ANNUAL REPORT
July 1, 1985 - June 30, 1986
DEPARTMENT OF PHYSIOLOGY
UNIVERSITY OF KANSAS MEDICAL CENTER
COLLEGE OF HEALTH SCIENCES AND HOSPITAL
DEPARTMENT ROSTER

a. Academic Staff
Gilbert S. Greenwald, Ph.D., Distinguished Professor and Chairman
Richard L. Clancy, Ph.D., Professor
Russell T. Dowell, Ph.D., Professor
Hugo L. Fernandez, Ph.D., Professor (Director, Neurosciences Research Lab., VA Hosp.)
Kenneth L. Goetz, M.D., Ph.D., Adjunct Professor (Director of Research and Head, Div. of Experimental Med., St. Luke's Hosp.)
Norberto C. Gonzalez, M.D., Professor
Eugene D. Jacobson, M.D., Professor (Dean of the School of Medicine)
Donald C. Johnson, Ph.D., Professor (Joint appt., Ob-Gyn)
Theodore Lawwill, M.D., Adjunct Professor (Chairman, Department of Ophthalmology)
Werner K. Noell, M.D., Adjunct Professor (Joint appt., Ophthalmology)
Fred E. Samson, Ph.D., Professor (Director of Ralph Smith Center for Mental Retardation)
Lawrence P. Sullivan, Ph.D., Professor
Merrill Tarr, Ph.D., Professor
Paul E. Terranova, Ph.D., Professor
John W. Trank, Ph.D., Professor
James L. Voogt, Ph.D., Professor
Daniel J. Welling, Ph.D., Research Professor (VA Hospital)
Paul D. Cheney, Ph.D., Associate Professor
Sudhansu K. Dey, Ph.D., Associate Professor (Joint appt. Ob-Gyn)
Thomas J. Imig, Ph.D., Associate Professor
Bin Ching Wang, Ph.D., Adjunct Associate Professor
Philip L. Smith, Ph.D., Assistant Professor
Michael J. Soares, Ph.D., Assistant Professor
Dennis P. Valenzeno, Ph.D., Assistant Professor
Richard McCabe, Ph.D., Research Assistant Professor
Anne Morel, Ph.D., Research Assistant Professor
Shyamal K. Roy, Ph.D., Research Assistant Professor

b. Postdoctoral Fellows
Amitabh Krishna, Ph.D.
Raul Huet, M.D.
Sherri Lane, Ph.D.
P. V. Malathy, Ph.D.
Pablo Pedroni, M.D.
Zsuzsanna Rozsa, M.D.
Rosa Sanchis, Ph.D.
Maria Sancho-Tello, Ph.D.
Frank Siri, Ph.D.
Haruyo Tamura, M.D.
Shiow-Ching Wang, Ph.D.
<table>
<thead>
<tr>
<th>Graduate Students</th>
<th>Prelims</th>
<th>Candidate for</th>
<th>Degree Requirements Fulfilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joseph Bauer</td>
<td>4/85</td>
<td>M.S. (M.D.)</td>
<td></td>
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<tr>
<td>John Brannian</td>
<td>3/85</td>
<td>Ph.D.</td>
<td></td>
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<tr>
<td>Virginia Cassmeyer</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Timothy Griswold</td>
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<td>Ph.D.</td>
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<tr>
<td>Jean Heibert</td>
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<td>Ph.D.</td>
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<tr>
<td>Yvette Huet</td>
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<td>Ph.D.</td>
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<tr>
<td>Andrew Irons</td>
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<td>Ph.D.</td>
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<tr>
<td>Curtis Kauer</td>
<td>3/84</td>
<td>Ph.D. (M.D.)</td>
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<tr>
<td>Klaus Mewes</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Katherine Roby</td>
<td></td>
<td>M.S.</td>
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<tr>
<td>Lorraine Rome</td>
<td>6/83</td>
<td>M.S.</td>
<td>1/86</td>
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<tr>
<td>Sue Rummel</td>
<td></td>
<td>Ph.D.</td>
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<tr>
<td>Cathleen Sagrillo</td>
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<td>Ph.D.</td>
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<td>Frank Samson</td>
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<td>Ph.D.</td>
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<td>Mark Saville</td>
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<td>Ph.D.</td>
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<tr>
<td>Joel Stiles</td>
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<td>Ph.D. (M.D.)</td>
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<tr>
<td>Steve Sullivan</td>
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<td>Ph.D.</td>
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<td>Robert Whitman</td>
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<td>Ph.D.</td>
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<tr>
<td>Gail Widener</td>
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<td>Ph.D.</td>
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</table>
Notes concerning graduate students:

Virginia Cassmeyer presented a departmental seminar entitled "Inadequate Nutrition and Reproductive Failure" on March 10, 1986.

Yvette Huet attended the 18th annual meeting of the Society for the Study of Reproduction and the Shelesnyak Symposium on Midation in July at McGill University, Montreal. She visited Dr. George Siedel's laboratory at Colorado State University, Fort Collins, Colorado in December to learn microinjection techniques. She also presented two seminars to the Reproductive Biology Group. She was awarded a Mid-American State Universities Association teaching assistantship for one year in August and a National Science Foundation Fellowship for three years in April.

Klaus Mewes participated in the Society of Neuroscience meeting in Dallas in November 1985 at which he presented a poster and co-authored an abstract entitled: Changes in Corticomotoneuronal (CM) Postsitk Facilitation Associated with Logarithmic and Square Transformation of the EMG Signal. In April, 1986 he presented a departmental seminar entitled "Properties of Rubromotoneuronal Cells Studied in an Awake Monkey". In March he participated in the Student Research Forum with a presentation entitled "Properties of Rubromotoneuronal Cells Identified by Spike-Trigged Averaging in the Awake Monkey". He was also first author on a paper published in the Journal of Neuroscience Methods entitled "Implementation of a Movement Paradigm using the Commodore 64 Microcomputer".

Cathy Sagrillo just completed her Masters degree in Systematics and Ecology and Physiology at the University of Kansas, Lawrence. Her thesis was entitled "The Effects of the Reproductive Compound 6-MBOA on the Continuous Breeder Microtus ochrogaster". She began her Ph.D. work in Dr. Dey's lab in June.

Mark Saville spent most of the month of January at the Oregon Institute of Marine Biology in Charleston, Oregon during which time he studied marine ecology and physiology of marine invertebrates. In March he participated in the Student Research Forum with a presentation entitled "Coronary blood flow and changes in adenosine levels in aortic-constricted weanling and adult rats" and in April he attended the FASEB meetings in St. Louis. During the past year Mark also served on the Graduate Student Council, the Student Union Board and the Biochemistry Department Graduate Review Committee.

Steve Sullivan presented a paper entitled "Relations between Na and K transport in 3F rabbit proximal colon" at FASEB. He received a Student Research Competition award for "Segmental heterogeneity of rabbit proximal colonic calcium transport" at the American Gastroenterological Association meetings. Steve delivered presentations to the 1986 Student Research Forum, the Renal Journal Club, and Smith, Kline and French Laboratories. He also presented a departmental seminar in April entitled "Ion Transport in Rabbit Proximal Colon". During the past year he was also elected associate member of Sigma Xi and he interviewed for postdoctoral positions at Columbia University in New York, Harvard, Iowa, SK&F, Texas and Yale.

Gail Widener participated in the Student Research Forum in March with a presentation entitled "Renal compensation of hypercapnia in prolonged hypoxia". Gail served as the departmental representative on the Graduate Student Council and was elected Vice-President for the coming year. She also served on the Anatomy Department Graduate Review Committee.
COURSES TAUGHT

101 - Elementary Physiology (F), part of a 1,000 hour course for Emergency Care. Taught by Dr. Cheney and graduate students. 3 credits. Enrollment 7. Dr. Cheney coordinator.


800 - Medical Physiology. 9 credits. Taught by entire staff. Enrollment 204. Drs. Gonzalez and Greenwald coordinators.

804 - Physiology of early pregnancy. 2 credits. Fall 1985. Taught by Dr. Dey. Enrollment 2.


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<thead>
<tr>
<th>Date</th>
<th>Speaker</th>
<th>Title</th>
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<tbody>
<tr>
<td>7/2/85</td>
<td>Dr. Hartmut R. Kirchheim</td>
<td>Professor of Physiology University of Heidelberg Baroreflex Influences on Kidney Function in Conscious Dogs</td>
</tr>
<tr>
<td>9/9/85</td>
<td>Dr. Donald C. Johnson</td>
<td>Dept. of Ob-Gyn &amp; Physiology, KUMC Experimental Uterine Infertility</td>
</tr>
<tr>
<td>9/16/85</td>
<td>Dr. Dan Welling</td>
<td>Research Prof. of Physiology, KUMC Adj. Prof. of Pathology, VAMC Video Measurements of Hydraulic Conductance and Reflection Coefficients in Renal Tubules</td>
</tr>
<tr>
<td>9/23/85</td>
<td>Dr. Paula T. Beall</td>
<td>Senior Research Scientist Ciba-Geigy Corporation Transport of Pharmaceuticals in the GI Tract</td>
</tr>
<tr>
<td>9/30/85</td>
<td>Dr. Philip L. Smith</td>
<td>Department of Physiology, KUMC Colonic Ion Transport</td>
</tr>
<tr>
<td>10/7/85</td>
<td>Dr. Steve Crockett</td>
<td>Department of Ophthalmology, KUMC Studies on the Retinal Pigmented Epithelium in Cell Culture</td>
</tr>
<tr>
<td>10/14/85</td>
<td>Dr. Richard McCabe</td>
<td>Department of Physiology, KUMC Epinephrine Induced K⁺ Secretion by Colonic Epithelium</td>
</tr>
<tr>
<td>10/21/85</td>
<td>Dr. Gilbert Greenwald</td>
<td>Dept. of Physiology, KUMC Ovarian Follicular Selection and its Control: A New Approach</td>
</tr>
<tr>
<td>10/28/85</td>
<td>Dr. Jean Bullier</td>
<td>Director de Recherche INSERM, Lyon, France Axonal Bifurcation in the Visual System of the Cat and Monkey</td>
</tr>
<tr>
<td>11/4/85</td>
<td>Dr. John Ledson</td>
<td>Department of Physiology Univ. of British Columbia, Vancouver The Mechanisms of Renal Release of Atrial Natriuretic Peptide</td>
</tr>
<tr>
<td>11/18/85</td>
<td>Dr. Francis Siri</td>
<td>Department of Physiology, KUMC Norepinephrine Depletion in the Pressure-Overloaded Rat Heart: Injury or Adaptation?</td>
</tr>
<tr>
<td>11/20/85</td>
<td>Dr. Bruce Murphy</td>
<td>Department of Biology University of Saskatchewan The Role of Luteotrophins in Substrate Utilization</td>
</tr>
<tr>
<td>11/25/85</td>
<td>Dr. Kenneth Goetz</td>
<td>Director of Research and Head of Experimental Medicine St. Lukes Hospital Atrial Natriuretic Factor and the Natriuretic Response to Atrial Stretch</td>
</tr>
</tbody>
</table>
Ventilatory and Hemodynamic Responses to Intravenous Acid Infusion: Responses Unrelated to Decreases in Arterial pH

Salt and Baroreflex Interactions in Experimental Hypertension

Bird Flights of High Altitude: Problems and Solutions

Is Arterial Blood Pressure an Important Controller of Sodium Balance? Long Term Studies in Conscious Dogs under Controlled Conditions

Heart Creatine Kinase

Searching Behaviour in Animals

Cellular Photomodification in the Lab and in the Clinic

Role of Peptide Hormones in Renal Water and Salt Excretion

Two Classes of Asymmetric Acetylcholinesterase Molecular Forms in CNS and PNS

Na-K ATP-ase Stoichiometry

Inadequate Nutrition and Reproductive Failure

Purification and Characterization of an Ovarian Fibroblastic Growth Factor

The Cause of Cerebellar Ataxia
4/2/86  Dr. Simon A. Lewis  
Department of Physiology  
Yale University

4/7/86  Dr. Joanne Richards  
Department of Cell Biology  
Baylor College of Medicine

4/9/86  Dr. C. William Davis  
Department of Physiology  
University of North Carolina

4/21/86  Steve Sullivan  
Department of Physiology, KUMC

4/28/86  Klaus Mewes  
Department of Physiology, KUMC

5/5/86  Dr. William Hansel  
Department of Physiology  
Cornell University

5/12/86  Dr. Merrill Tarr  
Department of Physiology, KUMC

5/19/86  Dr. Anne Morel  
Department of Physiology, KUMC

6/2/86  Dr. Robert Gallo  
University of Connecticut

6/16/86  Dr. Bruce Goldman  
Senior Scientist  
Worcester Foundation for Exp. Biology  
Shrewsbury, MA

6/30/86  Dr. Horacio E. Cingolani  
Professor and Chairman  
Depts. of Physiology and Biophysics  
Univ. Nacional de La Plata, Argentina

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Physiology of the Mammalian Bladder Epithelium

Hormonal Control of Ovarian Follicular Development: Some Molecular Approaches

Cell Volume Regulation in Amphibian Urinary Bladder

Ion Transport in Rabbit Proximal Colon

Properties of Rubromotoneuronal Cells Studied in an Awake Monkey

New Concepts of Control of the Corpus Luteum

Voltage Clamp Studies in Frog Atrial Muscle

Thalamocortical Auditory Pathways: Organization According to Target Field

Neuroendocrine Regulation of Pulsatile Luteinizing Hormone Release

Neuroendocrine Regulation of Annual Rhythms in Mammals

Increased Sensitivity to Nifedipine of Vascular Smooth Muscle from Hypertensive Rats
PUBLICATIONS

Published during year - July 1, 1985 - June 30, 1986


Gaines, M.S., Fugate, C.L., Johnson, D.C., Johnson, J.R. Hisey, and D.M. Quadagno. Manipulation of aggressive behaviour in male prairie voles (Microtus ochrogaster) implanted with testosterone in silastic tubing.


Greenwald, G.S. ACDP survey on use of animals in teaching physiology. The Physiologist. 28:478-480, 1985


Johnson, D.C. and T. Griswold. Relationship between in vivo and in vitro 17α-
hydroxylase and C17, 20-lyase activity in ovaries of immature hypophysecto-
mized rats treated chronically with human chorionic gonadotropin. J.

Kim, I. and Greenwald, G.S. Steroidogenic effects of lipoproteins and 25-OH
cholesterol on luteal and ovarian cells: A comparison of two pseudopregnant

Kim, I. and Greenwald, G.S. Occupied and unoccupied FSH receptors in follicles of
cyclic, hypophysectomized or hypophysectomized gonadotropin treated hamsters.

Krishna, A. and Terranova, P.F. A daily rhythm in hCG binding to ovarian follicles

Krishna, A., Terranova, P.F., Matteri, R.L. and Papkoff, H. Histamine and
increased ovarian blood flow mediate LH-induced superovulation in the cyclic

Mewes, K., Cheney, P.D. and Trank, J.W. Implementation of a movement paradigm
using the Commodore 64™ microcomputer. J. Neuroscience Methods. 15:73-81,
1985

estrogen formation by pig blastocysts during the preimplantation period: Biochemical characterisation of estrogen-4-hydroxylase and correlation with

Effects of antidotes on soman-induced brain changes. Archives of Toxicology

Pazdernik, T., Samson, F. and Nelson, S.R. Soman's actions on the brain: A 2-
on the Synthesis and Application of Isotopically Labelled Compounds, R.R.
Muccino (Ed.) 415-420.

Roy, S.K. and Greenwald, G.S. A quantitative analysis of in vitro incorporation of
[3H]-thymidine into hamster follicles during the oestrous cycle. J. Reprod.
Fert. 77:143-152, 1986.

Shaban, M.A. and Terranova, P.F. 2 Bromo-oergocryptine mesylate (CB-154) inhibits
prolactin and luteinizing hormone secretion in the prepubertal female rat.

Smith, P.L., M.A. Cascairo and S.K. Sullivan. Luminal alkalinization by rabbit
ileal mucosa: Effects of ion replacement and alterations in sodium transport.

secretion by disulfonic stilbenes. Am. J. Physiol. 250 (Gastrointest. Liver

Smith, P.L. and R.D. McCabe. Potassium secretion by rabbit descending colon;
Effects of adrenergic stimuli. Am. J. Physiol. 250 (Gastrointest. Liver

Stallings, M.H., Matt, K.S., Amador, A., Bartke, A., Siler-Khodr, T.M., Soares,
M.J. and Talamantes, F. Regulation of teticular LH/hCG receptors in golden
hamsters (Mesocricetus auratus) during development. J. Reprod. Fert. 75:663-
670.


b. In press

Cheney, P.D. and Mewes, K. Rubromotoneuronal cells: identification with spike-triggered averaging and functional properties studied in the awake monkey. Behavioral Brain Research.


Dey, S.K. Estrogen and uterine sensitivitiy for blastocyst implantation. Indo-U.S. Symposium on Blastocyst, Indian Council of Medical Research.


Greenwald, G.S. Normal structure and function, ovary, hamster. In ILSI Monograph on Pathology of Laboratory Animals Genital System, Springer-Verlag, 19-4C (T.C. Jones, Ed).


Greenwald, G.S. Possible animal models of follicular development relevant to reproductive toxicology. Report for Environ Corporation for EPA.


Roy, S.K. and Greenwald, G.S. Radioreceptor and autoradiographic analysis of FSH, hCG and prolactin binding sites in primary to antral hamster follicles during the periovulatory period. J. Reprod. Pert.


Valenzeno, D.P. Photosensitization Laboratory - Photohemolysis in the American Society for Photobiology, Photobiology Lab Manuel, ed. G. Douglass Crandall.


c. Abstracts


Cheney, P.D. and Mewes, K.H. Properties of rubromotoneuronal cells studied in the awake monkey. In the proceeding of a satellite symposium "Neural Control of Limb Movement" held in Seattle, WA in conjunction with the International Physiology Congress.


Greenwald, G.S. Hormonal changes associated with oestrogen induced luteolysis in the pregnant hamster. Soc. Study of Fertility ann. meeting, Aberdeen.


Roy, S.K. and Greenwald, G.S. In vitro steroidogenic potential of preantral follicles with 1-8 layers of granulosa cells from the proestrous and estrous hamster. Soc. Study Reprod. 18th ann. meeting, Montreal, abstract 47.


RESEARCH SUPPORT


NIH-HL06622 - NRSA post doctoral Fellowship to Dr. F.M. Siri: R.T. Dowell preceptor - $34,776.


ALS-KUMC-Research Center - Studies on acetylcholinesterase molecular forms in amyotrophic lateral sclerosis. July 1, 1982 through February 1, 1987. Fourth year direct costs $13,270 (Total $81,000).


KUMC Keith Worthington ALS Society - Intracellular pH regulation of denervated skeletal muscle. Direct costs per year $14,000.

G. S. Greenwald: NICHD - Follicular and Luteal Regulation in the Mammalian Ovary, January 1, 1984 through December 30, 1988 24th year: Direct costs $83,166; Indirect costs $33,066. Total award $107,820.

D. C. Johnson: NIH (NICHD) - Reproductive hormone interactions in the ovary. September 1, 1985 - August 31, 1986. Direct costs $43,687; Indirect costs $17,075.

NIH (NICHD) - Experimental uterine infertility. July 1, 1985 through December 30, 1986. Direct costs $42,448; Indirect costs $16,579.


U.S. Army Medical Research and Development Command - Action of Cholinergic Poisons on the Central Nervous System and Effectiveness of Potential Antidotes. November 1, 1984 through October 1985 direct costs $197,541; Indirect costs $76,251. November 1, 1985 through August 31, 1986 direct costs $130,149; indirect costs $50,238. Principal Investigator.


KUMC Visiting Scientist Program. Kidney and Urology Research Center. $2,000.


BRSG (KUMC) - Role of GAP in Regulation of Prolactin Secretion. April 1, 1986 through November 30, 1986.

D. J. Welling: Public Health Service Grant AM33003, Rate of Cyst Development in Renal Cystic Disease Models. Principal Investigator. Three year grant, December 1, 1983 to November 31, 1986; current year $27,850.

ACTIVITIES OF STAFF

Paul D. Cheney, Ph.D., Associate Professor

Meetings Attended:
October 20-25, 1985 - Attended the annual meeting of the Neuroscience Society in Dallas, Texas and presented a poster entitled "Changes in cortico-motoneuronal (CM) postspike facilitation of emg activity associated with logarithmic and square transformation of the emg signal".

Committees:
Chairman, KUMC Animal Care Committee
KUMC Minority Recruitment Coordinator
Student Research Day Judge
Member, KUMC Care and Use Committee
Member, KUMC Medical School Research Committee
Member, KUMC Speas Cancer Grant review
Member, KUMC Biological Lecture Series Committee
Member, Neurology Chairman Search Committee
Member, Graduate School Five-Year Review for Preventative Medicine
Member, Comprehensive Exam Committee for Joel Stiles
Member, Comprehensive Exam Committee for John Olsen (Anatomy Dept.)
Member, Graduate Curriculum Advisory Committee for Erica Sterm (Occupational Therapy)
Participated in LOMT reviews

Editorial and Grant Reviews:
ad hoc reviewer - NSF (Neurobiology)
ad hoc reviewer - Journal of Neurophysiology

Seminars Presented:
December 2, 1985 - Presented a seminar to the honors biology students at Benedictine College entitled "New Approaches to Brain Function".
January 6-7, 1986 - Presented a seminar to the Department of Anatomy at the University of Tennessee Health Science Center entitled "Comparison of CM cell and RM cell organization and functional properties.

Academic Honors
Invited to speak at symposium entitled "Hodology and function of the red nucleus", September 12-13, 1986, Berder Island, France.
Invited to speak at a symposium on "Coordination of Movements" at the European Neuroscience Association Meeting, Sept. 14-18, 1986, Marseilles, France.

Teaching activities:
Medical Physiology
10 hours lecture, Neurophysiology
12 conferences (prepared one)
5 laboratories
1 demonstration

Physiology 101
Faculty Coordinator
Neurophysiology 822 (Graduate Course)
16 hours, lecture/discussion
Brain Control of Movement (Graduate Course)
20 hours, lecture/discussion
8 laboratories, 8-10 hours each
National Board Reviews for second year Med Students
1 hour lecture
Trainees:
Klaus Mewes - Thesis advisor, Ph.D. Candidate
Gail Widener - Thesis advisor, Ph.D. Candidate
Gregory Botteron - Medical Student, Academic Track
Melissa Stapp - Summer student, Drury College

Richard L. Clancy, Ph.D., Professor
Meetings attended:
April 1985 - Attended meetings of the Federation of American Societies for Experimental Biology in St. Louis, Missouri.

Committees:
Departmental:
Chairman, Physiology Department Graduate Student Admissions Committee

Local:
Chairman, Five-Year Graduate Review Committee, School of Nursing
member, KUMC Faculty Assembly Committee
member, KU Graduate Council
member, KU Lawrence Graduate School Honors Scholarship Committee

Editorial and Grant Reviews:
ad hoc reviewer - Circulation Research
- J. Lab. and Clin. Medicine

Teaching Activities:
Medical Physiology 770-771
9 hours lecture - Cardiovascular
20 hours laboratory
24 hours conferences
Computer Simulation Demonstration
Physiology 705, Advanced Human Physiology
10 hours lecture - Cardiovascular
Computer Assisted Instruction
National Board Review
2 hours

Trainees:
Robert Whitman - Graduate Student
Crosby Gernon - Medical Student

Sudhansu K. Dey, Ph.D., Associate Professor
Meetings attended:
July, 1985 - Invited speaker to Satellite Symposium on Implantation held in Montreal, Canada.
July 22-26, 1985 - Attended Annual Meeting of the Society for the Study of Reproduction at Montreal, Canada
February 22-23, 1986 - Invited speaker to the National Institute of Environmental Health Sciences held at Research Triangle Park, North Carolina.

Committees:
Chairman, KUMC Animal Care Committee
Member, KUMC Research Committee
President, Sigma Xi, KUMC Chapter
Member, Editorial Board, Biology of Reproduction
Editorial and Grant Reviews:
- ad hoc reviewer - NIH, Secretariat on Science, Research & Development, British Columbia, Canada
  - Biology of Reproduction
  - Journal Reproduction and Fertility
  - Endocrinology
  - Prostaglandins

Honors
Invited to speak at Gordon Research Conference on Mammalian Genital Tract, July 7-11, 1986, to be held at Plymouth State College, Plymouth, New Hampshire.

Teaching Activities:
- Medical Physiology
  25 hours laboratory
  24 hours conference
- Physiology 804 - Physiology of Early Pregnancy
  25 hours lecture

Trainees:
- Dr. P.V. Malathy, Post-doctoral Fellow
- Yvette Huet - Graduate Student
- Cathleen Sagrillo - Graduate Student
- Sami Long - Undergraduate Student

Russell T. Dowell, Ph.D., Professor

Meetings Attended:
April 13-18, 1986 - Attended FASEB meetings held in St. Louis, Missouri and presented a paper.

Committees:
- Member, departmental Graduate Student Committee
- Member/Chairperson, Graduate Travel Committee, KUMC
- Member, Academic Committee School of Medicine (special programs committee), KUMC
- Member, Five-Year Graduate Review Committee for Department of Anatomy, KUMC
- Member, Health Facility Planning Committee, KUMC

Editorial Reviews
- ad hoc reviewer - American Journal of Physiology
- ad hoc reviewer - Journal of Applied Physiology
- ad hoc reviewer - Medicine and Science in Sports and Exercise

Other Academic Activities
- Abstract referee, Annual Scientific Meeting - American College of Sports Medicine
- NIH ad hoc reviewer
  site visit, program project, Albert Einstein College of Medicine, Bronx, NY, May 7-9, 1986.

Seminars presented:
November, 1985 - Presented a seminar to the Department of Physiology, Wayne State University College of Medicine, Detroit, Michigan.
January 20, 1986 - Presented a departmental seminar entitled "Heart Creatine Kinase"
Teaching activities:
Medical Physiology
  6 hours lecture
12 conferences
5 student laboratories
Physiology 705
  8 lectures, Respiratory Physiology

Trainees:
Frank Siri, Ph.D. - postdoctoral fellow
Curtis Kauer - Graduate Student
Mark Saville - Graduate student

Hugo L. Fernandez, Ph.D., Professor

Meetings Attended:
March 16-21, 1986 - Attended the 17th Annual Meeting of the Society for Neurochemistry, Montreal, Canada.

Committees:
Chairman, Research Safety Subcommittee, VA Medical Center
Member, Research Equipment Subcommittee, VA Medical Center
Member, Sarah Morrison Bequest Review Committee, University of Missouri-K.C.
Member, Faculty Search Committee, School of Basic Life Sciences, U. Missouri-KC.
Member, ALS Regional Research Center Advisory Committee, KUMC

Editorial and Grant Reviews:
ad hoc reviewer - Muscle & Nerve
- J. Neurochemistry
- Neurochemistry International
- CRC Press Uniscience Series
- Experimental Neurology
- J. Neurobiology
- ALSOA (National ALS Society)
- NSF (Neurobiology)
- Research Div. Catholic Univ. of Chile
- NIH - Neurology B Study Section
- USA-ISRAEL Binational Science Foundation
- Sarra Morrison Bequest Committee

Academic Honors:
CAICYT (Spanish Research Commission) Senior Investigator
Fellowship, Molecular Biology Institute, Autonoma University of Madrid, Spain, October 1985 - January 1986.

Seminars presented:
October 15, 1985 - Presented a seminar entitled "Trophic Control of Skeletal Muscle" to the Department of Neurochemistry, Molecular Biology Institute, University of Madrid, Spain.
November 18, 1985 - Presented a seminar entitled "Biochemical Characteristics of Mammalian Cholinesterases" to the Department of Biochemistry, Molecular Biology Institute, University of Madrid, Spain.
December 13, 1985 - Presented a seminar entitled "Nerve-Target Cell Molecular Interactions", at the Cajal Institute, Madrid, Spain.
January 3, 1986 - Presented a seminar entitled "Subcellular Distribution of AChE Molecular Forms" to the Department of Cell Biology, University of Ljubljana, Yugoslavia.

Teaching Activities:
Medical Physiology
7 hours lecture, Neurophysiology
12 conferences (in charge Myasthenia Gravis Conference)
5 laboratory sessions

Trainees:
Cynthia Nyquist-Battie, Ph.D., Assistant Professor of Anatomy, KUMC, Visiting Scientist. 1984-present.
Joel Stiles, M.D., Ph.D. program, Graduate Student, Physiology
Chery Hodges-Savola, Ph.D. Graduate Student, Anatomy
Sue A. Rummel, Ph.D. Graduate Student, Physiology

Norberto C. Gonzalez, M.D., Professor

Meetings Attended:
April 1986 - Attended the FASEB meetings in St. Louis, Missouri and presented a paper entitled "Intracellular pH during prolonged hypoxia: effect of a CO2 load".

Committees:
Co-coordinator, Medical Physiology Course; responsible for grading for the Medical Physiology Course.
Chairman of the Student Promotions Subcommittee of the School of Medicine
Member of the Academic Committee, School of Medicine

Editorial and Grant Reviews:
ad hoc reviewer - Respiration Physiology
ad hoc reviewer - Journal of Experimental Biology

Honors:
Invited to give a talk on "Intracellular pH regulation during prolonged hypoxia" at the IUPS Satellite Symposium on Membrane Transport and pH Regulation at Banff, Alberta, Canada, July, 1986.

Seminars presented:
October 7, 1985 - Presented a seminar entitled "Acid base changes during acclimatization to hypobaric hypoxia" at the Institute of Physiology of La Plata, Argentina.

Teaching activities:
Medical Physiology
12 hours lecture - Respiratory Physiology
two review sessions
12 conferences
5 laboratories

National Board Review
2 hours lecture

Physiology 388
5 hours lecture - Physiology of Respiration

Directed a Medical Post-Graduate course on Acid Base Physiology for Internists at the Institute of Physiology, La Plata, Argentina, October 7-18, 1985.
Trainees:

Gail Widener, Graduate Student, May-August, 1985
Pablo Pedroni, M.D., Visiting Scientist from the Institute of Physiology of La Plata, Argentina, Jan-Feb. 1986 (joint visit to Dr. Gonzalez and Dr. Valenzeno).

Gilbert S. Greenwald, Ph.D., Distinguished Professor and Chairman

Meetings Attended:
July, 1985 - Attended the meeting of the Society for the Study of Fertility, Aberdeen, Scotland and presented a paper.

Committees:
KUMC:
Member, Steering Committee - Evaluation of Five-year Plan
Member, Higuchi Research Achievement Panel
Member, Search Committee for Wilkinson Professorship
Member, Search Committee for Director of Aging Center
Member, Editorial Advisory Board Explore (U. Kansas Research Magazine)

National:
Member, Regulatory Biology Panel, NSF
Member, Steering Committee on Animal Welfare, Association of Chairman of Departments of Physiology
Consultant: Lange Medical Publications
Consultant: Environ Corporation (EPA Reproductive Toxicity Guidelines)
Associate Editor: Physiology of Reproduction, Raven Press

Editorial and Grant Reviews:
ad hoc reviewer - Biology of Reproduction
- J. Reproduction and Fertility
- J. Experimental Zoology
- National Science Foundation
- Veteran's Administration Research

Seminars presented:
October 21, 1985 - Presented a departmental seminar entitled "Ovarian Follicular Selection and its Control: A New Approach"
November, 1985 - Presented seminar at the Department of Obstetrics and Gynecology, McGill University.

Teaching activities:
Medical Physiology (Co-coordinator)
20 hours Conferences
Physiology 705
8 hours lecture - G.I. Physiology
Physiology 806 - Endocrinology
10 lectures
Physiology 808 - Reproductive Physiology
1 student

Trainees:
Shyamal Roy, Ph.D. - Postdoctoral Fellow
Haruyo Tamura, M.D. - Postdoctoral Fellow
Shiow-Ching Wang, Ph.D. - Postdoctoral Fellow
Joseph Bauer - Graduate Student
Thomas J. Imig, Ph.D., Associate Professor

Meetings Attended:
Sept. 29 - Oct. 4, 1985 - Attended the 4th Annual Neurosciences Symposium 'Function of the Auditory System' held in La Jolla, California and presented a paper.

Committees:
Departmental librarian

Editorial and Grant Reviews:
ad hoc reviewer - Journal of Neurophysiology
- Journal of Neuroscience
- Experimental Neurology
- Science
- Journal of Comparative Neurology
- National Science Foundation

Teaching Activities:
Medical Physiology
7 hours lecture
12 conferences
7 laboratories
Physiology 388
7 lectures
Neurophysiology 822 - Graduate Course

Trainees and Associates:
Anne Morel, Ph.D. - Research Assistant Professor
Andrew Irons - Graduate Student
Frank Samson - Graduate Student
Eddy Lucas - Summer Medical Student

Donald C. Johnson, Ph.D., Professor

Meetings Attended:
July, 1985 - Attended the Society for the Study of Reproduction meeting in Montreal, Canada.

Committees:
KUMC
Chairman, Radiation Safety Committee
Chairman, Promotion and Tenure Committee, School of Medicine
National
Member, Reproductive Endocrinology Study Section, NIH

Editorial and Grant Reviews:
ad hoc reviewer - Journal of Reproduction and Fertility
- Proceedings Society Biology & Medicine (ed. board)
- Biology of Reproduction
- Life Sciences

Academic Honors
Faculty Research Award 1985: Control of Pituitary Gonadotropins (presentation)
Teaching Activities:
Medical Physiology
12 conferences
5 laboratory sessions
Physiology 806 - Graduate Course
15 lecture - Endocrinology

Trainees:
Tim Griswold - Graduate Student
Virginia Cassmeyer - Graduate Student
Stuart Gaynes - Summer Medical Student
Sherri Lane, Ph.D. - Postdoctorate (8/1/85-6/30/86)

Fred E. Samson, Ph.D., Professor

Meetings Attended:
September 3-6, 1985 - Attended Neuronal Microenvironment meeting held in Salsbury Cove, Maine.
October 5-8, 1985 - Attended meeting of NICHD Staff and Directors of MRRC held in Seattle, Washington
October 23-25, 1985 - Attended the Society for Neuroscience meeting held in Dallas, Texas
December 9-12, 1985 - Attended the Neuronal Regeneration Workshop held in Pacific Grove, California
March 18-20, 1986 - Attended the American Society of Neurochemistry held in Montreal Canada
March 27, 1986 - NICHD site visit for Ralph L. Smith Research Center.
May 26-27, 1986 - Attended meeting of the NICHD Staff and Directors of MRRC held in Denver, Colorado

Committees:
KUMC:
Director, Ralph L. Smith Research Center
Coordinator, Neurotoxin Research Group
Member, Faculty Research Award Committee
Member, Advisory Committee, amyotrophic lateral sclerosis research
Member, Department of Physiology Faculty Search Committee
Member, International Cell Biology Program (KU-Valencia) Committee
Chairman, Alan M. Thompson Medical Stud. Recognition Award in Physiology
Member, Biochemistry Graduate Program Review Committee
Scrivener-Scribe, Department of Physiology

Local:
The University of Chicago Alumni Fund, Greater Kansas City Area
Member, The University of Chicago Club of Kansas City

National:
American Society for Neurochemistry (Standing Rules Committee, 1982-85)
Consultation, USA Medical Research and Development Command, Aberdeen Proving Ground, Maryland, November 1985.

Editorial and Grant Reviews:
ad hoc reviewer - Journal of Cerebral Blood Flow and Metabolism
- Biochemistry
- Biochemical Pharmacology
- National Science Foundation

member, Scientific Advisory Board of the Encyclopedia of Neuroscience now in preparation to be published by Birkhauser Verlag.
Honors:
Invitation to M.I.T. to assist Professor F.O. Schmitt in writing his autobiography (expenses paid)
Invitation by Acadia Foundation, Mt. Desert Island, Maine to participate in the oral history of Neuroscience (F.O. Schmitt oral history) (expenses paid)

Seminars Presented:
March 4-6, 1986 - Review of our Research Project on Cholinergic Poisons and Potential Antidotes, Aberdeen Proving Grounds, Maryland.

Teaching activities:
Physiology 388
4 hours lecture - Muscle Physiology
Medical Physiology - Physiology 800
12 - 2 hour Conferences
M.S. Thesis Committees
Tina Erickson, K.U. Lawrence Biochemistry Dept.
Ph.D. Thesis Committees
James Chastain, Department of Pharmacology
John Wade, Department of Pharmacology

Trainees:
Tina Erickson - Biochemistry, Graduate Student (Lawrence campus)
James Chastain - Pharmacology Graduate Student (with Dr. Pazdernik)
John Olson - Anatomy Graduate student (with Dr. Nelson)
John Wade - Pharmacology Graduate Student (with Dr. Pazdernik)
Kai Savolainen - Pharmacology (with Dr. Pazdernik) Fogarty Fellow, Finland
David Gudeman - Medical Student (with Dr. Nelson)
Barbara DeWitt - Medical Student (with Dr. Nelson)
John Terry - Medical Student (with Dr. Pazdernik)

Philip L. Smith, Ph.D., Assistant Professor

Meetings Attended:
April, 1986 - Attended FASEB meetings in St. Louis, Missouri
May, 1986 - Attended AGA meetings in San Francisco, California

Committees:
KUMC:
Graduate Student Admissions Committee, Physiology Department
LCME Review
Graduate Student Scholarship Program

Editorial and Grant Reviews:
ad hoc reviewer - American Journal of Physiology (Editorial Board)
- Journal of Pharmacology and Experimental Therapeutics

Seminars presented:
August, 1985 - Visited Smith, Kline & French Laboratories in Philadelphia, Pennsylvania and presented a seminar entitled "Mechanisms and Regulation of Colonic Ion Transport"
February, 1986 - Visited the Armed Forces Radiation Biology Institute and presented a seminar entitled "Segmental Heterogeneity of Colonic Ion Transport"

Teaching Activities:
Physiology 388 - Human Physiology
3 hours lecture - Gastrointestinal
Trainees:
Richard McCabe - Postdoctoral Fellow/Research Assistant Professor
Steven Sullivan - Graduate Student
Lynn Ruhle - Summer Student

Michael J. Soares, Ph.D., Assistant Professor

Committees:
Graduate School Five-year Review Committee for Department of Anatomy
Faculty Coordinator for University of Kansas Medical Center MARC Summer Research Program

Editorial Reviews:
ad hoc reviewer for - Biology of Reproduction
- Endocrinology
- Journal of Reproduction and Fertility
- In Vitro: Cellular and Developmental Biology

Seminars presented:
October, 1985 - Presented a seminar entitled "Differentiation of Rat Trophoblast Cells In Vitro" to the Department of Physiology, University of Illinois Medical Center, Chicago, Illinois.
April, 1986 - Presented a seminar entitled "Growth and Differentiation of the Rat Chorioallantoic Placenta" to the Reproductive Biology Group, McMaster University, Hamilton, Ontario, Canada

Teaching activities:
Medical Physiology
13 conferences
5 laboratory sessions
Physiology 705
10 hours lecture - Endocrinology

Trainees:
Barbara Foster - Undergraduate (Avila College)
Kathleen D. Schaberg - Undergraduate (Drury College)
Kim Morris - Undergraduate (Avila College)
Catherine Pinal - Undergraduate (University of California, Santa Cruz)

Lawrence P. Sullivan, Ph.D., Professor

Meetings Attended:
October, 1985 - Attended the American Physiological Society meetings in Niagara Falls, N.Y.
December 14-17, 1985 - Attended American Society of Nephrology meeting in New Orleans, Louisiana
April 13-17, 1986 - Attended the Federation of American Societies for Experimental Biology meetings held in St. Louis, Missouri

Committees:
Internal
Member, Renal Dialysis and Transplantation Committee
Member, VA Hospital Research and Development Committee
Vice-President, Kidney and Urology Research Center
Member, Pathology Graduate Program Review Committee
Member, Graduate School Scholarship Committee
Scheduler, Renal Journal Club
Member, Departmental Graduate Committee
External:
Chairman, Renal Section, American Physiological Society
Member, Section Advisory Committee, American Physiological Society

Editorial and Grant Reviews:
ad hoc reviewer - Journal Lab. and Clin. Medicine
- Am. J. Physiology
NIH Grant review committee, July, 1985

Teaching Activities:
Medical Physiology
10 hours lecture - Renal Physiology
12 hours problem sessions
12 conferences
7 laboratory sessions
National Board Review
3 hours lecture

Trainees:
Lorraine Rome - Graduate Student, completed M.S. degree January, 1986
Joy Wilson - Summer Student (from Drury College)
Lynn Ruhle - Summer Student (from Drury College)

Merrill Tarr, Ph.D., Professor

Committees:
Education Committee of the American Heart Association, Kansas Affiliate

Editorial Reviews:
ad hoc reviewer - The Physiologist

Seminars Presented:
May 12, 1986 - Presented departmental seminar entitled "Voltage Clamp Studies in Frog Atrial Muscle"

Teaching Activities:
Medical Physiology
10 hours lecture
4 review sessions approx. 2 hours each
12 conference sessions approx. 2 hours each
5 laboratories
Physiology 705 - Course Director
8 hours lecture
1 hour review
National Board Review
1 hour lecture

Trainees:
Dale Hirsch - Medical Student, Summer 1985
Rob Johnson - Medical Student, Summer 1986

Paul F. Terranova, Ph.D., Professor

Meetings Attended:
July, 1985 - Attended the 18th annual meeting of the Society for the Study of Reproduction held in Montreal, Canada.
Committees:

Departmental:
- Member, Graduate Affairs Committee
- Member, Biochemistry-Physiology Liaison.
- Coordinator for student evaluation in Medical Physiology

Local:
- Member, Animal Care Committee (College level)

National:
- Editorial Board, Biology of Reproduction

Editorial and Grant Reviews:
- Biology of Reproduction (Editorial Board)
- Endocrinology
- Journal of Reproduction and Fertility
- American Journal of Anatomy

Seminars presented:
- March 17, 1986 - Presented a departmental seminar entitled "Purification and Characterization of an Ovarian Fibroblastic Growth Factor"
- April, 1986 - Presented a seminar entitled "Role of LH in Follicular Development" to the Department of OB-GYN, University of Texas Health Science Center, Houston, Texas.
- May 7, 1986 - Presented the same seminar to the Department of OB-GYN, Wesley Medical Center, University of Kansas School of Medicine, Wichita, KS.

Honors:
- Invited to chair a session on "Granulosa Cells" at the 19th Annual Meeting of the Society for the Study of Reproduction, held at Cornell University, July 1986.

Teaching Activities:
- Medical Physiology
  - 8 hours lecture
  - 12 conferences approx. 2 hours each
  - 7 laboratories, 2-4 hours each
- Physiology 388
  - 5 hours lecture
- Physiology 806
  - 6 hours lecture (Graduate Endocrinology Course)
- Physiology 850 (research)
  - 6 hours credit (2 students - 3 hours each)

Responsible for student evaluation for Medical Physiology course.

Trainees:
- Amitabh Krishna, Ph.D. - Postdoctoral Fellow
- Rosa Sanchis, Ph.D. - Postdoctoral Fellow
- Maria Sancho-Tallo, Ph.D. - Postdoctoral Fellow
- John Brannian - Graduate student; Ph.D. candidate
- Kathy Roby - Graduate Student; M.S. candidate
- Kevin Halling - Medical Student
- Kari Halvorson - Medical Student
- Chris Byrd - Undergraduate (Avila College)
John W. Trank, Ph.D., Professor

Meetings Attended:
- November, 1985 - Attended AHA Volunteer Development Conference in Washington, D.C.
- June, 1986 - Attended American Heart Association National Assembly as a delegate

Committees:
- Departmental:
  - Electronic shop supervisory committee
  - Department Seminar Coordinator
- KUMC:
  - Member, Computer Committee
- Local:
  - Biomedical Engineering Technician Advisory Committee, Johnson County Community College
  - Member, Board of Directors Greater Kansas City Div., American Heart Assoc.
  - Member, Nutrition Task Force Greater Kansas City Div., American Heart Assoc.
  - Member, Kansas Affiliate Board of Directors, American Heart Association.
  - Member, American Heart Association Board of Directors Greater Kansas City Division
  - Member, Development Committee for "The Microcomputer Jungle", a computer short course for health care professionals presented by KUMC Division of Collaborator, Research project dealing with the electrophysiology of transport in intestinal epithelium with Dr. P. T. Beall of Ciba-Geigy.

Continuing Education
- State:
  - President, American Heart Association, Kansas Affiliate

Editorial Reviews:
- Ad Hoc member American College of Sports Medicine abstract review panel, 1986.

Seminars presented:
- August, 1984 - Presented seminar to Ciba-Geigy research division entitled "Techniques for Membrane Voltage Clamp"
- October, 1984 - Presented departmental seminar entitled "Print and Plot Physiology"

Teaching Activities:
- Medical Physiology
  - 7 hours lecture - Optics, Electrocardiography, Hemodynamics, Blood Pressure Regulation
  - Laboratory supervision for all Medical Laboratories
- Physiology 101
  - Supervision for all Physiology 101 labs
- Physiology 388
  - 7 hours lecture
- National Board Review
  - 1-1/2 hours lecture
- Physiology 910 - Advanced Topics
  - 15 contact hours
- Presented a short course on laboratory applications of Zenith Z100 micro-computer to physiology graduate students and staff, August 1985.

Trainees:
- Rob Johnson - Summer Medical Student
Dennis P. Valenzano, Ph.D., Assistant Professor

Meetings Attended:
June 23-27, 1986 - Attended the 14th annual meeting of the American Society for Photobiology held in Universal City, CA.

Committees:
Course Director, Physiology 388
Member, Search Committee for epithelial physiologist.
Organizer of Summer Research Group presentations on Ions and Water

Editorial Reviews:
ad hoc reviewer - Photochemistry and Photobiology

Honors:
Invited to present a talk on the role of singlet oxygen in photosensitization of membranes at an American Chemical Society Symposium on Photosensitization in Insects to be held in Anaheim, California in September, 1986.
Invited to write a chapter on "Singlet oxygen in membranes" for a book on sensitzers as pesticides to be published by A.C.S. Books.

Seminars presented:
February 10, 1986 - Presented departmental seminar entitled "Cellular Photomodification in the Lab and in the Clinic"

Teaching Activities:
Medical Physiology
  6 hours lecture
  13 conferences
  6 laboratories
Physiology 388 (Course Director)
  8 hours lecture
Physiology 810: Membranes and Transport (Graduate Course)
  20 hours lecture/discussion
Physiology 705
  2 hours lecture/lab
National Board Review
  1 hour lecture

Trainees:
Eric Carlson - summer medical student, 1985
Angela Hutzenbuhler, summer medical student, 1986
Mark Milne - undergraduate summer research student (Drury College)
Crosby Gernon - summer medical student (co-advised with Drs. Clancy and Gonzalez)
Nancy Becker - Dept. of Medicine Fellow - advised on project using UV light in lupus erythematous (Sponsor: Nabih Abdou), April, 1986 - present.

James L. Voogt, Ph.D., Professor

Meetings Attended:
July, 1985 - Attended annual meeting of Society for the Study of Fertility held in Aberdeen, Scotland
October, 1985 - Attended annual meeting of European Neuroendocrinology Association held in Milan, Italy
Committees:
  Departmental:
    Member, Graduate Committee
  Local:
    KUMC Steering Committee, Medical School
  National:
    Member, Public Affairs Advisory Committee of the American Physiological Society

Editorial and Grant Reviews:
  Editorial Board - American Journal of Physiology
  Editorial Board - Endocrinology
    - Biology of Reproduction
    - Neuroendocrinology

Seminars Presented:
  September, 1985 - presented seminar at Erasmus University, The Netherlands
  November, 1985 - presented seminar at the University of Gottingen, West Germany

Teaching Activities:
  Medical Physiology
    8 hours lecture
    12 conferences
    7 laboratories

Trainees:
  Leighton Sweet - summer medical Student, 1986
  Mark Scott - undergraduate student (Avila College)

**Daniel J. Welling, Ph.D.,** Research Professor

Meetings Attended:
  April, 1986 - Attended Federation of American Societies for Experimental Biology, held in St. Louis, Missouri

Committees:
  Departmental
    M. S. Committee for Lorraine Rome

Editorial and Grant Reviews:
  Reviewed articles for American Journal of Physiology
  Reviewed articles for Biophysical Journal

Honors:
  Visiting Professor, University of Aarhus, Aarhus, Denmark
  Visiting Professor, University of Texas Medical Center, Houston, Texas

Teaching Activities:
  Physiology 810 - Graduate Course on Ion and Water Transport
    5 lectures
Chairman's Report

This has been a continued year of satisfactory growth in all activities and responsibilities of the Department of Physiology. These can be conveniently considered in three categories.

Faculty. As of July 1, 1986 the following faculty were promoted: Dennis P. Valenzano, Associate Professor; S.K. Dey, Professor. Dr. Philip L. Smith resigned in December, 1985. His loss creates a vacuum in the teaching and research skills in the department and restoration of the position is my top priority for the coming year. Dr. Eugene Jacobson was appointed Professor of Physiology and Drs. Richard McCabe and S.K. Roy were appointed Research Assistant Professors of Physiology. Dr. Bin Ching Wang was appointed Adjunct Associate Professor of Physiology.

Research. Several new grants were funded in the past year, raising total grant support to $761,000 in direct costs (preliminary figure). Research productivity is excellent with 68 papers published or in press. It is a source of satisfaction that all faculty have at least two papers published or in press. A major objective remains to have all faculty funded at the national level. Invitations to serve on study sections, editorial boards, and participation in national and international meetings is still on the increase.

Students. The graduate program is at an all time high in terms of the quality and quantity of students. The most significant action taken this past year was the revision of course requirements for the graduate program. External review of the Department's graduate program resulted in a highly favorable rating. Medical student evaluation of the medical physiology course continues to be enthusiastic. It is too early to evaluate whether our decision two years ago to reduce the number of exams to three and elimination of a comprehensive final has been satisfactory or not. On the June, 1986 National Boards, Part I, KUMC students scored 479 compared to the national average of 488 whereas in 1985 (the year before the change in test schedules) the comparable KUMC score was 500. By itself, this doesn't indicate any change in performance but 21 KUMC students scored less than 380 in the Physiology portion of the exam which was significantly higher than in Anatomy or Biochemistry.

Finally, the Department joins in thanking Security Benefit Group, Inc. for establishing the J. Hambleton Abrahams lectureship in Physiology. The first lecture will be given on September 25, 1986 by Dr. John B. West and the series promises to develop into one of the premier lectureships at the Medical Center. This lecture joins the Kathleen M. Osborn Memorial lectureship in reproductive physiology as the two major efforts of the department.