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Rosensteil School of Marine and Atmospheric Science
University of Miami

Associates

M. Balla
E. Colón
A. Llobet

1996 SUMMER FELLOWSHIP AWARDEES

Research Experience for Undergraduates:

Michael Balla, New York University
Janelle Banks, Howard University
Jennifer Campbell, Georgia Southern University
Curtis Chong, Harvard University
Kathrina Mooney, Oglethorpe University
Carlin Jones, Lake Erie College
Annette Filiatrault, Vanderbilt University
Telly Russell, Vassar College
Jason Mills, Harvard University
Timothy Wong, Yale University

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David Seward, Williams College
Elizabeth Wilson, Yale University

American Heart Association Fellowship:

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Erin Wilkes, Colby College
Nicholas Yagoda, Brown University

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Sarah Reisman, MDI High School
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Sarah Weiss, MDI High School
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Mentors:

Thomas J. McManus, Ph.D.
Elizabeth Crockett, Ph.D.
Nancy Berliner, M.D.

Mentor:

John N. Forrest, Jr., M.D.

Mentors:

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Robert L. Preston, Ph.D.

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R. Patrick Hassett, Ph.D.
Raymond Frizzell, Ph.D.
Robert L. Preston, Ph.D.
C. Leah Devlin, Ph.D.
Thomas J. McManus, Ph.D.

Mentors:

Thomas J. McManus, Ph.D.
David S. Miller, Ph.D.

1 9 9 6 S E M I N A R S

Morning Transport

- July 1 "Mechanisms of Water Flow Across Biological Membranes" Mark Zeidel, M.D., University of Pittsburgh School of Medicine
- July 8 "Na/H antiport, proton conductance and electrogenic transport: A cautionary tale" David C. Dawson, Ph.D., University of Michigan Medical School; Director, MDIBL
- July 15 "Control of renal phosphate transport in flounder" J. Larry Renfro, Ph.D., The University of Connecticut
- July 22 "Probing the voltage sensor of a mitochondrial channel" Lorie Lee Thomas, Ph.D., Parke-Davis Pharmaceutical Research
- July 29 "Osmolytes in the intertidal zone of the kidney" Rolf Kinne, M.D., Ph.D., Max-Planck-Institut fuer Molekulare Physiologie
- August 5 "All you wanted to know about patch clamping, but were afraid to ask, and what in 'Ca²⁺' are we doing about it!" Martin Morad, Ph.D., Georgetown University
- August 12 "CFTR trafficking" Raymond A. Frizzell, Ph.D., University of Pittsburgh School of Medicine
- August 19 "KCl co-transporter and friends" Bliss Forbush III, Ph.D., Yale University School of Medicine

Noon

- June 28 and July 12 - MDIBL Principal Investigators presented a series of 5 minute talks to outline summer research plans
- July 5 "Vascular endothelial growth factor (VEGF) and its receptors in pregnancy" D. Stephen Charnock-Jones, Ph.D., University of Cambridge
- July 19 "P₂U purinergic receptors activate CFTR" Carol E. Semrad, M.D., College of Physicians & Surgeons of Columbia University
- "Nuclear matrix organization and cell death" Jon M. Holy, Ph.D., University of Minnesota-Duluth, School of Medicine
- July 26 "Structure/function of the cytoskeleton in skate hepatocytes" John H. Henson, Ph.D., Dickinson College
- "Sea robin bioacoustics" Martin A. Connaughton, Ph.D., University of Texas Medical School at Houston

- August 9 "Transport of bile acids and bile alcohols by skate hepatocytes" Gert Fricker, M.D., University of Heidelberg
- "Spermatogenesis in shark" Marlies Betka, Ph.D., Boston University
- August 23 "The strange case of saxiphilin and transferrin: a biological mystery" Edward G. Moczydlowski, Ph.D., Yale University School of Medicine
- "Killer whales, hummingbirds and secrets of renal function" Carol A. Beuchat, Ph.D., San Diego State University

Evening

- July 3 "Modulation of xenobiotic secretion by renal epithelium" J. Larry Renfro, Ph.D., The University of Connecticut
- July 10 "Intracellular signaling in pancreatic acinar cells: Role of calcium and kinase cascades" John A. Williams, M.D., Ph.D., University of Michigan Medical School
- July 24 THE SECOND HELEN F. CSERR MEMORIAL LECTURE - "Regulation of intracellular calcium release channels" Barbara E. Ehrlich, Ph.D., University of Connecticut Health Center
- July 31 "Evolution of ureotely in batrachoidid fishes" Patrick J. Walsh, Ph.D., Rosenstiel School of Marine and Atmospheric Science, University of Miami
- August 5 THE SIXTH THOMAS H. MAREN LECTURE - "CFTR from channel to gene therapy" William Guggino, Ph.D., Johns Hopkins University School of Medicine
- August 7 THE FIFTH JOHN W. BOYLAN MEMORIAL LECTURE - "Contract with the future" Robert F. Kennedy, Jr., Chief Prosecuting Attorney for the Hudson Riverkeeper and Senior Attorney for the Natural Resources Defense Council; Clinical Professor and Supervising Attorney at the Environmental Litigation Clinic at Pace University School of Law in New York.
- August 13 "Homeostasis, Humpty Dumpty, and Integrative Biology" Stanley G. Schultz, M.D., University of Texas Medical School at Houston
- August 21 "Purification and characterization of recombinant human adenosine receptors" Joel Linden, Ph.D., University of Virginia Health Science Center

Special Seminars

- June 27 "An underwater look at Mount Desert Island's marine environment" Elaine Eaton, Marine Specialist and Diver, Acadia Cruises
- July 11 "Barrier Islands and Sandy Shores" Professor William Amos, Marine Biologist, Nature Photographer and Science Writer, Lyndonville, Vermont. Public lecture to enhance MDIBL's educational program for high school and undergraduate students.
- August 5 ALL CAMPUS ETHICS SEMINAR - Plenary Lecture and Discussion - "Why research integrity matters" Judith Swazey, Ph.D., Acadia Institute for Medicine and Society. Compulsory for all fellowship recipients.
- August 8 "Future Science: Scientists of Tomorrow at Work Today" Public seminar featuring presentations by local and national high school and college students participating in exciting hands-on research training programs at MDIBL and the Jackson Laboratory.

STUDENTS' "BASIC" LECTURE SERIES

(Participation required by students who are recipients of fellowships/scholarships)

- June 18 "The sounds of teleost love: Fish sound production" Martin Connaughton, Ph.D., University of Texas Medical School at Houston
- June 25 "Fish vision: Ecology & physiology" Victoria Connaughton, Ph.D., University of Texas Medical School at Houston
- July 2 "Technicians: What the heck do they do?!" David Opdyke and Cicely Jette, MDIBL
- July 8 Ethics Brown Bag Seminar for REU Students and Mentors - "An introduction to research ethics and case study analysis" Dr. Judith Swazey
- July 9 "Gill Function in fish" J.B. Claiborne, Ph.D., Georgia Southern University
- July 16 "The fats of life: Membrane lipids and environmental adaptation" Elizabeth L. Crockett, Ph.D., Ohio University
- July 23 "Living in a patchy environment: How marine copepods adapt to variable food" R. Patrick Hassett, Ohio University
- July 30 "Sharks: The ultimate in reproductive research" Marlies Betka, Ph.D. Boston University
- August 6 "Adaptomy in the 90's - Salt adaptation in the trout" Susan Brill, Yale University School of Medicine

Symposia

July 17-18

Two Day Symposium at MDI Biological Laboratory - "Bioactive Compounds from the sea and their impact on human health"
Sponsored by The Mount Desert Island Biological Laboratory, The NIEHS Center for Membrane Toxicity Studies at MDIBL (CMTS), and the Center for Innovation in Biomedical Technology - Hosted by the CMTS, Dr. James L. Boyer, Director

Wednesday, July 17 "Symposium on Marine Biotechnology"

"Welcome" Dr. David Dawson, Ph.D., University of Michigan School of Medicine; Director, MDIBL

"Introduction" Dr. James L. Boyer, M.D., Yale University School of Medicine; Director, MDIBL Center for Membrane Toxicity Studies

"Searching King Neptune's Kingdom: Testing marine natural products" David J. Newman, Ph.D., Natural Products Branch, National Cancer Institute

"Discovery and development of antibiotics and anticancer agents from marine vertebrates" Michael A. Zasloff, M.D., Ph.D., Magainin Research Institute

"Antioxidants and UV sunscreens in chronically photooxidatively stressed invertebrate-microbial endosymbioses" J. Malcolm Shick, Ph.D., University of Maine

"Marine adhesion: Unravelling the chemistry" J. Herbert Waite, Ph.D., College of Marine Studies, University of Delaware

"Natural polymer composites as models for developing orthopaedic biomaterials" Thomas J. Koob, Ph.D., Shriners Hospital for Crippled Children

"Possible roles for polycation-sensing receptors in the adaptation of fish to different fresh water and marine environments" H. William Harris, M.D., Ph.D., Harvard Medical School; AquaBio Products Sciences Inc.

Thursday, July 18 - "Symposium on Marine Toxins"

"Introduction" Ned Ballatori, Ph.D., University of Rochester School of Medicine; Associate Director, MDIBL Center for Membrane Toxicity Studies

"Origins, fates and human health effects of 'red tide' and other marine toxins" Frances M. Van Dolah, Ph.D., National Marine Fisheries Service, Medical University of South Carolina

"Marine toxins that affect actin microfilament structure" Michael R. Bubb, M.D., University of Florida College of Medicine

"Cyanobacterial hepatotoxins" Maria T. Runnegar, Ph.D., University of Southern California School of Medicine

"Regulation of protein phosphatases by natural product toxins and reversible phosphorylation" Charles F. Holmes, Ph.D., University of Alberta, Canada

"Cellular Ca^{++} , Na^+ and H^+ homeostasis: perturbations by palytoxin" Armen H. Tashjian, Jr., M.D., Harvard School of Public Health

THE FIFTEENTH ANNUAL WILLIAM B. KINTER MEMORIAL LECTURE - "New frontiers with natural toxin probes: Learning things you never knew you never knew" Daniel G. Baden, Ph.D., Marine biology and Fisheries, University of Miami; Director, NIEHS MFBS Center at Univ. of Miami

August 1-3 A SYMPOSIUM IN HONOR OF ARNOST KLEINZELLER, M.D., Ph.D., D.Sc., Professor Emeritus, University of Pennsylvania; Senior Research Scientist, MDIBL

"Cellular and Molecular Membrane Transport" - Sponsored by the Mount Desert Island Biological Laboratory and The Rosenstiel School of Marine and Atmospheric Science, University of Miami - Organized by J.A. Zadunaisky

1996 PUBLICATIONS

- Ballatori, N. and J.L. Boyer. Disruption of cell volume regulation by mercuric chloride is mediated by an increase in sodium permeability and inhibition of an osmolyte channel in skate hepatocytes. *Toxicol. Appl. Pharmacol.* 140:404-410, 1996.
- Baum, M.A., F. Flores, M. Elger, H. Hentschel, E.M. Brown, S.C. Hebert and H.W. Harris. An apical extracellular calcium/polyvalent cation sensing receptor (CaR) present in the osmoregulatory organs of saltwater (SW) and freshwater (FW) fish likely plays a role in salinity adaptation. *JASN* 7:1276, 1996.
- Biemesderfer, D., J. Payne, C. Lytle and B. Forbush, III. Immunocytochemical studies of the Na-K-Cl cotransporter of shark kidney. *Am. J. Physiol. (Renal and Electrolyte Physiol.)* 270:F927-F936, 1996.
- Callard, G.V., M. Betka and D. Miller. Unconventional models for toxicology research. In: *Comprehensive Toxicology*, Vol. 10, *Reproductive and Endocrine Toxicology*, Section I. *Male Reproductive Toxicology*, K. Boekelheide, R. Chapin, P. Hoyer, eds., Elsevier, New York (in press).
- Callard, G.V. Endocrinology of Leydig cells in nonmammalian vertebrates. In: A.H. Payne, M.P. Hardy and L.D. Russell, eds., *The Leydig Cell*, Cache River Press. Clearwater, FL. pp. 307-332. 1996.
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- Claiborne, J.B., E. Perry, S. Bellows and J. Campbell. The mechanisms of acid excretion across the gills of a marine fish. *J. Exp. Zool.* to be published, 1997.
- Conrad, A.H., T. Jaffredo and G.W. Conrad. Differential localization of cytoplasmic myosin II isoforms A and B in avian interphase and dividing embryonic and immortalized cardiomyocytes and other cell types in vitro. *Cell Motility and the Cytoskeleton*, 31:93-112, 1995.
- Davis-Amaral, E.M., M.W. Musch and L. Goldstein. Chloride and taurine effluxes occur by different pathways in skate erythrocytes. *Am. Phys. Soc.* R1544-R1549, 1996.
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