HIGHLIGHTS FROM THE YEAR
ENDING ONE MILLENNIUM AND BEGINNING ANOTHER

The first half of the fiscal year was dominated by extensive media and government coverage of impending disasters that would result from computer and system failures, known affectionately as Y2K; the second half was characterized by explanations of why government and industry spent 300 billion dollars preparing for something that amounted to next to nothing. Be that as it may, we as a department continued on our own journey, or mission, which seems to be the catchword of the day. Although we have not developed a written mission statement, it seems to me that we are meeting our missions in teaching, research and service. Perhaps at our next retreat we can formalize what we do and develop a plan for the future.

Significant events continued in the department this past year. Dr. Larry Sullivan retired, but agreed to stay on part time for one more year to teach renal physiology. We had a wonderful open reception here at KUMC and a formal dinner at the Woodside Racquet Club in celebration of his many years of outstanding service to the department. Richard Clancy will retire this next January. Both of these losses mean significant changes in teaching by the department, and a recruitment is underway for a renal physiologist to be hired by July 1, 2001. In cooperation with Urology, recruitment for a scientist who worked in prostate cancer was initiated. Leslie Heckert chaired the search committee, and about five candidates were brought in for interviews. An offer was made to Jon Svanen from Washington University, but he decided to take a position at the University of Wisconsin. That search has been suspended. The department was successful in recruiting Dr. Jennifer Hill Karrer, who was a research assistant professor in the MRRC before agreeing to come to Physiology on a tenure track. We welcome her into the department and look forward to her contributions in both research in neurosciences and teaching.

We had a very successful departmental retreat this past fall. Several key speakers gave interesting talks, especially one by Dr. Yvonne Maddox, currently Deputy Director at NIH. She interacted with many faculty and students, instructing them in new ways to approach NIH for funding. In addition, 27 posters were displayed and provided opportunity for scientific interactions among students and faculty.

In January we celebrated the naming of Dr. S.K. Dey as University Distinguished Professor by having Dr. Raymond DuBois here as a speaker, an open reception and a dinner at Pierpont’s in Union Station. Dr. John Wood received two education awards for his excellence in teaching. The first was the Golden Apple Award, in which the students at an open assembly recognized him. The second was the Outstanding Educator Award for first year medical students, which was celebrated at “The Grande Affair”. It sure is nice being chair of a department that garners all these awards by its faculty, riding on their coattails.

Changes in the administration included hiring two new chairs: Dr. Thomas DuBose from UT Houston as Chair of Internal Medicine and Dr. Barbara Atkinson, Dean at MCP Hahnemann, as Chair of Pathology. Both of these recruitments are first rate, and Dr. Powell should be happy with her efforts. The LCME granted the School of Medicine full accreditation. There has been a proliferation of vice chancellors named this year—lets hope this means more efficient operations and not administrative glut.

Education

We saw four students from the IGPBS program join our department: Brian Hermann and Ning Lei (Heckert), Ryan Thummel (Godwin), and Anne Stowe (Wood). This brings the number to nine that the department has gained from this program during the past three years. Al Casillan, an M.D./Ph.D. student also committed to our department and is working with Dr. Wood. Six students and postdoctoral fellows competed for and received Biomedical Research Scholarships:
Leigh Raymond and Elena Zoubina received their doctorates this past year, and we look forward to Don Warn, Gerald Call, Jeremy Chien and Jena Steinle finishing this year. Support formula for graduate students changed this year with YR 1-100% GTA(IGPBS), YR 2-25% GTA and 75% PI, YR 3-0% GTA and 100% PI. Guidelines also were changed as follows: require a minimal of two meetings of student with their graduate committee/year; qualifying exam taken by end of fall semester of third year.

Medical Physiology continued under the careful and thorough direction of Dennis Valenzeno. Continued high ratings were given to small groups as a learning tool and as relevant to clinical medicine. Medical Neuroscience again was ably directed by Tom Imig, involving multidisciplinary input. Students liked the increased time allocated to this course, which will be continued again this year. Advance Human Physiology, directed very thoroughly by Steve LeVine, included physical therapy students for the last time. They will be taught via the Web by PT Education in the future. Continued changes in the core curriculum of the IGPBS were made, with fewer lecturers than in previous years. Both Reproductive Physiology and Advanced Neurosciences were also taught this year.

Research

This year again broke departmental records in terms of dollars obtained in research grants. At least 12 new outside grants were awarded, including: two individual NIH predoctoral fellowships (Williams and Friel), seven NIH grants (Heckert and Smith (2), Terranova-minority supplement, Soares, Dai, Wood), two Mellon grants (Dai and Petroff) and Hunter's Hope (LeVine). In addition a new NIH training grant for postdoctoral training was awarded to Randy Nudo. The KUMC Research Administration Summary Report for the Department of Molecular and Integrative Physiology shows that during FY00 principal investigators in the department received a total of $6,204,835. This is a 28% increase over FY99. Of this amount $1,408,068 was non-NIH funds, which shows the diversity of our grant sources. Of this total, $1,536,257 were indirects, contributing our share to the university. In fact, in an obscure document I found from the Lawrence campus, our department brought in more indirect costs (FY98) than any department in the entire university. Several faculty members with joint appointments in the department also received grants this year, but I am not able to extract that information from the Research Office at present.

The NIH report for FY99 (10/01/98-09/30/99) which is 9 months behind the local report, ranked our department 28th out of 128 medical schools, with a total of $4,406,634 in grant dollars, including 19 research grants, 1 training grant and 4 fellowships. This is a 25% increase over last year, and places us ahead of Emory, Stanford and Pittsburgh and two places behind Northwestern.

Of particular note is the very strong productivity of our assistant professors. They brought in over $1,400,000 in grants this past year.

Perhaps a better measure of productivity is publications. This past year there were 82 peer-reviewed articles published by members of the department, most in highly rated journals.

Many faculty members also served on study sections, review panels and editorial boards too numerous to enumerate.

Finances and Facilities

Space for research is becoming a critical issue for our department. We are recruiting for a new renal physiologist, but no sure space has been promised. This past year, we had a ratio of total grant dollar to net square footage of space of $295. This is much higher than the School of Medicine average, which is $200, and is much higher than the average for Departments of
Physiology nationally, which is $163. A committee was recently formed to develop a space allocation plan.

We received $55,974 into our Research Overhead Account, plus an additional $40,000 from the Dean’s Office. Our faculty generated $64,810 for the Excellence Account over and above that required for their salaries. These funds were used for staff and faculty salaries, equipment, service contracts, and startup funds. It looks like the RO account will remain about the same for this next year, but the Excellence Account will decrease some. With increased faculty numbers and no increase in OOE budget, this will be a tight year for our operating expenses.

Salary increases this year for staff and faculty was limited to 2.5% due to reallocation of some of the state salary increase dollars for salaries to some clinical faculty. Hopefully this will not occur next year. The development of mission-based budgeting is supposed to help in determining which faculty and departments are highly productive and enable the allocation of state funds to support those departments and individuals.

Staff

This year we saw, for the first time in many years, significant turnover. After being without a person in Joella’s position for many months, we were able to place Gail Wells in that position. Gail came to us from ENT. Fortunately, Terese Novak was able to fill in part time during the interim. We also filled the accounting position as soon as Linda Simons left, with Ethel Doetzl who came over from the library. We hope we will again establish continuity in these positions. Through this all, Linda Carr had managed to stay alive, but just barely. Her work load continues to increase because we have so many personnel changes weekly, and Peoplesoft managers as well as other departments continue to not get the work done in a timely manner. Ted Gleason continues his steady and high quality work for all of you who have equipment, fabrication or repair needs.

Future

Being an optimist, I always look forward to good things happening in the future. However I am concerned that we as an institution are not in as good a position as we need to be to capitalize on the robust economy and resultant strong NIH budgets that are occurring at present. Stower’s Institute will get off the ground this year and should provide opportunities for productive collaborations, but only if we have the local support that we need to make those collaborations attractive. If the Life Sciences Alliance becomes a reality, we must be ready to compete for the available funds. To do this, we need quality animal facilities with strong innovative leadership, state-of-the-art biotechnology, efficient grant management, money to attract the best scientists for seminars, sufficient startup funds and quality space for new recruitments, more return of indirects to departments and to those who generated them, and an administration that understands and supports scholarship at the highest level. We must continue to work toward improving our infrastructure as best we can, never letting an opportunity go by without calling to task any part of our institution that does not measure up.

Thanks for a very strong and satisfying year.
a. Faculty

Primary Appointment in Physiology

James L. Voogt, Ph.D., Professor and Chairman
Paul D. Cheney, Ph.D., Professor and Director of Ralph L. Smith Center for Mental Retardation
Richard L. Clancy, Ph.D., Professor
Sudhansu K. Dey, Ph.D., University Distinguished Professor
Alan R. Godwin, Ph.D., Assistant Professor
Norberto C. Gonzalez, M.D., Professor
Leslie L. Heckert, Ph.D., Assistant Professor
Walter T. Imagawa, Ph.D., Assistant Professor
Thomas J. Imig, Ph.D., Professor
Steven M. LeVine, Ph.D., Associate Professor
Randolph J. Nudo, Ph.D., Associate Professor and Assoc. Director of Research, Center on Aging
Peter G. Smith, Ph.D., Professor
Michael J. Soares, Ph.D., Professor
Lawrence P. Sullivan, Ph.D., Professor
Merrill Tarr, Ph.D., Professor
Joseph S. Tash, Ph.D., Associate Professor
Paul F. Terranova, Ph.D., Professor and Director of Center for Reproductive Sciences
Dennis P. Valenzeno, Ph.D., Associate Professor
Michael W. Wolfe, Ph.D., Assistant Professor
John G. Wood, Ph.D., Assistant Professor

Emeritus

Gilbert S. Greenwald, Ph.D., Distinguished Professor
Frederick E. Samson, Ph.D., Professor

Modified Title Research Track Faculty

Guoli Dai, Ph.D., Research Assistant Professor
Hyun Jung Lim, Ph.D., Research Assistant Professor
Joanne Marcario, Ph.D., Research Assistant Professor

Joint Appointment in Physiology

Ken Audus, Ph.D., Professor & Chair (Pharmaceutical Chemistry)
Sanjoy Das, Ph.D., Assistant Professor (Ob-Gyn)
Thomas DuBose, M.D., Professor & Chair (Internal Medicine)
Timothy Hall, Ph.D., Professor (Diagnostic Radiology)
Donald C. Johnson, Ph.D., Professor Emeritus (Ob-Gyn)
Warren Nothnick, Ph.D., Assistant Professor (Ob-Gyn)
B.C. Paria, Ph.D., Assistant Professor (Pediatrics)
Janet Pierce, D.S.N., Associate Professor (School of Nursing)
Jeffrey Radel, Ph.D., Associate Professor (Occupational Therapy Ed.)
Jeffrey Reese, M.D., Assistant Professor (Pediatrics)
Namita Sahgal, M.D., Assistant Professor (Pediatrics)
### b. Graduate Students

<table>
<thead>
<tr>
<th>Name</th>
<th>Prelims</th>
<th>Candidate</th>
<th>Requirements Fulfilled</th>
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<tbody>
<tr>
<td>Gerald Call</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Al Casillan</td>
<td></td>
<td>M.D./Ph.D.</td>
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<tr>
<td>Jeremy Chien</td>
<td>10/97</td>
<td>Ph.D.</td>
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<tr>
<td>Numa Dancause</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Audrey Franz</td>
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<td>M.D./Ph.D.</td>
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<tr>
<td>Kathleen Friel</td>
<td>9/98</td>
<td>Ph.D.</td>
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<td>Kyle Henderson</td>
<td>3/00</td>
<td>Ph.D.</td>
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<td>Brian Hermann</td>
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<td>Ph.D.</td>
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<td>Htet Khant</td>
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<td>Ph.D.</td>
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<tr>
<td>Ning Lei</td>
<td></td>
<td>M.D./Ph.D.</td>
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<tr>
<td>Michael Park</td>
<td>7/97</td>
<td>Ph.D.</td>
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<tr>
<td>Erik Plautz</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Leigh Raymond</td>
<td>12/97</td>
<td>Ph.D.</td>
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<tr>
<td>Haengseok Song</td>
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<td>Ph.D.</td>
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<tr>
<td>Jena Steinele</td>
<td>8/99</td>
<td>Ph.D.</td>
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<tr>
<td>Ann Stowe</td>
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<td>Ph.D.</td>
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<td>Ryan Thummel</td>
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<td>Ph.D.</td>
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<tr>
<td>Theingi Thway</td>
<td>3/00</td>
<td>Ph.D.</td>
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<tr>
<td>James Warn, Jr.</td>
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<td>Ph.D.</td>
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<td>Shalmica Williams</td>
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<td>Ph.D.</td>
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<tr>
<td>Elena Zoubina</td>
<td>7/98</td>
<td>Ph.D.</td>
<td></td>
</tr>
</tbody>
</table>

### c. Postdoctoral Fellows

- Rupasri Ain
- Beth Albrecht
- Sangita Biswas
- Melissa Daggett
- Mitchell Emerson
- Shawn Frost
- Xin Gao
- Wohaib Hasan
- Jyotsnabaran Halder
- Annie Lee
- Alma Levy
- Xuelin Li
- Hiromichi Matsumoto
- Tatyana Pedchenko
- Vadim Pedchenko
- Brian Petroff
- XiuJun Pi
- Frank Samson
- Serge Scherrer
- Deok-Soo Son
- Danhua Wang
- Shu-ping Yang
- Elena Zoubina

### d. Temporary Students

- Neil Coleman
- Claire Croucht
- Steve Dalia
- Audrey Franz
- Jeff Henning
- Dora Hunter
- Doug Hutchinson
- Walter Ingram
- Jennifer Ly
- Web McCanse
- Kaori Mizuyachi
- Ben Newell
- David Razafsky
- Matt Severidt
- Jennifer Shott
- Whitney Smalley
- Jessca Sperry
- Samia Quadri
- Michelle Wither
- Jennifer Welch
- James David Young
e. Research Staff
Dora Agbas - Research Associate
Julie Allen - Research Associate
Cindy Bailey - Research Assistant
Sarah Baptist-Nguyen - Research Associate
Scott Barbay - Research Associate
Abderraouf Belhaj-Saif - Research Associate
Illya Bronshteyn – Research Assistant
Jiang-kai Chen - Research Assistant
Hughes Danis – Research Assistant
Judy Dunmore – Senior Research Associate
Jason Eppler – Research Technician
Fabrice Favret – Research Assistant
Matthew Gordon – Research Assistant
Sherri Hackett – Research Assistant
Jennifer Helber – Research Assistant
Payam Honargohar – Research Assistant
Jennifer Huber – Research Assistant
Jennifer Johnson – Research Assistant
Stephanie Jones – Research Associate
Diane Larson – Research Assistant
Darlene Limback – Research Associate
Bing Liu – Research Assistant
Manxi Liu – Research Assistant
Lu Lu – Research Assistant
Wen-ge Ma - Research Associate
Avraham Mor - Research Assistant
Tracy Newman - Research Assistant
Terese Novak – Research Assistant
Judith Pace – Senior Research Associate
Martin Perry - Research Assistant
Daren Rice - Research Assistant
Kevin Shields – Student Employee
Dawn Steiner - Research Assistant
Jeffrey Sweetwood - Research Assistant
Siqing Tang – Research Assistant
Lovella Tejada - Research Assistant
Xuemei Zhao - Research Assistant
Ying Zhu – Research Assistant

f. Support Staff
Linda Carr - Administrative Officer
Ethel Doetzl - Accounting Specialist
Ted Gleason - Electronics Technician II
Robin Larsen - Administrative Assistant
(Reproductive Sciences Center)
Gail Wells - Office Specialist
Gerald Call was primary author on two publications: "Gonadotropin-releasing hormone activates the equine luteinizing hormone β promoter through a protein kinase C/mitogen-activated protein kinase pathway" published in Biology of Reproduction (1999) 61:715-723, and "Bovine adrenal cells secrete interleukin-6 and tumor necrosis factor in vitro" published in General Comparative Endocrinology (2000) 118:249-261. He presented a seminar for the Zoology Department at Brigham Young University entitled "Gonadotropin-releasing hormone: Insights into pulsatile signal transduction". He also presented an abstract entitled "Does GnRH induction of LHβ depend on Egr1 across species?" at the 2000 KUMC student research forum and he presented a poster at the 1999 physiology departmental retreat entitled "Does GnRH induction of LHβ depend on Egr1 across species?". Gerald also served as the student representative for the departmental Graduate Student Affairs Committee.

Kathleen Friel received a predoctoral National Research Service Award in September 1999 from the National Institute of Neurological Disorders and Stroke. She presented Sensory/perceptual deficits after focal lesions in primary motor cortex of primates and was co-author on the poster Persistence of neurophysiological changes associated with motor skill acquisition presented at the 29th Annual Meeting of the Society for Neuroscience. She also presented Sensory deficits following primary motor cortex lesions in adult primates at the KUMC Student Research Forum 2000. Kathleen was first author on the manuscript, “Effects of postlesion experience on behavioral and neurophysiological reorganization after cortical injury in primates”, in press, Neurorehabilitation and Neural Repair. She was co-author on the paper Sensory/perceptual deficits following primary motor cortex lesions in primates, published in Neuropharmacology. Kathleen served as treasurer of the Graduate Student Council during the 1999-2000 academic year. She also served as a teaching assistant for the Medical Neuroscience course, Spring 2000.

Kyle Henderson was first author of a paper entitled, “Acute vs. chronic effects of elevated hemoglobin O2 affinity on O2 transport in maximal exercise”, published in the J. Appl. Phys. He presented information on, “The effects of acclimatization to and training in moderate hypoxia on normoxic exercise performance” at the 28th Annual Student Research Forum. He also presented a poster of the same title at the FASEB meeting in San Diego, for which he received a Graduate Student Travel Scholarship. Kyle passed his qualifying exam this past year and received a $10,000 scholarship from the KUMC Training Program in Biomedical Research. He currently serves as a tutor for Medical Physiology and Physiology 822.

Michael Park was the first author on the article “Chronic recording of EMG activity from large numbers of forelimb muscles in awake macaque monkeys” published in the Journal of Neuroscience Method. He was awarded a Graduate Student Travel Scholarship to attend the 29th Annual Meeting of the Society for Neuroscience held in Miami Beach, FL, and presented a poster entitled “Absence of a second distal muscle representation in maps of primary motor cortex in rhesus macaques” at the meeting. He was also awarded a K.U. Medical Center Bookstore Academic & Community Achievement award in the amount of $500. He has continued to serve as a volunteer Korean interpreter for KUMC and its patients and is the president of the M.D./Ph.D. Student Association.
Jena Steinle passed her comprehensive examination in August 1999. She was a recipient of the Biomedical Research Scholar Fellowship for 1999-2000. She was recently awarded a graduate travel fellowship to attend the 2nd International Society for Autonomic Neuroscience meeting in London, England in July, where she will present a poster entitled “Presynaptic Muscarinic Facilitation of Parasympathetic Neurotransmission after Sympathectomy in the Rat Choroid.” Jena gave a presentation of the same title in the 2000 Student Research Forum. She also received a travel fellowship to attend the 14th International Congress on Eye Research in Santa Fe, NM in October 2000, where she will present a poster entitled “Increased Ocular Blood Vessel Numbers and Sizes Following Chronic Sympathectomy in Rat.” This was also given as a presentation at the 1st Annual KUMC Biomedical Research Training Program Symposium in May 2000.

Shalmica Williams was awarded a National Institutes of Health Predoctoral Fellowship, which includes monies for her stipend, tuition, fees, and laboratory supplies for 4 years. She was a co-author on a review article entitled "Mechanisms of Ovulation and Their Implications for the Anovulatory Effects of Polychlorinated Dibenzo-p-Dioxins (PCDDs)" submitted to Toxicology. Shalmica also organized the Grant Writing Workshop for the Student Research Forum in April, 2000.

Elena Zoubina attended the Eighth International Symposium on Neural Regeneration December 8-12, 1999, where she presented a poster entitled “Degenerative and regenerative changes in rat uterine innervation during the estrous cycle.” An abstract of the same title was published in Experimental Neurology, 163. To attend the Symposium, she was awarded travel scholarships from Eastern Paralyzed Veterans Association and from KUMC Graduate School. In January 2000 she successfully defended her dissertation titled "Uterine Neuroplasticity in the Adult Virgin Rat". In June 2000 she attended Forum of European Neuroscience in Brighton, UK, where she presented a poster entitled "Acute and Chronic Estrogen Supplementation Decreases Uterine Sympathetic Innervation Density in Ovariectomized Adult Virgin Rats". An abstract of the same title was published in European Journal of Neuroscience (2000) 12 (suppl.11): 250. She was first author on a paper entitled "Axonal Degeneration and Regeneration In Rat Uterus During The Estrous Cycle", accepted for publication in Autonomic Neuroscience: Basic & Clinical; on a paper "Sympathetic Hyperinnervation Of The Uterus In The Estrogen Receptor α Knock-Out Mouse "; accepted for publication in Neuroscience; and on a paper "Acute and Chronic Estrogen Supplementation Decreases Uterine Sympathetic Innervation in Ovariectomized Adult Virgin Rats", which has been submitted to Experimental Neurology.
COURSES TAUGHT

Major Service Courses


840 - Medical Neuroscience. 5 credits. Spring 2000. Physiology section taught by Drs. Nudo, Imig, and Voogt. Enrollment 175. Dr. Imig Course Director.


Departmental Graduate Courses


The Departmental Seminar program was directed by Dr. Richard Clancy. Forty-three speakers made presentations, thirteen of which were from outside the university. In addition to support from the department, the Office of the Dean of the School of Medicine and the MRRC made important financial contributions to our program. The Kathleen M. Osborn Lecture Series sponsored Dr. Ryuzo Yanagimachi from the University of Hawaii and the J. Hambleton Abrahams Lectureship in Physiology sponsored Dr. Mario Capecchi, University of Utah.

9/13/99
Douglas Wright, Ph.D.
Department of Anatomy
Cell Biology, KUMC
Neurotrophic Regulation of Neuropathic Peripheral Sensory Neurons

9/14/99
Kazuyoshi Taya, D.V.M., Ph.D.
Veterinary Physiology
Tokyo University of Agriculture and Technology
Inhibin as a Key Hormone in Determining Species Specific Ovulation Rates in Mammals

9/20/99
Dale Abrahamson, Ph.D.
Department of Anatomy
Cell Biology, KUMC
Development of the Glomerular Capillary Wall

9/21/99
Alma Levy, Ph.D.
Department of Molecular and Integrative Physiology, KUMC
Effects of Steroid Hormones on the Development of Sexual Dimorphism in the Hypothalamus

9/27/99
Kenneth Peterson, Ph.D.
Department of Biochemistry and Molecular Biology, KUMC
Role of cis-linked Sequences and Locus Organization in Regulation of β-globulin Gene Expression

10/4/99
Partha Banerjee, Ph.D.
Department of Biochemistry
Division of Reproductive Biology
Johns Hopkins University
The Brown Norway Rat is a Model to Study Age-Dependent Spontaneous Hyperplasia and Tumorigenesis of the Prostate Gland

10/6/99
John Svaren, Ph.D.
Department of Pathology
Washington University
The role of the EGR1 Transcriptional Network in Prostate Cancer Progression

10/11/99
Melissa Daggett, Ph.D.
Department of Molecular and Integrative Physiology, KUMC
Transcriptional Regulation of Steroidogenic Factor-1 (SF-1) in the Testis

10/12/99
Gilbert Greenwald, Ph.D.
Department of Molecular and Integrative Physiology, KUMC
A Tale of Two Species: Hamster and Rat
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Department</th>
<th>Topic</th>
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<tr>
<td>10/18/99</td>
<td>Dianne Durham, Ph.D.</td>
<td>Department of Otolaryngology, KUMC</td>
<td>CNS Plasticity During Hair Loss and Regeneration</td>
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<tr>
<td>10/25/99</td>
<td>Christopher Taylor, Ph.D.</td>
<td>Department of Molecular and Integrative Physiology, KUMC</td>
<td>Platelet Derived Growth Factor Signaling in Ovarian Thecal Cells</td>
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<td>10/26/99</td>
<td>Thomas E. Curry, Jr., Ph.D.</td>
<td>Department of Obstetrics &amp; Gynecology, University of Kentucky</td>
<td>The Role of the Matrix Metalloproteinase System in Ovarian Function</td>
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<td>11/1/99</td>
<td>Thomas Pazdernik, Ph.D.</td>
<td>Department of Pharmacology, Toxicology and Therapeutics, KUMC</td>
<td>Limbic Stressors - Neuroprotective or Neurogenerative?</td>
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<td>11/8/99</td>
<td>Sudhansu K. Dey, Ph.D.</td>
<td>Department of Molecular and Integrative Physiology, KUMC</td>
<td>Molecular Signaling in Embryo-Uterine Interactions</td>
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<td>11/9/99</td>
<td>Xiujun Pi, M.D., Ph.D.</td>
<td>Department of Molecular and Integrative Physiology, KUMC</td>
<td>Prolactin Receptor Expression in the Hypothalamus of the Rat Brain</td>
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<td>11/15/99</td>
<td>Ryuuzo Yanagimachi, Ph.D.</td>
<td>Department of Anatomy and Reproductive Biology, University of Hawaii</td>
<td>Fertilization and Initiation of Development in Orthodox and Unorthodox Ways</td>
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<td>11/16/99</td>
<td>Fred Naftolin, M.D., Ph.D., Chairman</td>
<td>Department of Obstetrics and Gynecology, Center for Research in Reproductive Biology, Yale University</td>
<td>The Neuroprotective and Neurotrophic Effects of Estrogen During Development Affects all Neuroendocrine Systems</td>
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<td>11/22/99</td>
<td>Leigh Raymond, Ph.D.</td>
<td>Department of Molecular and Integrative Physiology, KUMC</td>
<td>Neurophysiological Changes Associated With SHIV in the Rhesus Macaques Model of Neuronal AIDS</td>
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<td>11/23/99</td>
<td>Tim Burnett, Graduate Student</td>
<td>Department of Anatomy and Cell Biology, KUMC</td>
<td>NOS-2: a Key Component of Decidual Differentiation in Pregnant Mice</td>
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<td>11/29/99</td>
<td>Michael Parmeley, Ph.D.</td>
<td>Department of Microbiology, Immunology and Molecular Genetics, KUMC</td>
<td>Modifications in Host Responses to Infection by Oxidative Stress</td>
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<td>12/6/99</td>
<td>Jared Grantham, M.D.</td>
<td>Departments of Medicine and Biochemistry &amp; Molecular Biology, KUMC</td>
<td>Regulation of Cyst Growth in Polycystic Kidney Disease</td>
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<td>12/21/99</td>
<td>Deok-Soo Son, D.V.M., Ph.D.</td>
<td>Department of Molecular and Integrative Physiology</td>
<td>Differential Effect of Estradiol Congeners on the Expression of CYPIA1 Induced by Dioxin in a Mouse Ovarian Epithelial Cancer Cell</td>
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<td>1/3/00</td>
<td>Dean Tang, Ph.D.</td>
<td>Department of Radiation Oncology</td>
<td>Apoptosis in Prostate Cancer: From Benchwork to Clinical Trial</td>
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<tr>
<td>1/10/00</td>
<td>J. Thomas Pierce, Ph.D.</td>
<td>Center for Environmental and Occupational Health, KUMC</td>
<td>Inductively Coupled Plasma Mass Spectrometry: A New Tool in Exposure Assessment</td>
</tr>
<tr>
<td>1/24/00</td>
<td>Elena Zoubina, Ph.D.</td>
<td>Department of Molecular &amp; Integrative Physiology, KUMC</td>
<td>Uterine Neuroplasticity in the Adult Virgin Rat</td>
</tr>
<tr>
<td>1/31/00</td>
<td>Timothy J. Hall, Ph.D.</td>
<td>Department of Radiology</td>
<td>Tracking Progressive Renal Disease With Quantitative Ultrasonography</td>
</tr>
<tr>
<td>2/8/00</td>
<td>Joseph Tash, Ph.D.</td>
<td>Department of Molecular &amp; Integrative Physiology, KUMC</td>
<td>Hypergravity Negatively Impacts Sperm Activation and Egg Fertilization in Sea Urchins</td>
</tr>
<tr>
<td>2/14/00</td>
<td>Jon Scheinman, M.D.</td>
<td>Department of Pediatrics</td>
<td>The Immunohistopathology of Glomerular Antigens: Their Role in Understanding the Kidney</td>
</tr>
<tr>
<td>2/21/00</td>
<td>Shu-ping Yang, Ph.D.</td>
<td>Department of Molecular &amp; Integrative Physiology, KUMC</td>
<td>Brain Mechanisms Responsible for Mating-Induced Prolactin Surges</td>
</tr>
<tr>
<td>2/22/00</td>
<td>Bill Kinsey, Ph.D.</td>
<td>Department of Anatomy and Cell Biology, KUMC</td>
<td>Signal Transduction Mechanisms at Fertilization</td>
</tr>
<tr>
<td>2/25/00</td>
<td>Raymond DuBois, M.D.</td>
<td>Department of Medicine &amp; Cell Biology</td>
<td>Cyclooxygenase-2 and it’s Effects on Biology and Disease</td>
</tr>
<tr>
<td>2/28/00</td>
<td>Warren B. Nothnick, Ph.D.</td>
<td>Department of Obstetrics &amp; Gynecology and Molecular &amp; Integrative Physiology, KUMC</td>
<td>The Role of Tissue Inhibitor of Metalloproteinase-1 (Timp-1) in Uterine Physiology</td>
</tr>
<tr>
<td>3/6/00</td>
<td>Erik Plautz</td>
<td>Department of Molecular &amp; Integrative Physiology, KUMC</td>
<td>Learning Dependent Plasticity in Primary Motor Cortex</td>
</tr>
<tr>
<td>Date</td>
<td>Speaker</td>
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<tr>
<td>3/13/00</td>
<td>Robin Maser, Ph.D.</td>
<td>Antioxidant Enzyme Expression in Polycystic Kidney Disease</td>
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<td></td>
<td>Department of Biochemistry and Molecular Biology, KUMC</td>
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<tr>
<td>3/20/00</td>
<td>Katherine F. Roby, Ph.D.</td>
<td>Effects of TCDD on Ovarian Follicular Development and Ovulation</td>
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<tr>
<td></td>
<td>Department of Anatomy and Cell Biology, KUMC</td>
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<tr>
<td>3/27/00</td>
<td>Frank K. Samson, Ph.D.</td>
<td>Differential Sensitivity to Monaural Spectral and Binaural Disparity Cues In the Cat’s Medial Geniculate Body</td>
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<td></td>
<td>Department of Molecular &amp; Integrative Physiology, KUMC</td>
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<tr>
<td>4/6/00</td>
<td>Mario R. Capecchi, Ph.D.</td>
<td>How do Hox Genes Specify our Body Plan?</td>
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<td>Howard Hughes Medical Institute</td>
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<td></td>
<td>Distinguished Prof./Human Genetics &amp; Biology, University of Utah</td>
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<tr>
<td>4/10/00</td>
<td>Harold M. Laughlin, Ph.D.</td>
<td>Non-Uniform Improvement of Endothelial Function in the Coronary Artery Tree After Exercise Training</td>
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<td></td>
<td>Department of Veterinary Biomedical Sciences and Physiology, University of Missouri-Columbia</td>
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<tr>
<td>4/17/00</td>
<td>Kelly Mayo, Ph.D.</td>
<td>Regulation and Actions of Inhibin and Activin in the Ovary</td>
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<tr>
<td></td>
<td>Department of Biochemistry, Molecular Biology &amp; Cell Biology, Northwestern University</td>
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<tr>
<td>4/24/00</td>
<td>Amy O’Brien Ladner, M.D.</td>
<td>Bioavailable Iron and the LPS Stimulated Macrophage</td>
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<td></td>
<td>Department of Medicine, KUMC</td>
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<tr>
<td>5/8/00</td>
<td>John Peluso, Ph.D.</td>
<td>Cadherin-Mediated Cell Contact and It’s Role in Regulating Apoptosis</td>
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<td></td>
<td>Departments of Physiology &amp; Obstetrics and Gynecology, University of Connecticut</td>
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<tr>
<td>5/15/00</td>
<td>Brigid Hogan, Ph.D.</td>
<td>BMP’s: Multifunctional Regulators of Embryonic Development</td>
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<td></td>
<td>Department of Cell Biology, Vanderbilt University</td>
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<tr>
<td>5/22/00</td>
<td>Jeff Reese, M.D.</td>
<td>Prostaglandins in Maternal-Fetal Communication During Reproduction</td>
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<tr>
<td></td>
<td>Department of Pediatrics, KUMC</td>
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</tr>
</tbody>
</table>
PUBLICATIONS

a. Manuscripts published


B. Manuscripts in press


Friel, K.M., and Nudo, R.J. Restraint of the unimpaired hand is not sufficient to retain spared primary motor hand representation after focal cortical injury. *Neurorehabilitation and Neural Repair.*


MohanKumar, P.S., MohanKumar, S.M.J., Quadri, S.K., and Voogt, J.L. Effects of chronic bromocriptine treatment on tyrosine hydroxylase (TH) mRNA levels, TH activity and median eminence dopamine concentrations in aging rats. *J. of Neuroendocrinology.*


Pedchenko, T.V., Bronshteyn, I.G., and LeVine, S.M. TNF-receptor 1 deficiency fails to alter the clinical and pathological course in mice with globoid cell leukodystrophy (twitcher mice) but affords protection following LPS challenge. *J. Neuroimmunol.*


Steinle, J.J., Pierce, J.D., Clancy, R.L., and Smith, P.G. Changes in Ocular Blood Vessel Number and Size following Long-Term Sympathectomy in the Rat.


Tohei, A., Taya, K., Watanabe, G., and Voogt, J.L. Hypothyroidism increases prolactin and decreases the intromission threshold for induction of pseudopregnancy in adult female rats. *Physiology and Behavior.*


Zoubina, E.V., and Smith, P.G. Sympathetic hyperinnervation of the uterus in the estrogen receptor α knock-out mouse.

Zoubina, E.V., and Smith, P.G. Axonal degeneration and regeneration in rat uterus during the estrous cycle.
c. Abstracts


**RESEARCH SUPPORT**

*Grant awards, direct and indirect, that were received during FY '00 for principal investigators in the department totaled $6,204,835.*


**R. L. Clancy:** NINR - Dobutamine and Diaphragm Fatigue. Direct costs $18,000; no Indirect costs; co-investigator effort 10%.

DOD - Effects of dopamine on diaphragm fatigue. Direct costs $71,166; indirect costs $28,834; co-investigator effort 20%.

NHLBI - Oxygen transport during exercise in prolonged hypoxia. Direct costs $116,762; indirect costs $57,279; co-investigator effort 20%.


KUMC Training Program in Biomedical Research - $15,000 postdoctoral fellowship.

**A. R. Godwin:** NIH – Pregnancy-specific Modulation of Natural Killer Cells. Principal Investigator, Michael Soares. Direct and Indirect costs $237,351.


W.T. Imagawa:
US Army Breast Cancer Research Program - Mechanisms of Altered Control of Proliferation by Cyclic AMP/Protein Kinase, A During Mammary Tumor Progression. Direct costs $67,000; Indirect costs $33,000.


Hunter’s Hope Foundation - Therapeutic Interventions for Krabbe’s Disease. Direct costs $93,165; Indirect costs $6,835.

Research Institute of the University of Kansas Medical Center - Protective Mechanisms in CNS Demyelinating Diseases. Direct costs $3,125.


ACTIVITIES OF STAFF

Paul D. Cheney, Ph.D., Professor (Director, MRRC)

Summary of Research: Modern 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 discharge activity of single neurons is recorded in awake monkeys trained to perform various movement tasks. Computerized analysis techniques are used to reveal the functional contribution of a neuron to movement. In another project, SIV infection in monkeys is used as model of neuro-AIDS. The mechanisms by which SIV/HIV enters the brain and injures neurons is investigated using neurobehavioral, neurophysiological, and neuroanatomical methods.

Meetings Attended:
July 14-15, 1999 – Attended the AIDS Impact Conference in Ottawa, Canada. Invited speaker at a symposium and gave a slide presentation entitled “Macaque model of neuro-AIDS”.
August 20-22, 1999 – Attended the American Psychological Association Annual Meeting, Boston, MA. Invited speaker at a symposium on “Animal Models of Mental Retardation.”
September 18-25, 1999 – Invited to seminar entitled “Neuroscience at the University of Kansas”, toured facilities and met with the Neuroscience faculty at Otto-Von-Guericke University, Magdeburg, Germany.
October 7-9, 1999 – Attended the “7th Annual Neuroimmune Circuits and Infectious Disease” meeting on the NIH campus, Bethesda, Maryland. Presented a poster entitled “Behavioral and biological profile of SIV-infected macaques: model for the study of interactions with drugs of abuse”.
October 23-28, 1999 - Attended the 29th Annual Meeting of the Society for Neuroscience in Miami, Florida. Was co-author on three poster presentations.
November 9-10, 1999 – Attended NIH Study Section, IFCN #5, Washington, D.C.
December 8-12, 1999 – Invited speaker at the 8th International Asilomar Symposium on Neural Regeneration, Asilomar Conference Center, Pacific Grove, CA
February 15-16, 2000 – Attended NIH Study Section, IFCN #5, Washington, D.C.
April 14-17, 2000 – Invited speaker at a meeting entitled “Computational Models” held in conjunction with the Neural Control of Movement meeting, Key West, Florida.
June 20-21, 2000 – Attended NIH Study Section, IFCN #5, Washington, D.C.

Committees:
Departmental
Member, Jena Steinle Comprehensive exam committee
Member, Don Warn Dissertation Committee
Member, Kathleen Friel Dissertation Committee
Member, Leigh Raymond Dissertation Committee
Member, Michael Park Dissertation Committee

University
Member, School of Medicine Faculty Council
Chair, School of Medicine Research Committee
Member, School of Medicine Research Space Committee
Member, School of Medicine Executive Committee
Member, Faculty Assembly Research Committee
Organizer with Eli Michaelis of a proposal for a doctoral degree granting cross-campus training program in neuroscience.
Organizer, Brain Awareness Week Program, March 6-10, 1999.
Member, Neurology Chair Search Committee.
Member, Children's Development Unit Advisory Committee
Member, Center on Aging Internal Advisory Committee
Mentor, Center on Aging Pepper Center Grant from NIA
Member, Institutional Grant Proposal Committee seeking funds for LAR building construction.
Member, Institutional Grant Proposal Committee seeking funds for MRRC animal facility building construction.
President, Kansas City Chapter, Society for Neuroscience.
Organizer, Grass Traveling Neuroscientist Lectureship
Member, Kansas MRRC Internal Scientific Advisory Committee
Member, Life Span Institute Support Committee
Member, Kansas MRRC Statistics Advisory Board
Judge, Student Research Forum, April 5, 1999

National NIH Neuroscience Study Section meetings (IFCN #5), Feb. 15-17 and June 23-25, 1999, Washington, DC.

Editorial and Grant Reviews:
Associate Editor Neuroscience Letters
Ad hoc reviewer Nature
Ad hoc reviewer PNAS
Ad hoc reviewer Journal of Neurophysiology
Ad hoc reviewer Journal of Neurovirology
Ad hoc reviewer Journal of Experimental Brain Research
Ad hoc reviewer Somatosensory and Motor Research
Ad hoc reviewer Mental Retardation and Developmental Disabilities Reviews
Ad hoc reviewer NIDA, November 23, 1999.
Ad hoc reviewer The Wellcome Trust, London, UK
Member NIH - Neuroscience Study Section IFCN #5. Attended three meetings this year.

Seminars Presented:
February 23, 2000 - Presented a seminar on research programs of the MRRC for the Education Task Force of the Kansas City Tomorrow Program.

Teaching Activities:
Advanced Neuroscience
10 lecture hours
IGP Module 6
8 lectures
Director, PHSL 846 - Advanced Neuroscience
Research presentation for new IGP students

Trainees:
Leigh Raymond - Ph.D. student
Michael Park - M.D./Ph.D. student
Richard L. Clancy, Ph.D., Professor

Summary of Research: My research interest is cardiopulmonary physiology. Currently I am participating in studies of: a) determining the effects of the sympathomimetic agents dopamine and dobutamine on diaphragm performance; and b) how training in normoxic and hypoxic environments affect maximum exercise capacity.

Meetings Attended:
April 15-18, 2000 - Attended Experimental Biology meeting held in San Diego, CA

Committees:
Departmental:
Promotion and Tenure
Physiology Seminar Program

University:
Member, Animal Care and Use Committee
Faculty Grievance Committee
Laboratory Animal Use Committee

Teaching Activities:
Medical Physiology 800/801
10 hours lecture - cardiovascular
10 hours - laboratory
20 hours - conference

Prematriculation Course (Minority Students)
8 hours lecture
4 hours - laboratory

Trainees:
Nancy Smith-Blair - Ph.D. candidate
Kyle Henderson - Ph.D. candidate
Sudhansu K. Dey, Ph.D., Professor


Meetings Attended:
June 30-July 2, 1999 – attended the Frontiers in Reproduction Research Symposium (Sponsored by NICHD) held in Woodshole, Massachusetts.
August 30-September 2, 1999 – attended the 3rd International Workshop on COX-2, in Kona, Hawaii as plenary session speaker.
September 21-23, 1999 – invited speaker, University of Illinois at Champaign, Urbana.
November 16-18, 1999 – invited speaker, Uterine Receptivity for Implantation, NICHD/NIH.
December 17, 1999 – invited speaker, Vanderbilt University.
February 11-12, 2000 – invited speaker, COX-2 National Leadership Meeting, Boehringer Ingellheim Pharmaceuticals, Dallas, Texas.

Committees:
Departmental:
   Member, Promotion and Tenure Committee
   Member, Retreat Committee
KUMC:
   Member, Institutional Research Strategic Plan Committee
   Member, Research Strategic Plan Committee
   Member, Department of Medicine Chair Search Committee
   Member, Microbiology Chair Search Committee
   Member, Howard Hughes Selection Committee
National:
   Organizer and Chair, SSR minisymposium on: Recent Developments in Periimplantation Biology, Washington State University, Pullman, Washington, July 31-August 2, 1999.
   Member, Advisory Board, Digestive Disease Center, Vanderbilt University, Nashville, Tennessee.
   Member, Advisory Board, Ecosanoid Center Grant, Vanderbilt University, Nashville, Tennessee.

Editorial and Grant Reviews:
   Biology of Reproduction
   Journal Reproduction and Fertility Development
   Endocrinology
   Molecular Human Reproduction
   J. Endocrinology
   Developmental Biology
   Human Reproduction
   PNAS
   Molecular Endocrinology
Seminars Presented:
September 21-23, 1999 - Invited speaker, University of Illinois at Champaign, Urbana
December 17, 1999 - Invited speaker, Vanderbilt University

Honors:
Recipient of Higuichi Achievement Award, University of Kansas, 1999
University Distinguished Professor, University of Kansas, 1999
MERIT Award, NIH, 1999
Co-Editor, Seminars in Molecular Medicine, 2000

Teaching Activities:
Medical Physiology
   4 hours lecture - GI Physiology
Medical Physiology
   2 hours pre-exam review – GI Physiology
Reproductive Physiology Course
   2 hours lecture

Trainees:
Hiromichi Matsumoto, Ph.D. - Postdoctoral Fellow
J. B. Halder, Ph.D. - Postdoctoral Fellow
Haengseok Song - Graduate Student
Whitney Smalley – Student, Summer 1999
**Alan R. Godwin, Ph.D., Assistant Professor**

**Summary of Research:** Hox genes are evolutionarily conserved transcription factors that are important in determining changes along the major anterior-posterior axis in animals as diverse as nematodes, fruit flies, and man. Little is understood about how these genes carry out this process, especially which genes are regulated by these transcription factors. Major emphasis will be directed toward determining which genes are turned on and off by Hoxc12 and Hoxc13. Hoxc13 is an ideal gene with which to start these endeavors, as it is one of the first Hox genes with good potential candidates for downstream targets: the hair keratin genes and the hair keratin associated genes.

**Committees:**
- Departmental
  - Member, Search Committee for Prostate Cancer Researcher
  - Member, Graduate Student Advisory Committee
- KUMC
  - Member, Transgenic Facility Steering Committee
  - Member, Emergency Preparedness Committee
  - Member, Review Committee for Dr. David
  - Member, Biotechnology Support Facility Steering Committee
  - Member, Prelim exam committee for Kellie McQueen, Biochemistry Ph.D. candidate
  - Member, Dissertation committee for Susanna Harju, Biochemistry Ph.D. candidate

**Editorial and Grant Reviews:**
- Ad hoc reviewer, Developmental Dynamics
- Ad hoc reviewer, Journal of Investigative Dermatology
- Ad hoc reviewer, Proceedings of the National Academy of Sciences

**Seminars Presented:**
- March 15, 2000 - Presented a seminar entitled "Hoxc13 and "bald" mice" to Sigma Xi, at KUMC

**Trainees:**
- Ryan Thummel, Graduate Student
- Roberto Vancore, Graduate Student, Lab Rotation
- Amy Spears, Graduate Student, Lab Rotation
Norberto C. Gonzalez, M.D., Professor

Summary of Research: The general goal of my research is the study of the mechanisms of adaptation to environmental hypoxia in the intact organism. The specific subjects include the determinants of maximal exercise capacity and systemic \( O_2 \) transport in acute and chronic hypoxia, the effects of exercise training in hypoxia and in normoxia on \( O_2 \) transport and exercise capacity, and the effects of exercise training on the pulmonary circulation. In addition to these interests, in the past few years I have been involved in a collaborative research effort with Dr. Wood to study the effects of acute and chronic hypoxia on vascular endothelial function.

Committees:
- Departmental
  - Chair, Search Committee for Faculty position in renal physiology
- KUMC
  - Promotions and Tenure Committee
- National
  - Member, Respiratory and Applied Physiology Study Section, NIH

Editorial and Grant Reviews:
- ad hoc reviewer, Journal of Applied Physiology
- American Journal of Physiology: Regulatory, Integrative and Comparative Physiology

Honors:
- Visiting Professor at the SMBH, Université Paris XIII, Bobigny, France, April and May, 2000

Seminars Presented:
- May 18, 2000 - Presented a seminar entitled "Role of Reactive Oxygen Species in the Vascular Endothelial Response to Systemic Hypoxia”. INSERM 400, Faculté de Medecine, Creteil, France.

Teaching activities:
- Medical Physiology
  - 10 Lectures – Respiratory Physiology
  - 1 Review Session – Respiratory Physiology
  - 10 Conference Sessions

Trainees:
- Kyle Henderson, Graduate student
Gilbert S. Greenwald, Ph.D., Distinguished Professor Emeritus

Summary of Research: Reproductive Physiology emphasizing factors regulating growth and regression of ovarian follicles and corpora lutea.

Committees:
- SSR Awards Committee

Editorial and Grant Reviews:
- Journal of Histochemistry and Cytochemistry
- Biology of Reproduction
- Life Sciences
- General Comparative Endocrinology
- Molecular Reproduction and Development
- National Science Foundation
- US - Israel Binational Science Foundation
- U.S.D.A. Animal Reproductive Efficiency Program

Seminars Presented:
- October 12, 1999 - Presented a seminar entitled "A Tale of Two Species: Hamster and Rat" at a Reproductive Biology Workshop, at KUMC.
Leslie L. Heckert, Ph.D., Assistant Professor

Summary of Research: Our research focuses on understanding the transcriptional and cell-signaling processes that are important for gonadal function and development. We are currently studying the genes that encode the FSH receptor (FSHR), a protein expressed only in somatic cells of the gonads, steroidogenic factor 1 (SF1), an orphan nuclear receptor required for gonad and adrenal formation, and DMRT1, an evolutionarily conserved gene having a proposed role in mammalian sex determination. Through the characterization of these genes, we hope to identify key regulatory proteins that are important for gonadal development and Sertoli cell-specified. We employ DNase I hypersensitivity mapping and transient transfection analysis to identify key regulatory regions and protein/DNA binding assays to characterize important transcriptional regulators. Transgenic mice are used to help confirm the regulatory regions in vivo and to generate mouse models for Sertoli cell function.

Meetings attended:
July 31 – August 3, 1999 - Attended the 32nd annual meeting of the Society for the Study of Reproduction, in Pullman, WA.

Committees:
Departmental
Chair, Faculty Search Committee
Member, Ph.D. Thesis Committee for Shalmica Williams
Member, Ph.D. Thesis Committee for Gerald Call
Member, Ph.D. Thesis Committee for Theingi Thway

KUMC
Member, Ph.D. Thesis Committee for Brook Sanger, Anatomy and Cell Biology Graduate Student
Member, Ph.D. Thesis Committee for Suzanna Harju, Biochemistry Graduate Student
Member, Transgenic Steering Committee
Member, Travel Committee
Member, Graduate Student Travel Committee
Member, Committee to review applications for 1999 W.S. Sutton Scholarships and the Reathe Mae Resco Scholarship.
Member, Committee to honor S.K. Dey
Member, School of Medicine Research Committee
Member, IACUC

Editorial and Grant Reviews:
ad hoc reviewer for Molecular Endocrinology
ad hoc grant reviewer for Canadian Journal of Physiology and Pharmacology

Seminars Presented:
November 12, 1999 - Presented a seminar entitled "Transcriptional Regulation in the Development of the Sertoli Cell" at Faculty Research Day, KUMC.
April 6, 2000 - Presented a seminar entitled "Grant Writing Skills...do you have them?" Student Research Forum Grant Writing Workshop, KUMC.
Teaching activities:
Module 3 of IGPBS, Fall 1999
  3 one hour lectures
Reproductive Physiology, Fall 1999
  2 one hour lectures
Medical Physiology, Spring 1999
  1 one hour lecture
  4 two hour conferences

Trainees:
  Melissa Daggett, Ph.D. – Post-doctoral Fellow
  Serge Scherrer, Ph.D. – Post-doctoral Fellow
  Ning Lei, Graduate Student
  Brian Hermann, Graduate Student
Walter T. Imagawa, Ph.D., Assistant Professor

Summary of Research: Regulatory interactions between mammogenic hormones and stromally-derived growth factors in mammary gland development and tumorigenesis. Alterations in proliferation-associated G protein-coupled MAP kinase signaling pathways that occur during mammary tumor progression.

Committees:
Graduate Student Advisory Committee

Editorial and grant reviews:
Journal of Endocrinology
In vitro Cell and Developmental Biology
State of Louisiana board of Regents for University of Louisiana at Monroe

Teaching activities:
PHSL 834 - Reproductive Physiology
2 hours lecture
PHSL 821/822 – Endocrine Physiology
4 hours lecture

Trainees:
Vadim Pedchenko - Post-doctoral Fellow
Thomas J. Imig, Ph.D., Professor

Summary of Research: Distinct classes of cochlear nucleus neurons transform the uniform responses of auditory nerve fibers into a variety of new response types. Each neuron class may be viewed as the source of a multi-synaptic pathway that conveys source specific neural activity to the auditory cortex. Neurons in the auditory cortex exhibit a great variety of frequency response areas, and we are testing the hypothesis that some cortical neurons reflect activity that originates in two classes of cochlear nucleus neurons, i.e., the dorsal and posteroventral cochlear nucleus. Experimental tests involve single unit recordings in cat auditory cortex combined with electrical stimulation and reversible pharmacologic blockade of dorsal and posteroventral cochlear nucleus axons.

Meetings Attended:
February 19-21, 2000 - attended the Mid-winter Meeting of the Association for Research in Otolaryngology, St. Petersburg Beach, FL.

Committees:
Departmental:
Chair, Graduate Affairs Committee
Member, Promotion and Tenure Committee

KUMC:
Member, Student Promotions Subcommittee of the Academic Committee
Member, IGPBS Advisory Committee

National:
Member Editorial Board, Journal of Neurophysiology

Editorial and Grant Reviews:
ad hoc reviewer Journal of Comparative Neurology
ad hoc reviewer Hearing Research
ad hoc grant reviewer Neuroscience Letters
ad hoc reviewer National Science Foundation

Teaching Activities:
PHYS/ANAT 840 - Medical Neuroscience (Course Director)
4 hours lecture
Advanced Neuroscience
6 hours lecture

Trainees:
Frank Samson - Postdoctoral Fellow
Donald C. Johnson, Ph.D., Professor Emeritus

Summary of Research: Research is focused upon collaborative studies with various faculty members. Included are Dr. Sanjoy Das (Ob/Gyn and Physiology) reproductive toxins, Dr. S.K. Banerjee (Department of Medicine-Va Medical Center) growth factors and estrogen in tumor formation, Dr. Richard Silverstein (Biochemistry) endocrine factors in septic shock and Dr. Joseph Tash (Physiology) endocrine related changes with microgravity.

Editorial and Grant Reviews:
- Biology of Reproduction
- Journal of Endocrinology
- Environmental Health Perspectives
- Environmental Protection Agency

Teaching Activities:
- Medical Physiology
  - 8 conference sessions
- Physiology of Reproduction
  - 3 hours lecture
Summary of research: Multiple sclerosis and globoid cell leukodystrophy (Krabbe’s disease) are two demyelinating diseases of the central nervous system. We are investigating the role of cytokines and free radicals in the pathogenesis of these diseases. We are also exploring various therapeutic regimens designed to slow the disease course.

Meetings Attended:
- July 1999 – Invited presenter at the 18th Leukodystrophy National Conference, United Leukodystrophy Foundation, Northern Illinois University, DeKalb, IL.
- March 26-29, 2000 - Attended the 31st annual meeting of the Society for Neurochemistry held in Chicago, IL
- May 19-20, 2000 – Attended the 1st Scientific Workshop on Hallervorden-Spatz Syndrome held in Bethesda, MD.

Committees:
- Departmental:
  Member, Graduate Student Advisory Committee

Editorial and Grant Reviews:
- ad hoc reviewer, Neuroscience Letters
- ad hoc reviewer, FASEB
- guest editor and ad hoc reviewer, Cellular and Molecular Biology
- ad hoc grant reviewer, Alzheimer’s Association
- ad hoc grant reviewer, Neurological Foundation of New Zealand

Seminars Presented:
- February 15, 2000 - Presented a seminar entitled "Demyelinating Diseases of the Central Nervous System" Center on Aging, KUMC.

Honors:
- Guest editor of a special issue of Cellular and Molecular Biology entitled “The Roles of Metals in the Brain” Vol. 46, No. 3 (Part 1) and No. 4 (Part 2).
- Invited to give a presentation of research data at the 19th United Leukodystrophy Foundation scientific meeting in DeKalb, IL.
- Invited to give a presentation of research data at the 3rd Scientific Meeting of the Hunter’s Hope Foundation
- Invited participant for the 1st Scientific Workshop on Hallervorden-Spatz Syndrome held in Bethesda, MD.
- Invited presenter for the conference on PUFA in Maternal and Child Health, American Oil Chemists' Society, Kansas City, MO.

Teaching Activities:
- PHSL 821/822 (Advanced Human Physiology) - Course Director
  5 hours lecture
- PHSL 800 (Medical Physiology)
  3 hours lecture
Teaching Activities:

ANAT 830 (Cell and Tissue Biology)
  2 hours lecture
  6 hours laboratory
PHSL 784 (Faculty Research Forum)
  0.5 hour lecture

Trainees:

Mitchell Emerson - Postdoctoral Fellow
Sangita Biswas - Postdoctoral Fellow
Annie Lee - Postdoctoral Fellow
Tatyana Pedchenko - Postdoctoral Fellow
James Homan - Medical Student
**Randolph J. Nudo, Ph.D.,** Associate Professor (Assoc. Director of Research, Center on Aging)

**Summary of Research:** The goal of this laboratory is to examine adaptive plasticity in primate motor cortex, including changes that occur during skill acquisition and changes that occur after stroke. To derive highly detailed functional motor "maps", we employ standard mapping techniques combining intracortical microstimulation with electromyographic recording. By tracking changes in motor cortex during the practice of new motor tasks, it is hoped that we can better understand the neurophysiological bases for motor control and the acquisition of motor skills. By tracking changes in motor cortex as a result of a focal vascular infarct, as might occur in stroke, and by examining the effects of physical use of affected muscles on subsequent reorganization -- that is, physical therapy -- we hope to develop a simple model of the neurophysiological processes operating during recovery of motor function.

**Meetings Attended:**
- September 24-26 1999 - Attended the Behavior Assessment of Research Animals Workshop held in Boston, MA.
- September 26-28, 1999 - Attended the New Biology of Aging held in Kansas City, MO.
- November 15-16, 1999 - Attended the National Institutes of Health Workshop on Adaptive Learning: Interventions for Verbal and Motor Deficits held in Rockville, MD.
- March 20-23, 2000 - Attended Neuronal Plasticity: the Key to Stroke Recovery held in Kanasaskis, Alberta, Canada.

**Committee activities:**
- **Departmental**
  - Member, Dissertation Committee, Kathleen Friel
  - Member, Dissertation Committee, Michael Park
- **KUMC**
  - Member, Faculty Council
  - Member, Dissertation Committee, Michelle Muessel, Dept. of Anatomy and Cell Biology
  - Member, Faculty Mentoring Committee, Wen Liu, Dept. of Physical Therapy Education
  - Member, Faculty Mentoring Committee, Daofen Chen, Dept. of Physical Therapy Education
  - Member, Neuroscience Program Steering Committee
  - Director, Lab Animal Resources Performance Review Committee
- **National**
  - Member, Program Committee for International Conference on Stroke Recovery
  - Member, Canadian Stroke Network
  - Member, Network Scientist, Rehabilitation Research Network
  - Member, editorial board, Neuroscience and Biobehavioral Reviews
  - Member, editorial board, Neurorehabilitation and Neural Repair

**Editorial and Grant Reviews:**
- Ad-hoc reviewer, Somatosensory and Motor Research
- Ad-hoc reviewer, Journal of Comparative Neurology
- Ad-hoc reviewer, Institute for Laboratory Animal Research Journal
- Ad-hoc reviewer, Motor Control
- Ad-hoc reviewer, The Journal of Neuroscience
- Ad-hoc reviewer, Proceedings of the National Academy of Sciences
Dr. Nudo (continued)

Ad-hoc reviewer, Neuropharmacology
Ad-hoc reviewer, Brain Research
Ad-hoc reviewer, European Journal of Neuroscience
Ad-hoc reviewer, Journal of Neurophysiology
Ad-hoc reviewer, Journal of Neuroscience Methods
Temporary reviewer, National Institutes of Health, NICHD, National Center for Medical Rehabilitation Research Review Committee, June 2000
Temporary reviewer and site visit participant, National Institutes of Health, NICHD, National Center for Medical Rehabilitation Research review Committee, October, 1999
Grant reviewer, Human Frontier Science Program
Grant reviewer, Comitato Telethon Fondazione Onlus (Italian funding agency for muscular dystrophy research)
Grant reviewer, Paralyzed Veterans of America

Seminars Presented:
July 3, 1999 - Presented a seminar entitled "Functional Remodeling of Motor Cortex: Implications for Stroke Rehabilitation". Invited speaker, Physiology and Pharmacology Seminar, University of Oregon Health Sciences Center, Portland, Oregon.
September 25, 1999 - Presented a seminar entitled "Primate Model for Stroke Assessment" as an invited speaker at the Behavior Assessment of Research Animals workshop held in Boston, Massachusetts.
September 27, 1999 - Presented a seminar entitled "Neural Mechanisms of Recovery from Stroke" as an invited speaker, New Biology of Aging, Kansas City, MO.
January 21, 2000 - Presented a seminar entitled "Adaptive Plasticity in Motor Cortex: Implications for Stroke Rehabilitation", invited speaker, Department of Molecular Biosciences, University of Kansas, Lawrence Campus.
February 11, 2000 - Presented a seminar entitled "Adaptive Plasticity in Motor Cortex: Implications for Stroke Rehabilitation" as an invited speaker, Department of Physical Medicine and Rehabilitation, Case Western Reserve University, Cleveland, OH.
March 1, 2000 - Presented a seminar entitled "Adaptive Plasticity in Motor Cortex: Implications for Stroke Rehabilitation” as an invited speaker, Department of Psychology, University of Alabama, Birmingham.
March 21, 2000 - Presented a seminar entitled "Functional Remodeling of Motor Cortex: Implications for Stroke Rehabilitation" as an invited speaker at the Neuronal Plasticity: the Key to Stroke Recovery Conference held in Kanasaskis, Alberta, Canada.

Teaching Activities:
ANAT 880 - Faculty Research Series
1/3 hour lecture
PHSL 846 (Advanced Neuroscience)
6 hours lecture
NEUS 840 (Medical Neuroscience)
  6 hours lecture
  22 hours laboratory
AMED 900 (Ambulatory Medicine)
  9 hours lecture
NRSG 899 (Grant Writing)
  3 hours lecture

Trainees:
Shawn Frost, post-doctoral fellow
Erik Plautz, graduate student
Kathleen Friel, graduate student
Doug Hutchinson, medical student
Steve Dalia, medical student
Jeff Henning, medical student
Neil Coleman, medical student
Jesica Sperry - summer undergraduate student
Jill Startzello, bioenginee
Frederick E. Samson, Ph.D., Professor Emeritus

Summary of Research: The general theme of my research is neurobiology; health and disease in the central nervous system studied at the neurochemical level. Emphasis is on free radicals in normal functions and in tissue damage, neurodegeneration, aging. My approach largely is collaboration with young colleagues. I am working on a review entitled, "Oxygen Free Radicals in the Aging of the Brain" for the Journal of Biomedical Science.

Meetings Attended:
September 26-29, 1999 - Attended the New Biology of Aging Conference in Kansas City, Missouri.
November 1-3, 1999 - Attended the National EPSCoR States Conference (NIH IdeA Program), Orange Beach, Alabama.
December 23, 1999 - Attended the Kansas EPSCoR Directors Meeting with the Kansas Technology Enterprise Corporation held in Topeka, Kansas.
March 1-4, 2000 - Attended the Oxygen Club of California “The 2000 World Congress” held in Santa Barbara, California.

Committees:
Departmental:
Scrivener-Scribe
University:
Coordinator, KUMC proposal to NIH for Institutional Development Award
Member, Round Table Speakers Committee
Member, Advisory Committee, Program Project "Free Radical in Aging"
Local:
Member, Kansas EPSCoR Project Directors
Director, Kansas NIH EPSCoR Program (Inst. Develop. Award, IDEa)

Editorial and Grant Reviews:
Member - Scientific Advisory Board, Encyclopedia of Neuroscience, Year Book
Ad hoc reviewer - Free Radical Biology and Medicine; Archives of Toxicology

Trainees:
Mitchell Emerson - Ph.D. candidate with T.L. Pazdernik
Karen SantaCruz, M.D. – Assistant Professor, Dept. of Pathology & Laboratory Medicine
Peter G. Smith, Ph.D., Professor

Summary of Research: My research investigates interactions among populations of peripheral neurons and their target cells. We examine factors regulating target innervation and nerve growth, and investigate how those nerves in turn regulate target cell function and growth. Our interests concern the relationships among sympathetic, parasympathetic and sensory nociceptor nerves in contexts of normal physiological plasticity, angiogenesis, wound healing and pelvic floor dysfunction.

Meetings Attended:
February 20-25, 2000 - Attended the Winter Conference on Neural Plasticity held in St. Lucia, West Indies.

Committees:
Departmental:
Chair, Student Advisory Committee for Jena Steinle
Chair, Student Advisory Committee for Don Warn
Chair, Student Advisory Committee for Elena Zoubina
Member, Student Advisory Committee for Leigh Raymond
Member, Student Advisory Committee for Jeremy Chien
Member, Student Advisory Committee for Michael Park
Member, Student Advisory Committee for Kyle Henderson
Member, Student Advisory Committee for Kathleen Friel
Member, Student Advisory Committee for Deb Park (Hearing & Speech)
Member, Student Advisory Committee for Nichole Vansel (Pharmacology)
Member, Student Advisory Committee for Amy Mize (Pharmacology)
Director, Molecular and Physiological Basis of Disease, Module 5 of the IGPBS

KUMC:
Director, Bio-Imaging and Graphics Core of the Smith MRRC
Member, MRRC Internal Scientific Advisory Committee
Member, Department of Neurology Chair Search Committee
Member, Ad Hoc Committee on MRRC Animal Facilities Renovation Grant
Member, Faculty Assembly Library Committee
Coordinator, Neuroscience Seminar Committee
Chair, Dept. of Pharmacology, Toxicology & Therapeutics Chair Review Committee
KUMRI Advisory Committee
KU/MRI Liaison Committee
Coordinator, Training Program in Biomedical Sciences Symposium

Editorial and Grant Reviews:
Journal of Comparative Neurology
Hypertension
Synapse
Neuroscience Letters
Developmental Biology
Histology and Histopathology
Journal of the Peripheral Nervous System
NIH DRG Brain Disorders and Clinical Neurology 2 Study Section, March Meeting
NIH DRG Brain Disorders and Clinical Neurology 2 Study Section, July Meeting
Teaching activities:

PHSL 800 - Medical Physiology
  6 hours lecture
  8 hours laboratory
  8 hours conferences

PHSL 822 (Advanced Human Physiology)
  11 hours lecture

PHSL 842 - Advanced Neuroscience
  4 hours lecture

Trainees:

Don Warn, Graduate Student
Elena Zoubina, Doctoral Candidate
Jena Steinle, Graduate Student
Dora Krizsan-Agbas, Ph.D., Post-doctoral Fellow
Wohaib Hasan, Ph.D., Post-doctoral Fellow
Audrey Franz, M.D./Ph.D. Student
Tatyana Pedchenko, Ph.D., Post-doctoral Fellow
Michael J. Soares, Ph.D., Professor

Summary of Research: Our laboratory is investigating mechanisms underlying the control of viviparity and the regulatory pathways leading to developmental disorders, including those associated with the initiation of pregnancy, fetal growth retardation, and gestational trophoblast disease.

Meetings Attended:
February 2000 – Attended the Gordon Research Conference on Prolactin held in Ventura, California and presented a talk entitled: "Uteroplacental Prolactin Family: Immunological Regulators of Viviparity",

Committees:
Departmental:
Member, Dissertation Committee for Gerald Call
Member, Dissertation Committee for Jeremy Chien
Member, Dissertation Committee for Theingi Thway
Member, Search Committee for a Prostate Biologist

KUMC:
Member, Dissertation Committee for Peter Opdam (Pharmacology)
Member, Dissertation Committee for Tim Burnett (Anatomy)
Director, Reproductive Biology Training Program
Director, Center for Reproductive Sciences DNA Sequencing Core
Associate Director, KUMC Training Program in Biomedical Research

National:
Member, Membership Committee for the Endocrine Society
Member, Program Committee for the Annual Meeting of the Society for the Study of Reproduction, Madison, Wisconsin
Member, Editorial Board for the journal Trophoblast Research
Member, Editorial Board for Endocrinology
Member, Editorial Board for the Journal of Endocrinology

Editorial and Grant Reviews:
ad hoc reviewer for - American Journal of Reproductive Immunology
- Biochimica Biophysica Acta
- Biology of Reproduction
- Journal of Reproductive Immunology
- Developmental Biology
- Molecular Biology & Evolution
- Molecular Endocrinology
- Molecular Reproduction & Development
- Pediatric Research
- Gene

NICHD - Program Project Review
MRC - Canada Grant Review
NICHD Special Review Panel - Women's Health Research Faculty Development Awards
Seminars Presented:

September 1999 - Presented a seminar entitled "Uteroplacental Signals in the Establishment of Pregnancy", Department of Physiology, Colorado State University, Fort Collins, Colorado.

January, 2000 – Presented a seminar entitled "Uteroplacental Prolactin Family and Pregnancy", Department of Obstetrics & Gynecology, Washington University School of Medicine, St. Louis, Missouri.


March, 2000 - Presented a seminar entitled "The Uteroplacental Prolactin Family: a Determinant of Viviparity?", Reproductive Biology Program, University of Texas-Houston.

June, 2000 - Presented a seminar entitled "The Placenta and the Prolactin Family", Anatomy & Reproductive Biology, University of Hawaii, Honolulu, Hawaii.

Teaching activities:

PHSL 800 - Medical Physiology
  - 8 two hour conferences
  - 3 hours lecture

Reproductive Physiology
  - 3 hours lecture
  - 1 hour discussion

Trainees:

Danhua Wang - Postdoctoral Fellow
Beth Albrecht - Lalor Foundation Postdoctoral Fellowship
Rupasri Ain - Postdoctoral Fellow
David Razafsky - Summer Student
Lawrence P. Sullivan, Ph.D., Professor

Summary of Research: My major research interest has been the study of membrane transport processes in epithelial cells. Currently I am investigating mechanisms that drive fluid secretion across epithelial cell layers. Epithelial fluid secretion contributes to the formation of cysts in the kidneys of patients with polycystic kidney disease and is defective in several epithelial tissues of patients with cystic fibrosis. We are attempting to develop means to alter the fluid secretion processes in each disease.

Meetings Attended:
   November 5-8, 1999 - Attended the American Society of Nephrology annual meeting held in Miami, Florida.

Committees:
   Department:
      Member, Graduate Advisory Committee for Htet Khant
   University:
      Coordinator, Renal Journal Club

Editorial and Grant Reviews:
   Member, Editorial Board – Journal of the American Society of Nephrology

Seminars Presented:
   November 30, 1999 - Presented a seminar entitled "A Synthetic Peptide Forms Cl- Channels in the Membranes of Epithelial Cells and Induces Cl- and Fluid Secretion", Department of Pharmacology, KUMC.

Teaching Activities:
   PHSL 800 - Medical Physiology
      8 hours lecture - Renal Physiology
      8 hours problem sessions
      6 conferences
      2 laboratories
   IGPBS Module I - Cell Biology
      6 hours lecture
Merrill Tarr, Ph.D., Professor

Summary of Research: My research investigates the electrophysiological and contractile properties of heart tissue. Isolated, single cardiac cells are used for this purpose. Presently, we are investigating the effects highly reactive oxygen species (ROS) and/or free radicals have on the ionic currents responsible for generating electrical activity in single heart cells. Free radicals and ROS play a major role in tissue damage following the reintroduction of oxygen to ischemic tissue. In the heart, such reintroduction of oxygen can result in the production of arrhythmias, fibrillation and death. We want to understand how ROS and free radicals alter the electrical properties of heart tissue.

Committee Activities:
    Departmental
    Member, Promotions and Tenure Committee

Editorial and Grant Reviews:
    ad hoc reviewer, Journal of Photochemistry and Photobiology

Seminars Presented:
    December 7, 1999 – Presented a seminar entitled "Role of a Leak Current in Cell Killing by Photosensitizers", Department of Pharmacology, Toxicology and Therapeutics, KUMC.

Teaching Activities:
    PHSL 801 - Medical Physiology
        8 hours lecture
        4 hours postexam review
        16 hours conferences (8 sessions)
        4 hours laboratory (2 sessions)
    PHSL 802 - Medical Physiology
        4 hours conferences (2 sessions)
    PHSL 846 – Advanced Neuroscience
        4 hours lecture
    PHSL 892 - Module 4 of IGPBS course
        5 hours lecture
        ½ hour faculty research seminar
Joseph S. Tash, Ph.D., Associate Professor

Summary of Research: Our research focuses upon alterations in flagellar movement, including hyperactivation (a marker of capacitation prior to fertilization), require changes in intracellular cyclic AMP and free Ca2+. The signal transduction pathways for these second messengers include changes in protein phosphorylation of flagellar components. One major area of research focuses on 1) the molecular nature of the regulation of dynein by protein phosphorylation and 2) mechanisms that determine the balance between cAMP-dependent and Ca2+-dependent protein phosphorylation/dephosphorylation reactions. Technologies employed include reactivated flagellar models, in vitro microtubule gliding, digital image processing, recombinant DNA and genetic engineering and cloning, and the development of synthetic peptides and immunological probes. The second major project examines the role of protein phosphorylation in the alterations of sperm motility produced by microgravity. The later project involves 2 Space Shuttle/MIR Space Station flights in collaboration with NASA and the European Space Agency.

Meetings Attended:
November 10-13, 1999 - Attended the American Society for Gravitation and Space Biology meeting held in Seattle, Washington.

Committees:
KUMC:
Director, Cell Imaging and Photography Core Lab, Center for Reproductive Sciences
Member, Organizing Committee for KUMC Integrative Graduate Program
Member, Oversight Committee for KUMC Biotech Facility
Member, School of Medicine Election Committee
Coordinator, Bohan Visiting Scientists in Reproduction Seminar Series
Coordinator, Reproductive Biology Workshop
Co-Coordinator, Modules 2 & 3 of first year graduate curriculum, Integrative Graduate Program

Editorial and Grant Reviews:
Biology of Reproduction
Journal of Reproduction and Fertility
Cell Motility and the Cytoskeleton

Seminars presented:
August 4, 1997 - Presented a seminar entitled "Identification of flagellar protein phosphorylations that initiate the activation of sperm motility in vivo" at Society for the Study of Reproduction meeting held in Portland, Oregon.
November 10-13, 1999 - Presented a seminar entitled "Sea Urchin Sperm Motility Alterations in Hypergravity Using the NiZeMi Rotating Microscope (STS-84 Controls)" at the American Society for Gravitational and Space Biology meeting held in Seattle, Washington.
February 8, 2000 - Presented a seminar entitled "Hypergravity Negatively Impacts Sperm Activation and Egg Fertilization in Sea Urchins" at the Reproductive Biology Workshop, KUMC.
Teaching activities:

PHSL 800 - Medical Physiology
3 hours lecture - G.I. Physiology
3 hours lecture - Medical Physiology
3 hours lecture - Neurophysiology
8 hours conference sessions

Lab Descriptions – Incoming Graduate Students
2 contact hours

Advanced Human Physiology
4 contact hours

IGPBS Module - Cell Biology
7 1.5 hour lectures
3 exam supervision

Trainees:

Koji Ashizawa, Ph.D. – Visiting Professor, Miyazaki University, Japan
**Paul F. Terranova, Ph.D.**, Professor (Director of Center for Reproductive Sciences)

Summary of Research: We are determining the molecular mechanism by which tumor necrosis factor alpha inhibits estradiol secretion in mouse granulosa cells. This approach targets protein kinase A, steroidogenic factor-1 and cAMP response element binding protein (phosphorylated and nonphosphorylated forms). A second project involves the effect of dioxins on endocrine disruption of the hypothalamic-pituitary-ovarian axis in female rats. Direct and indirect effects of dioxins are being assessed for their effects on blockade of ovulation. Lastly, we are developing new ovulation blocking drugs, which are agonists of the aryl hydrocarbon receptor.

Meetings Attended:
- May 18, 2000 - Attended the NICHD Directors Meeting held at the Oregon Regional Primate Research Center
- June 1, 2000 – Attended the Symposium on Reproductive Biology, University of Ottawa, Ottawa, Ontario, Canada.
- June 5, 2000 - Attended the NCI Ovarian Cancer Workshop held in San Francisco, California.

Committees:
- **Departmental:**
  - Member, Promotion & Tenure Committee
  - Member, Dissertation Committee for Jeremy Chien
  - Member, Dissertation Committee for Haengseok Song
- **KUMC:**
  - Member, MRRC Space Committee
  - Member, MRRC Internal Advisory Committee
  - Theme Leader, Cellular and Molecular Biology of Early Development, MRRC
  - Member, Kansas Cancer Institute Internal Advisory Committee
  - Member, Animal Building Construction Advisory Committee
  - Member, Deans Advisory Council
  - Member, Transgenic and Genetic Technologies Advisory Committee
  - Chair, Biological Sciences Lecture Series
  - Member, Research Space Utilization Committee
  - Member, Women’s Health Initiative Advisory Committee
  - Endocrine Leader, IGPBS
  - Recruitment Coordinator, IGPBS Center for Reproductive Sciences
  - Member, Laboratory Director Search Committee, Reproductive Endocrinology
  - Member, Breast Cancer Specialist Search Committee, Reproductive Endocrinology
  - Member, Dissertation Committee for Eric Harstad (Pharmacology)
  - Member, Dissertation Committee for Janette Padgitt (Pharmacology)
  - Member, M.S. Committee for Xin Gao, M.D. (Pharmacology)
- **Local:**
  - Member, Kansas City Life Sciences Initiative (Cancer Focus Group)
- **State:**
  - Member, Senator Roberts Biotechnology Advisory Committee
Dr. Terranova (continued)

National:
Member, Editorial Board, Endocrine
Member, Editorial Board, Journal of Pharmacology and Experimental Therapeutics
Member, NIH Study Section, Alcohol and Toxicology 4
Member, Department of Army, Ovarian Cancer Review Panel
Member, AVAX, Inc., Advisory Board for Ovarian Cancer
Member, Bayer Corporation, Reproductive Biology Consultant
Member, EPA Scientific Advisory Panel (FIFRA)

Editorial and Grant Reviews:
Endocrinology
Biology of Reproduction
Endocrine
American Journal of Physiology
Steroids
American Journal of Reproduction and Fertility
Life Sciences
Toxicological Sciences
Journal of Clinical Endocrinology & Metabolism
Journal of Endocrinology
Regular NIH Study Section (ALTX4)
NIH Special Study Section-review of minority predoctoral applications

Seminars Presented:
March 15, 2000 - Presented a seminar entitled “Dioxin as an Endocrine Disruptor in the Female Rat” at Tokyo University Agriculture and Technology, Department of Veterinary Physiology.
March 16, 2000 – Presented a seminar entitled “Dioxin as an Endocrine Disruptor in the Female Rat” at Azabu University, Research Inst. Of Biosciences, Kanagawa, Japan.
June 1, 2000 – Presented a seminar entitled “A Mouse Model of Ovarian Cancer”, Reproductive Biology Unit, University of Ottawa, Ottawa, Ontario, Canada.
June 5, 2000 - Presented a seminar entitled “A Mouse Model of Ovarian Cancer” at the NCI Ovarian Cancer Workshop, San Francisco, California.

Teaching Activities:
PHSL 800 - Medical Physiology
8 conference sessions - 2 hours each
Prematriculation Course - Reproductive Endocrinology
4 - 2 hour lectures
Interdisciplinary Graduate Program
1 - 2 hour session on Neuroendocrinology
1 - 2 hour session on Sexual Differentiation
1 - 2 hour session on Ovarian Function
1 - 2 hour session on Regulation of Growth
University of Missouri - Biochemistry of Reproductively Related Steroid and Peptide Hormones
1 hour lecture
Toxicology – Endocrine Toxicology
2 – 2 hour lectures
Trainees:

Shalmica Williams, Graduate student
Claire Redmon Crouch, Pharmacology Graduate student
Kaori Mizuyachi, Graduate student (Rotary International Fellowship)
Deok-Soo Son, D.V.M., Ph.D., post-doctoral fellow
Muhammad Qamar, Ph.D., post-doctoral fellow
Brian Petroff, D.V.M., Ph.D., post-doctoral fellow
Xin Gao, M.D., M.S., post-doctoral fellow
Dora Hunter, Undergraduate student
Valerie Montgomery Rice, M.D., Associate Professor, Obstetrics & Gynecology
Melin Canez, M.D., Clinical Assistant Professor, Obstetrics & Gynecology
Ed Childs, M.D., Assistant Professor, Surgery
Summary of Research: We have studied photosensitized modification of cell membranes during the past year with a view toward understanding the changes induced in plasma membranes leading to alterations in ionic fluxes. We have concentrated on identifying those altered fluxes which may play a role in determining whether a cell is killed or whether it survives exposure to photosensitizers and light.

Meetings Attended:
- July 10-15, 1999 - Attended the 27th annual meeting of the American Society for Photobiology held in Washington, D.C.
- July 17-20, 1999 - Attended the Fourth Biennial Conference of the International Association of Medical Science Educators held in Washington, D.C.
- December 12, 1999 - Attended the Council Meeting of the American Society for Photobiology held in Chicago, Illinois.

Committees:
- Departmental:
  - Course Director, Medical Physiology 801 & 802 and summer Coordinator, Departmental Web Site
- Local:
  - Member, Education Council
  - Member, Pre-Matriculation Program Steering Committee
  - Member, Medical Faculty Year 1/2 Oversight Committee
- National:
  - Site Coordinator, Photobiology On-Line; World Wide Web site for 14 national and international societies
  - Member, Publications Committee, American Society for Photobiology
  - Member, Editorial Board, Photochemistry and Photobiology
  - Member, Editorial Board, Internet Journal of Science - Biological Chemistry
- International:
  - Project Director, The Digital Photobiology Compendium. Web-based learning resource in photobiology.

Editorial and Grant Reviews:
- ad hoc reviewer – Journal of Photochemistry and Photobiology
- ad hoc reviewer – Laser Therapy
- ad hoc reviewer – Biomechanical Journal
- Scientific Advisory Board, PhotDye International, Inc.
- Research Innovation proposals, Research Corporation, Tucson, AZ

Teaching Activities:
- PHSL 800 - Medical Physiology
  - 5 hours lecture
  - 1 hours exam review
  - 7 hours post-exam review
  - 10 - 2 hour conferences
  - 4 - 2 hour laboratories
PHSL 801 - Summer Program  
  3 hours – individual conference  
PHSL 822 - Advanced Human Physiology  
  10 hours lecture  
IGPBS Faculty Research Series  
  0.5 hours lecture  
IGPBS Module 5  
  2 hours lecture  
  2 hours discussion  
Prematriculation Health Careers Pathways Program  
  8 hours lecture  
  1 hour computer lab
James L. Voogt, Ph.D., Professor and Chairman

Summary of Research: Prolactin is a hormone secreted by the anterior pituitary gland that is essential for maintenance of pregnancy in some mammals and milk production in all mammals. The hypothalamus secretes both neuropeptides and biogenic amines into the hypophysial portal blood to regulate prolactin secretion. The overall goal of our research is to understand the cellular and molecular mechanisms utilized by hypothalamic neurons responsible for the regulation of prolactin secretion during mating, pregnancy and lactation.

Meetings Attended:
July 6-9, 1999 - Attended the Maternal Brain meeting held in Bristol, England.
October 23-28, 1999 – Attended the Society for Neurosciences Annual Meeting held in Miami Beach, Florida.

Committees:
Departmental:
Member, Doctoral Committee, Elena Zoubina

KUMC:
Member, Council of Chairs, School of Medicine
Co-ordinator, Basic Science Chairs
Member, Finance and Compensation Advisory Committee

Editorial and Grant Reviews:
ad hoc reviewer - Endocrinology
ad hoc reviewer – Neuroendocrinology
ad hoc reviewer – Proc Soc Exp Biol Med
ad hoc reviewer – Journal of Neuroendocrinology
ad hoc reviewer - Peptides
ad hoc reviewer – FEBS Letters
ad hoc reviewer - Endocrine
ad hoc reviewer – Physiology and Behavior
ad hoc reviewer – Brain Research
Consultant – Dow Corning, Inc.

Seminars Presented:
July 6-9, 1999 - Presented a seminar entitled “Regulation of Prolactin Secretion During Pregnancy and Lactation” at the Maternal Brain meeting held in Bristol, England.

Teaching Activities:
PHSL 800 - Medical Physiology
4 lectures
10 conferences
Medical Neuroscience
1 lecture
Reproductive Physiology
4 lectures

Trainees:
Alma Levy - postdoctoral fellow
Shu-ping Yang - postdoctoral fellow
Xiujun Pi - postdoctoral fellow
Michael W. Wolfe, Ph.D., Assistant Professor

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

Meetings Attended:

Committees:
  Departmental:
  Member, Dissertation Committee for Don Warn, Physiology Ph.D. candidate
  Member, Dissertation Committee for Elena Zoubina, Physiology Ph.D. candidate
  Member, Dissertation Committee for Htet Khant, Physiology Ph.D. candidate
  Member, Dissertation Committee for Shalmica Williams, Physiology Ph.D. candidate
  Member, Dissertation Committee for Haengseok Song, Physiology Ph.D. candidate
  Chair, Dissertation Committee for Gerald Call, Physiology Ph.D. candidate
  Chair, Dissertation Committee for Theingi Thway, Physiology Ph.D. candidate
  KUMC:
  Judge, Student Research Forum
  Member, Comprehensive Exam Committee for Scott Falke, Biochemistry

Editorial and Grant Reviews:
  Molecular Endocrinology
  Journal of Molecular Endocrinology
  Journal of Biological Chemistry

Teaching Activities:
  PHSL 802 - Medical Physiology
    4 hours lecture
    16 hours conferences
  PHSL 834 - Reproductive Physiology (Director)
    5 hours lecture
  IGPBS Module 4: Cell & Developmental Biology
    8 hours lecture

Trainees:
  Gerald Call - Graduate student
  Theingi Thway - Graduate student lab rotation
Summary of Research: The major focus of our research concerns: Systemic hypoxia occurring at altitude and in a variety of cardio-pulmonary diseases. Few studies have examined its effects on the microcirculation. Currently, our major goal is to examine mechanisms responsible for microvascular injury during acute hypoxia as well as those involved in adaptation to chronic hypoxia. Intravital microscopy is used to quantitate microvascular alterations in individual blood vessels in situ, including: 1) vascular permeability to fluorescent proteins, 2) adhesive interactions of circulating leukocytes with venular endothelium, 3) reactive oxidant species generation, 4) vessel diameter and blood flow, and 5) thrombus formation following laser-induced endothelial injury. In collaboration with Dr. Norberto Gonzalez, we are beginning new studies to examine leukocyte adhesive interactions in the pulmonary microcirculation, oxygen gradients within single microvessels, and the microvascular response to exercise training.

Meetings Attended:
April 17-21, 2000 - Attended the spring FASEB meetings held in San Diego, California

Committees:
Departmental:
Member, Graduate Student Advisory Committee
Member, Joint Faculty Review Committee
Member, Retreat Planning Committee
Member, Renal Physiologist Search Committee
Member, Ph.D. thesis committee for Don Warn
Member, Ph.D. thesis committee for Kyle Henderson
Member, Ph.D. thesis committee for Jena Steinle
Member, Ph.D. thesis committee for Htet Khant
Advisor, Ph.D. thesis committee for Ann Stowe
Advisor, Ph.D. thesis committee for Al Casillan

KUMC:
Member, Bioengineering Center Advisory Panel
Member, Preventive Medicine Chair Review Committee
Member, Mechanical Engineering Department, KU Lawrence, Faculty Search Committee

National:
Member, American Physiological Society Education Committee

Editorial and Grant Reviews:
Editorial board, International Journal of Surgical Research
ad hoc reviewer, American Journal of Physiology: Gastrointestinal and Liver Section
ad hoc reviewer, Journal of Cardiovascular Research
ad hoc reviewer, Gastroenterology
ad hoc reviewer, Free Radicals in Biology and Medicine
ad hoc reviewer, Pharmacology and Toxicology
ad hoc reviewer, Digestive Surgery
ad hoc reviewer, Canadian Journal of Physiology and Pharmacology
ad hoc reviewer, Microvascular Research
Seminars Presented:

January 21, 2000 – Presented a seminar entitled "Adaptive Responses in the Microcirculation During Chronic Hypoxia" to the Renal Journal Club at KUMC.
February 21, 2000 – Presented a seminar entitled “Mechanisms of Acute Microcirculatory Injury During Chronic Hypoxia” to the Department of Anatomy & Physiology, Kansas State University.
February 29, 2000 – Presented a seminar entitled “Hypoxia and the Microcirculation” to the Department of Pharmacology at KUMC.

Academic Honors:

Student Voice Award for Excellence in Teaching in Medical Physiology
Student Voice Award for Most Outstanding Educator in the First Year Medical Curriculum
Golden Apple Teaching Award from the American Medical Student Association at KUMC
US Patent awarded to John Wood and Fred Samson

Teaching Activities:

PHSL 800 - Medical Physiology
  4 hours lecture
  8 hours lab
  24 hours conference sessions
  2 hours pre-exam review
  2 hours post-exam review

IGPBS: Module 5
  9 hours lecture

Physiology Board Review
  3 hours review sessions

Summer Program in Medical Physiology
  6 hours lecture

Trainees:

Al Casillan, M.D., Ph.D. – student
Ann Stowe – graduate student
Ben Newell – summer research program
Walter Ingram – summer research program
Michelle Withee – summer research program
Matt Severidt – graduate student rotation