriculum Committee
Member, IGPBS Oversight Committee

Editorial and Grant Reviews:
Grant Reviewer, NIH Special Emphasis Panel ZRG1 EMNR-W, 10/19/2016
Ad hoc reviewer, Biology of Reproduction
Ad hoc reviewer, FASEB
Ad hoc reviewer, Endocrine
Editorial Board Member, Endocrinology

Teaching Activities:
PHSL 842 – Comprehensive Human Physiology
3 – 2 Hour sessions
PHSL 843 – Physiology of Disease
1 – 1.5 hour session

Activities:
Chair, XXIV North American Testis Workshop, held April 19-22, 2017
Dr. Heckert (continued)

Member, Advisory group, course review for “Frontiers in Reproduction”, The Marine Biological Laboratory

Honors/ Awards:
Selected as a best reviewer for the journal Endocrinology
Melissa A. Larson, Ph.D., Research Assistant Professor

As the Technical Director of the Transgenic and Gene-Targeting Institutional Facility, my role is largely defined by service. I am responsible for providing services in the generation of gene-modified mice, sperm and embryo cryopreservation, assisted reproductive technologies, and embryonic stem cell propagation and targeting. We provide these services for investigators at KU Med and KU-Lawrence, as well as the entire Kansas City metro area. In addition, I am interested in exploring and implementing new technologies that allow creation of unique mouse research models.

Invited Presentations:
- May 10-11, 2017 – “Nuclear Transfer between Strains of Inbred Mice”, Invited speaker at Advances in Transgenic Technology Conference, Boston, MA

Meetings Attended:
- May 10-11, 2017 – Transgenic Technology Conference, Boston, MA
- October 30 - November 2, 2016 – Presented Booth Display at the American Association for Laboratory Animal Science National Meeting, Charlotte, NC

Committee Activities:
- KUMC
  - Member, Institutional Animal Care and Use Committee
  - Member, Institutional BioSafety Committee
- National
  - Representative, American Association for Laboratory Animal Science on behalf of the International Society for Transgenic Technologies
  - Member, American Association for Laboratory Animal Science
- International
  - Member, International Society for Transgenic Technologies

Editorial and Grant Reviews:
- Reviewer, Mammalian Genome

Additional Activities
- Under contract with Springer Protocols to assemble and edit a volume entitled “The Transgenic Mouse.”

Research personnel:
- Illya Bronshhteyn, MS, Research Associate
- Julia Draper, MS, Research Associate
Phil Lee, Ph.D., Associate Professor

The major focus of my research is to characterize structural, functional, physiological changes linked to disease activity and progression using advanced in vivo magnetic resonance imaging techniques. Another important focus of my research is to develop novel in vivo neuroimaging techniques to offer new possibilities for monitoring the disease status and the impact of treatments through new quantitative, non-invasive biomarkers. My own research and collaboration have yielded 8 publications during this fiscal year.

Invited Presentations:
  October 28, 2016 – Poster Presentation: “1H MRS of gray and white matter in the human brain using B0 Adjusted Sensitivity Encoded Spectral Localization by Imaging (BASE-SLIM)”, Adany P, Choi IY and Lee P. Faculty Research Day, KUMC Research Institute, Kansas City, KS.

Seminars Presented:
  November 4, 2016 - Non-Fourier based spectral localization for magnetic resonance spectroscopy of the human brain, University of Missouri, Kansas City

Meetings Attended:
  September 14 – 17, 2016 – The 32nd Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), London, England
  April 22-27, 2017 – The 25th Annual Meeting & Exhibition of International Society for Magnetic Resonance in Medicine (ISMRM), Honolulu, HI
  April 1-4, 2017 – International Society Cerebral Blood Flood and Metabolism, Berlin, Germany
  August 14-17, 2016 – International Society for Magnetic Resonance in Medicine, Workshop on MR Spectroscopy: From current best practice to latest frontiers, Lake Constance, Germany
Committee Activities:
  Departmental
  Associate Director, Hoglund Brain Imaging Center (HBIC)
  Director, MR Technology program at the HBIC
  Director, Magnetic Resonance Imaging Units for 3 T Core and Animal Imaging Core, HBIC
  Director, Advanced Support Unit, HBIC
  Leadership Committee, HBIC

Student Committee Service:
  Member, Thesis Committee, Sean Ellis, Bioengineering, M.S
  Member, Thesis Committee, Andrea Freemyer, Otolaryngology, Ph.D.

Editorials and Grant Reviews:
  Ad hoc Reviewer, *Journal of Magnetic Resonance Imaging*
  Ad hoc Reviewer, *Magnetic Resonance Materials in Physics, Biology and Medicine*
  Ad hoc Reviewer, *Neurochemical Research*
  Ad hoc Reviewer, *NMR in Biomedicine*
  Conference proceedings of International Society for Magnetic Resonance in Medicine

Teaching Activities:
  PHSL 846/ANAT 846 – Advanced Neuroscience
    1 – 2 Hour Lecture
  BIOE 800 – Bioengineering Colloquium
    1 – 1 Hour Lecture
  MR Technology Discussion Group
    Monthly 1 Hour Lectures
  Sean Ellis, Graduate Student
    14 – 1-2 Hour Sessions
  Andrea Freemyer, Graduate Student
    As needed – 1 Hour Sessions

Other Activities:
  Consultant of magnetic resonance imaging program of Center for Brain, Biology and Behavior at University of Nebraska
  Consultant of the Imaging Center at University of Missouri at Columbia

Research Personnel:
  Chu-Yu Lee, postdoc at Hoglund Brain Imaging Center
  Peter Adany, Senior research associate at Hoglund Brain Imaging Center
  Sean Ellis, Graduate student of Bioengineering program, KU-L
  Mariad Thatcher, Research associate at Hoglund Brain Imaging Center
We study two demyelinating diseases of the central nervous system, multiple sclerosis and Krabbe’s disease. We examine pathogenic mechanisms and test experimental interventions in animal models of these diseases. The goal of our studies is to improve treatment options for patients afflicted with these conditions.

Presentation:

Committee Activities:
Departmental
Member, Graduate Student Advisory Committee
Member, Departmental Promotions and Tenure Committee.

KUMC
Member, Safety Committee for the Smith East Building
Member, Multiple Sclerosis Research Group
Member, ACE Block 5 curriculum

Community
Member, Neurodegenerative Subcommittee for the KCALSI Regional Strategic Assessment

Editorials and Grant Reviews:
Ad hoc Reviewer, Neuroscience Letters
Grant Reviewer, KUMC Research Institute Internal Clinical Pilot Research Grant
Grant Reviewer, Lied Basic Science Grant Programs

Teaching Activities:
CORE 820 – Gastrointestinal Tract and Nutrition
5 – 1 hour lectures

CORE 840 – Brain, Mind and Behavior
4 - 1 hour group sessions

PHSL 842 – Comprehensive Human Physiology
1 – 1 hour sessions

PHSL 843 – Physiology of Disease
Course Director
2 – 1.5 hour session *Additionally attended/graded presentations

PHSL 848 – Molecular Mechanisms of Neurological Disorders
Course Director
2 – 2 hour sessions
*Additionally attended/graded presentations & discussions

Research Personnel:
Rebecca Heidker, Ph.D – Volunteer Research Assistant. Additionally, was first author on a paper published in 2016.
E. Matthew Morris, Ph.D., Research Assistant Professor

1. Study of the impact of divergent aerobic capacity on acute and chronic energy dense western diets on liver and systemic metabolic disease susceptibility associated with changes in tissue-specific mitochondrial physiological phenotype.
2. Study of the impact of liver mitochondrial energy state on acute western diet-induced weight gain due to alterations in food intake and feeding behavior, and systemic metabolic flexibility and nutrient partitioning.

Meetings Attended:
   January 13-15, 2017 – KINBRE. Manhattan, KS
   November 2-6, 2016 – Integrative Biology of Exercise. Phoenix, AZ

Editorial and Grant Reviews:
   Ad hoc Reviewer, Lied Basic Science Grant Program
   Ad hoc Reviewer, University of Missouri Research Board Faculty Grant
   Ad hoc Reviewer, American Journal of Physiology – Renal Physiology
   Ad hoc Reviewer, Experimental Physiology
   Ad hoc Reviewer, Applied Physiology, Nutrition, and Metabolism
   Ad hoc Reviewer, Diabetes
   Ad hoc Reviewer, Diabetes Care
   Ad hoc Reviewer, Physiology & Behavior
   Ad hoc Reviewer, Journal of Proteome Research
   Ad hoc Reviewer, Liver International
   Ad hoc Reviewer, American Journal of Physiology – Endocrinology & Metabolism

Teaching Activities:
   PHSL 835 – Integrative Physiology of Exercise
     2 – 3 hour lectures
   PHSL 843 – Obesity
     1 – 3 hour lectures

Teaching and Academic Service:
   Mentor, Undergraduate Volunteer – Annabelle Dillon for the summer. 2, 8 hour days/week for 12 weeks.

Honors/Awards:
   Top 10 Reviewer 2016, Experimental Physiology
Warren B. Nothnick, Ph.D., H.C.L.D., Professor and Vice-Chair

Our research interest focuses on the pathophysiology of the female disease endometriosis. We utilize a multi-faceted approach incorporating in vitro and in vivo models using animal and human materials. Our ultimate goal is to develop non-invasive diagnostic testing for endometriosis as well as novel, estrogen-sparing treatments for the disease.

Committee Activities:
Departmental
  Vice-Chairman, Department of Molecular and Integrative Physiology,
  University of Kansas Medical Center, January 1, 2017 – present
  Chairman, Department of Molecular & Integrative Physiology, University of
  Kansas Medical Center, Finance Committee, 2014 – Present.

Student Committee Service:
  Co-Chairman, Amanda Brinker, Physiology, Ph.D
  Member, Mina Farahbakhshs, Physiology, Ph.D
  Chairman, Zahraa Alali, Physiology, Ph.D

KUMC
  Director, Center for Reproductive Health Sciences
  Member, Diverse Faculty Recruitment Committee, School of Medicine
  Member, Executive Committee of the School of Medicine Faculty Council
  Vice-Chairman, Department of Molecular and Integrative Physiology
  Vice-Chairman, Appointment, Promotion and Tenure Committee, School
  of Medicine
  Judge, Poster Presentation Competition, The 13th Annual Gilbert S.
  Greenwald Symposium on Reproduction
  Member, Institute for Reproductive Health and Regenerative Medicine
  Space/Operating Committee
  Member, The Gilbert S. Greenwald Reproductive Biology Symposium
  planning committee
  Scientific Director, Laboratory Animal Resources;
  Chairman, Laboratory Animal Resources Advisory Committee

National
  Co-Chairman, Endometrium (Oral communication session), the 13th
  World Congress on Endometriosis, May 17 – May 20, 2017,
  Vancouver, Canada.
  Consultant, Foresight Science & Technology /NIH/ HHS SBIR/STTR
  (Niche Assessment Program), provided expert opinion on non-

Other Activities:
  Phone interview on “28-day menstrual cycle hormone control of human
  reproductive tract function in a microfluidic culture system.” STATNEWS,
  Boston, MA. March 27, 2017.
Invited Presentations:

Seminars Presented:

Meetings Attended:

Editorial and Grant Reviews: Reviews 24-36 manuscripts per year for the following:
Ad hoc Reviewer, Biology of Reproduction
Ad hoc Reviewer, Reproductive Sciences
Ad hoc Reviewer, Human Reproduction
Ad hoc Reviewer, Fertility and Sterility
Ad hoc Reviewer, Endocrinology
Ad hoc Reviewer, Journal of Clinical Endocrinology and Metabolism
Member, Abstract Review Committee, American Society for Reproductive Medicine, Endometriosis Special Interest Group, 73rd Annual Meeting of the American Society for Reproductive Medicine, 2017, San Antonio, Texas.
Member, Abstract Review Committee, 64th Annual Meeting for the Society for Reproductive Investigation, March 15th – 18th, 2017, Orlando, FL.
Dr. Nothnick (continued)

Member, Society for the Study of Reproduction Future Meeting Site Committee, 2016 - 2019.
Member, Abstract Review Committee, American Society for Reproductive Medicine, Endometriosis Special Interest Group72nd Annual Meeting of the American Society for Reproductive Medicine, 2016, Salt Lake City, Utah.
Overseas External Assessor, National Health and Medical Research Council (NHMRC; Australian Government) grant review. 2017.

Teaching and Academic Service:
Thread leader, Endocrine and Gastrointestinal Physiology.
Active, Competency-based, and Excellence-driven (ACE) Medical Student curriculum (0.1 FTE/year).

Teaching Activities:
PHSL 842 – Comprehensive Human Physiology
2 – 3 hour lectures
PHSL 843 – Physiology of Disease
1 – 1 hour lectures
GSMC 854 – Cell Communication
4 – 7 hour lectures

Research Personnel:
Amanda Graham, Research Associate
Zahraa Alili, Graduate Student
My research interests include:  i) Mechanisms of peripheral nervous system plasticity leading to sensory nerve sprouting in increased mechanical sensitivity; ii) Role of the peripheral sensory nervous system in abnormal sensitivity in Rett syndrome and related Autism Spectrum Disorders; iii) Repair of the damaged nervous system using stem cell-derived neuronal precursors; iv) Creation and characterization of cellular and organismal models of genetic neurodevelopmental disorders.

Meetings Attended:
  March 5—8, 2017. Rare and Undiagnosed Diseases: Discovery and Models of Precision Therapy, Boston, Massachusetts.

Seminars:
  February 16, 2017. Modeling Neurodevelopmental Disorders, Children’s Mercy Hospital, Kansas City, MO.

Committee Activities:
  KUMC
    Senior Associate Dean for Research
    Chair, Research Advisory Council
    Chair, Research Institute Research Committee
    Chair, Executive Committee, Institute for Neurological Discoveries
    Director, Spinal Cord Injury Repair Program
    Director, Frontiers Pilots and Collaborative Research Projects program,
  CTSA
    Chair, KUMC Genomics Core Advisory Committee
    Member, Mass Spectroscopy Advisory Board
    Affiliate Member, KU Cancer Center
    Member, Alzheimer’s Disease Center Internal Advisory Board, and Executive Committee

Editorials and Grant Reviews:
  Ad hoc Reviewer, *Life Sciences*
  Ad hoc Reviewer, *Autonomic Neuroscience*
  Associate Editor, Autonomic Neuroscience: Basic and Clinical
  Assignment Chair for the ZAT1 NCCIH Training, Career Development, Fellowship, and Research Grant Review Panel on March 22, 2017
  Member, ZNS1 SRB-L (09) review panel of F32 and K99 applications, April 10, 2017

Other Activities:
  International Examiner, University of Newcastle, NSW Australia
Dr. Smith (continued)

Teaching Activities:
- PHSL 800 – Medical Physiology
  3 – 3 hour lectures
- PHSL 846 – Advanced Neuroscience
  2 – 2 hour lectures
- COPD Small Group
  2 – 2 hour sessions

Research personnel:
- Anuradha Chakrabarty, Ph.D. Senior Scientist
- Sarah Tague, PhD, Senior Scientist
- Aritra Bhattacherjee, PhD, Post-doctoral fellow
- Zhaohui Liao, MD, Research Associate
- Dora Krizsan-Agbas, PhD, Senior Scientist
- Ying Mu, Research Associate
**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 neonatal hyperbilirubinemia (kernicterus). We are currently examining the effects of isometric strength training on neuromuscular denervation in aged rats and in the SOD1-G93A rat model of ALS. Our most recent studies involve characterizing behavioral and neurological abnormalities in the Gunn rat model of kernicterus.*

**Meetings Attended:**

- April 27-29, 2017 – 24th Annual Meeting of the American Society for Neural Therapy and Repair in Clearwater Beach, FL.

**Invited Presentations:**

- December 2, 2016 – “Limb and Tongue Resistance Training in the SOD1-G93A Rat Model of ALS.” KC Regional Consortia on Musculoskeletal Disorders & Diseases, University of Missouri – Kansas City, Kansas City, MO

**Committee Activities:**

- **Departmental**
  - Member, Finance Committee
  - Member, Graduate Student Affairs Committee

- **Student Committee Service**
  - Member, Jason Flor-Sistante, Physical Therapy & Rehabilitation Science, Ph.D.
  - Member, Lauren McLean, KCU, College of Biosciences II year Research track program
  - Member, Mercy Adewale, KCU, College of Biosciences II year Research track program

- **KUMC**
  - Member, Rodent Behavior Advisory Committee
  - Member, KUMC Neuroscience Graduate Program Advisory Committee
  - Member, KIDDRC Core B Advisory Committee
  - Member, Society for Neuroscience Kansas City Chapter Executive Committee
  - Co-President, Society for Neuroscience Kansas City Chapter
  - Member, KUMC Faculty Council
  - Member, KUMC IGPBS Admissions Committee (Neuroscience representative)
Dr. Stanford *(continued)*

Program Director, KUMC Biomedical Research Training Program
Campus Coordinator, K-IINBRE Program Director and KUMC
Community

National
Member, Teachers and Students for Community Oriented Research
Education Advisory Board Steering Committee
Chair and awards committee, National IDeA Symposium for Biomedical
Research Excellence
Member, National IDeA Symposium for Biomedical Research Excellence
Member, College & Careers Advisory Board,
Member, Diploma+ Program, Kansas City Public Schools
Member, Councilor and Scientific Program Committee
Member, American Society for Neural Therapy and Repair

Editorial and Grant Reviews:
Editorial Board, *Journal of Neurodegenerative Diseases*
Ad hoc Reviewer, *NIH CSR Motor Function Speech and Rehabilitation (MFSR)*
scientific review panel
Ad hoc Reviewer, *NIH IFCN-J (02) M Special Emphasis Panel*
Ad hoc Reviewer, *Journal of Neurochemistry*
Ad hoc Reviewer, *Journal of Molecular Endocrinology*
Ad hoc Reviewer, *Scientific Reports*
Ad hoc Reviewer, *Brain Stimulation*
Ad hoc Reviewer, *International Journal of Molecular Sciences*
Ad hoc Reviewer, *Neurobiology of Disease*

Seminars Presented:
August 29, 2016 - Effects of Resistance Training in the SOD1-G93A Rat Model
of Amyotrophic Lateral Sclerosis. Department of Biology Seminar Series,
Wichita State University, Wichita, KS
December 5, 2016 - Anatomical, Neurochemical, and Metabolic Dysfunction with
Hyperbilirubinemia in 21-day-old and 4-month-old Jaundiced Gunn Rats.
Department of Molecular & Integrative Physiology, University of Kansas
Medical Center, Kansas City, KS
April 19, 2017 - Limb vs Tongue Resistance Exercise on Neuromuscular
Function in Rat Models of Aging and ALS. Kansas City Veterans Affairs
Life Sciences Seminar Series. KCVA, Kansas City, MO

Teaching Activities:
PHSL 848 - Molecular Mechanisms of Neurological Disorders
2 – 1.5 Hour Sessions
PHSL 846 – Advanced Neuroscience
Course Director
9 – 2 Hour Sessions
Dr. Stanford (continued)

PHSL 843 – Physiology of Disease  
2 – 1.5 Hour Sessions  
CORE 840 – Brain and Behavior  
4 – 4 hour sessions

Research personnel:
- Kimberly Stanford, MA – Research Associate: Resistance training and neuromuscular junctions in aging and ALS  
- Jane Yang, PhD – Postdoc: Preclinical Studies of Kernicterus  
- Sean Riordan, PhD – Postdoc: Preclinical Studies of Kernicterus  
- Olivia Dykes – IGPBS Student: Preclinical Studies of Parkinson's disease and ALS  
- Reem Alam – KU Undergraduate Student: Effects of TBI on Tongue Function in Rats  
- Gabby Hendren – High School Student: Neural Effects of Resistance Exercise in Aged Rats  
- Emma Renwick – High School Student: Neural Effects of Resistance Exercise in Aged Rats  
- Amanda Cheng – High School Student: Preclinical Studies of Kernicterus and Effects of TBI on Tongue Function in Rats
Joseph S. Tash, Ph.D., Professor

My research interests, funded by NIH, focus on the discovery and development of reversible non-hormonal male contraceptives. In addition, my NASA funded research is focused on elucidating the impact of long term space flight on reproductive health in males and females. During the last year I was awarded a 6 month Sabbatical by the university, which was supported by a Burroughs-Wellcome Fund Collaborative Travel grant. I devoted the Sabbatical to gain experience in female reproductive biology at the Oregon National Primate Research Center in collaboration with the investigators in the U54 Center: Contraception by Blockade of Periovulatory Events in Primates. During the Sabbatical we accumulated promising data to support development of a new area of non-hormonal contraceptive drug discovery in females. In January of 2017, I decided to enter the Phased Retirement Program for a period of one year.

Meetings Attended:

Committee Activities:
  Departmental Member, Department Promotion and Tenure Committee.

Research personnel:
- Lesya Holets, Ph.D., Senior Scientist, Cell-cycle regulatory kinases as targets for male contraceptive drug development, H2-Gamendazole analogues as reversible non-hormonal male contraceptive agents
- Hannah Horky, Research Assistant, Cell-cycle regulatory kinases as targets for male contraceptive drug development.
- Eric Yarns, Research Assistant, Space flight-altered motility activation and fertility-dependent responses in sperm from sea urchin and rodents, Female reproductive health: Space flight induced ovarian & estrogen signaling dysfunction, adaptation, and recovery
John P. Thyfault, Ph.D., FACSM, Associate Professor

1. Links between fatty liver, hepatic mitochondrial dysfunction, and low aerobic fitness and the role that hepatic PGC-1a may be playing in this process
2. Role of hepatic mitochondrial function to impact systemic metabolism and regulation of energy intake and physical activity
3. Role of physical activity and inactivity to modulate insulin action and glycemic control
4. Impact of statins to negatively impact the ability of exercise training to improve skeletal muscle mitochondrial content and aerobic fitness

Committee Activities:

Departmental
- Search Committee, Repro Biologist Faculty Position

Student Committee Service
- Member, Ian Huck, Pharmacology, Toxicology, Therapeutics, IGBPS
- Member, Michael Cooper, Anatomy, IGBPS
- Member, Ashley Ward, Physiology, IGBPS
- Member, Shaima Alothman, Physical Therapy, Ph.D.
- Member, Yuan Li, Pharmacology, Toxicology, Therapeutics, Ph.D.
- Member, Scott Koppel, Neuroscience, Ph.D.
- Member, Pao Yen Wu, Anatomy & Cell Biology

KUMC
- Children’s Mercy Healthy Lifestyle and Nutrition Center – (KUMC/CMH joint funded Center)

Community
- Committee, Kansas City VA IACUC
- Planning Committee, Obesity Society meeting
- Co-Director, Integrative Physiology Track 2016-2017

Invited Presentations:
- Hepatic fitness and metabolic fitness. Integrated Medicine: Physical Activity is a Core Tip Annual Conference. Basun, Korea, June 17, 2016
- Sitting is the new smoking: why daily activity matters. University of Kansas Center for Physical Activity and Weight Management 15th Annual Obesity Conference. Friday, Sep 9, 2016.
- Exercise, Fitness, and Hepatic Mitochondrial Energetics. Symposium Title: Cellular energy basis as a basis for metabolic (Dys)Regulation. The American Diabetes Association Annual Meeting: San Diego, CA, June 12, 2017

Meetings Attended:
- May 30 - June 1 – American College of Sports Medicine Annual Meeting. Denver, CO
- June 9-12 – American Diabetes Association Meeting. San Diego CA,
Dr. Thyfault (continued)

Editorial and Grant Reviews:
- Member, NIH Integrative Physiology of Obesity and Diabetes (IPOD) study section
- Ad hoc Reviewer, Diabetes
- Ad hoc Reviewer, AJP Endocrinology and Metabolism
- Ad hoc Reviewer, AJP Cell
- Ad hoc Reviewer, Diabetologia
- Ad hoc Reviewer, Journal of Clinical Endocrinology & Metabolism
- Ad hoc Reviewer, JCI
- Ad hoc Reviewer, Experimental Behavior
- Ad hoc Reviewer, Experimental Physiology
- Ad hoc Reviewer, Journal of Applied Physiology
- Ad hoc Reviewer, Medicine in Sciences and Sports and Exercise
- Associate Editor, Applied Physiology Nutrition and Metabolism
- Associate Editor, Experimental Physiology
- Associate Editor, Physiological Genomics
- Associate Editor, Journal of Applied Physiology

Seminars Presented:
- Dec 6, 2016 – Hepatic fitness alters susceptibility for fatty liver and metabolic dysfunction. University of Alabama Birmingham, Nutrition and Obesity Research Center, Birmingham, AL.
- Jan 12, 2017 - Hepatic fitness and susceptibility for metabolic disease. Washington University, Nutrition and Obesity Research Center. St. Louis, MO.

Courses Taught:
- PHSL 843 – Physiology of Disease
  1 – 3 hour sessions
- PHSL 835 – Integrative Physiology of Exercise
  Co-Director
  Taught half of all lectures
- IGPBS – Cell Biology
  3 – 3 hour sessions

Research Personnel:
- Julie Allen – Lab Manager
- Dr. E. Matthew Morris – Research Assistant Professor: Role of hepatic mitochondrial function to impact weight gain
- Dr. Colin McCoin – Post-Doctoral Fellow: Hepatic mitophagy impacted by lipids and exercise
- Adrianna Maurer, IGPBS Ph.D. Student
Dr. Thyfault (continued)

Alex Von Schulze, 2nd year IGPBS Ph.D. Student (co-mentored with Paige Geiger). Project: Hepatic mitochondrial function, heat shock proteins, and mitophagy.

Honors and Awards:
Publication selected for APSselect – editors choice in December 16 issue of *Journal of Applied Physiology*
Research in my laboratory is predominantly focused in two areas. The first investigates the role of estrogen receptor alpha in growth and metabolism using receptor knockout rats. We are focusing on sex-specific differences in hepatic gene expression and whole body metabolism. In the second area, we are determining the role of SATB homeobox proteins in regulating placental development. These studies focus on SATB regulation of the epigenome and transcriptome in proliferating and differentiating trophoblasts.

Meetings Attended:
   September 13-16, 2016 – International Federation of Placental Association annual meeting, Portland, OR

Committee Activities:
   Departmental
   Director, Graduate Education
   Chair, Graduate Student Advisory Committee
   Student Committee Service
   Member, Margaret Pruitt, Physiology, M.D./Ph. D
   Member, Amanda Brinker, Physiology, Ph.D.
   Member, Kelsey Hampton, Physiology, Ph.D.
   Member, Ashley Ward, Physiology, Ph.D.
   Member, Zelha Nil, Physiology, Ph.D.
   Member, Jianzheng Wu, Physiology, Ph.D.
   Member, Bhaswati Bhattacharya, Pathology, Ph.D.
   Member, Eric Young, Cancer Biology, M.D./Ph.D.
   KUMC
   Officer, KUMC Research Integrity
   Member, KUMC Graduate Council
   Member, IGPBS Advisory Board
   Member, Phase I committee for Medical curriculum
   Member, KUMC/KU-L graduate student health insurance work group
   Member, KUMC Responsible Conduct of Research program advisory committee

Invited Presentations:
   March 23, 2017 – “What is the Office of Research Integrity?” KUMC Research & Discovery Grand Rounds
   October 12, 2016 – “Research Integrity – Responsible conduct of research”. Kansas Research Administrators Day

Editorial and Grant Reviews:
   Reviewer, Journal of Assisted Reproduction and Genetics
Dr. Wolfe (continued)

Teaching Activities:
- GSMC 856, Introduction to Research Ethics
  - Course Director
  - 12 – 1 hour sessions
- PHSL 842, Comprehensive Human Physiology
  - Co-director
  - 10 – 1 hour lectures
- CORE 825, Renal-Endocrine Module
  - Course Director
  - 8 – 1-2 hour lectures
- CORE 830, Reproduction and Sexuality Module
  - 3 – 1 hour lectures
- PHSL 843, Physiology of Disease
  - 2 – 1 hour lectures
  - Mentored 1 post-doc presenting a lecture (2 – 1 hour sessions)
  - Mentored 1 graduate student presenting a lecture (3 – 1 hour sessions)
- Core 805, Genetics and Neoplasia CBCL
  - 2 – 2 hour sessions

Research personnel:
- Subhra Gosh, Research Technician
- Khyati Dalal, Research Assistant
- Vincentaben Khristi, Research Assistant
- Dr. Wei Yu, Senior Scientist
- Dr. Prabhakar Singh, Post-doctoral fellow
- Dr. M.A.K. Rumi
- Archit Pramanik, Volunteer – Washington University undergraduate student
- Mahmood Khatib, Volunteer – high school student
Currently our major goal is to examine mechanisms responsible for the microvascular inflammatory response following cutaneous thermal injury. These experiments are in collaboration with Drs. James Howard and Michael Moncure in the Dept. of Surgery. Intravital microscopy is used to quantitate microvascular alterations in mesenteric post-capillary venules.

Committee Activities:

Student Committee Service
Member, Thesis Committee, Blake Ebner, Physiology, MD/Ph. D.
Member, Thesis Committee, James Weemhoff, Pharmacology, Ph. D.
Member, Thesis Committee, Lugi Duan, Pharmacology, Ph. D.
Member, Thesis Committee, Amy Cantilena, Physiology, Ph. D.
Member, Thesis Committee, Afreen Sayed, Surgery, Ph. D.

KUMC
Member, Academic and Professionalism Committee
Member, Prematriculation planning committee
Member, Delp Academic Society
Member, Admissions/Selection Committee
Member, Institutional Animal Care and Use Committee
Member, Phase I Committee
Member, Committee for Systematic Review of the Blood & Lymph Module
Chair, Dept. of Surgery Research Committee
Chair, Dept. of Surgery Research Strategic Planning Committee
Member, Dept. of Surgery Resident Education Committee
Member, Interview applicants for residency in Dept. of Surgery
Member, Education Council
Member, Committee for Systematic Review of the Integration & Consolidation Module
Member, ACE Curriculum: Physiology Discipline Leader
Member, ACE Curriculum: Respiratory & Circulation Block Director
Member, Director of Education Programs, Office of Diversity and Inclusion
Member, Medical Student applicant interviews
Member, Post-Baccalureate Program Selection Committee
Member, Readiness for Change Committee
Member, Chancellor's Distinguished Teaching Award Selection Committee
Member, Student Liaison
Member, Committee for Systematic Review of the Integration and Consolidation Module
Member, Interview applicants to Rural Scholars Program in Wichita

Invited Presentations:
Dr. Wood (continued)


Teaching Activities:
Medical Education
Cardiopulmonary Module
Course Director
22 – 1 Hours Lectures
Integration & Consolidation
3 – 1 Hour Sessions
Pre-Matriculation
Course Director
13 – 1 Hour Sessions
Cardiopulmonary simulation sessions
8 – 1 Hour Sessions
Cardiopulmonary small group conferences
2 – 2 Hour Sessions

Graduate
PHSL 842 – Comprehensive Human Physiology
13 – 1 Hour Sessions

Research Personnel
Naomi Holloway, Research Associate
Jonathan Warren, MD, Resident in Dept. of Surgery

Honors/Awards:
2017 – Above and Beyond Award from First Year Medical Students
2017 – Second Year Outstanding Lecturer
2017 – Cardiopulmonary: First Year Outstanding Medical Module