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## SCIENTIFIC PERSONNEL

### Principal Investigators

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I. Gimenez  
M. Pedersen

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M. Zikusoka

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S. Kültz

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D. Hartline  
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Johns Hopkins University School of Medicine



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M. Emerson

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P. Peppin  
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C. Dehm

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T. Chiapparelli  
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University of Georgia

John Wise, Ph.D.  
Assistant Professor  
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Yale University School of Medicine

P. Antonucci  
A. Bidulescu  
B. Bryant  
S. Holt  
K. Schumm  
E. Tang

## 2001 SUMMER FELLOWSHIP RECIPIENTS

### Hancock County Scholars Recipients:

Catherine Bennet, Choate Rosemary Hall  
Michael Clay, Sumner Memorial High School  
William Gochberg, Cretin Durham Hall  
Shawna King, MDI High School  
Jana Richards, Bucksport High School  
Kyle Schumm, Charter Oak High School  
Abigail Sheldon, C.E. Jordan High School  
Katherine Smith, University Laboratory High School

### Mentors:

Ned Ballatori, Ph.D.  
James L. Boyer, M.D.  
Jonathan Dranoff, M.D.  
Peter M. Cala, Ph.D.  
David W. Towle, Ph.D.  
Franklin H. Epstein, M.D.  
John Wise, Ph.D.  
Hermann Haller, M.D.  
Raymond Henry, Ph.D.

### Community Environmental Toxicology Laboratory:

Melissa Brown, MDI High School  
Meghan Burgess, MDI High School  
Joshua Collins, MDI High School  
  
Amber Howard, MDI High School  
Jennifer Reynolds, MDI High School

Janet Redman  
Janet Redman  
Elizabeth Crockett, Ph.D.  
R. Patrick Hassett, Ph.D.  
Janet Redman  
Janet Redman

### Durham High School Recipients:

Jesse McCoy, Hillside High School  
Samuel Sligh, Hillside High School  
Ishani Sud, Hillside High School  
Velvet Williams, Hillside High School

Ned Ballatori, Ph.D.  
James L. Boyer, M.D.  
J.B. Claiborne, Ph.D.  
Allison Morrison-Shetlar, Ph.D.  
Robert L. Preston, Ph.D.  
Robert L. Preston, Ph.D.

### Secondary Education through Health:

Alexandra Budhai, Brooklyn Technical High School

Robert L. Preston, Ph.D.

### Trinity High School Recipients:

William Motley, Trinity High School  
Denise Philpotts, Trinity High School

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

### Maine Research Internships for Teachers and Students (MERITS):

Cynthia Dehm, Central High School  
Chris Sighinolfi, Brewer High School

Alice Villalobos, Ph.D.  
Franklin H. Epstein, M.D.

### **Undergraduate Student Fellowships (Supported by NSF):**

Peter Antonucci, Southern CT State University  
Amanda Bryant, Illinois State University  
Bronwyn Bryant, Brown University  
Justin Catches, University of Florida  
Sarah Decker, Middlebury College  
Maude Emerson, Harvard University

Matthew Kozlowski, University of Florida  
Emily Milner, Presbyterian College  
Laurel Parker, Bodowin College  
Lydia Petell, Bates College  
Jennifer Roeser, University of Florida  
Kristy Townsend, University of Maine  
Patricia Waldron, Grinnell College  
Jill Weakley, Georgia Southern University  
Raquel Williams, Georgia Southern University  
Katrina Zarella, College of the Atlantic

John Wise, Ph.D.  
Robert L. Preston, Ph.D.  
John Wise, Ph.D.  
J.B. Claiborne, Ph.D.  
John N. Forrest, Jr., M.D.  
Garry Cutting, M.D.  
Bruce A. Stanton, Ph.D.  
David A. Evans, Ph.D.  
Karl Karnaky, Ph.D.  
Susan K. Fellner, Ph.D.  
Jonathan Dranoff, M.D.  
David A. Evans, Ph.D.  
David A. Towle, Ph.D.  
Hermann Haller, M.D.  
J.B. Claiborne, Ph.D.  
J.B. Claiborne, Ph.D.  
Jonathan Dranoff, M.D.

### **Stanley Bradley/Stam and Judy Fellowship:**

Rachel Anderson, Brown University

Ned Ballatori, Ph.D.  
James L. Boyer, M.D.

## 2001 SEMINARS

*Seminars preceded by an asterisk were presented by investigators supported by the NIEHS Center for Membrane Toxicity Studies at the Mount Desert Island Biological Laboratory*

### Morning Transport Seminars

- \*July 2      "Mechanisms and control of sulfate regulation in flounder" J. Larry Renfro, Ph.D., Professor of Physiology, Department of Physiology and Neurobiology, University of Connecticut
  
- July 9      "Volume regulatory ion flux pathways: Conflicting demands and coordinated control" Peter M. Cala, Ph.D., Professor and Chair, Department of Human Physiology, School of Medicine, University of California, Davis
  
- July 16      "How do cells regulate their osmolyte channels?" Leon Goldstein, Ph.D., Professor and Vice Chair, Department of Physiology, Brown University
  
- \*July 23      "Motoring to the membrane" Richard M. Hays, M.D., Professor of Medicine, Albert Einstein College of Medicine
  
- July 30      "Paracrines and gill transport" David H. Evans, Ph.D., Professor and Chair, Department of Zoology, University of Florida
  
- August 6      "Ion channel remodeling in cardiac hypertrophy and failure" Martin Morad, Ph.D., Professor of Pharmacology and Medicine, Georgetown University Medical Center
  
- \*August 13      "CFTR: What's it really like inside the pore?" David C. Dawson, Ph.D., Professor and Chair, Department of Physiology and Pharmacology, Oregon Health Sciences University
  
- \*August 20      "PDZ proteins and CFTR trafficking" Bruce A. Stanton, Ph.D., Professor, Department of Physiology, Dartmouth Medical School
  
- \*August 27      "Of strings and SNAREs: Two tails of CFTR trafficking" Raymond A. Frizzell, Ph.D., Professor and Chair, Department of Cell Biology and Physiology, School of Medicine, University of Pittsburgh

### Friday Noon Brown Bag Seminars

- July 6      Introductory 5 minute talks by MDIBL Principal Investigators to summarize summer research projects

- July 13      Remainder of introductory 5 minute talks by MDIBL Principal Investigators
- July 27      “Ten years of CF in ten minutes” John Mickle, Ph.D., Instructor, Institute of Genetic Medicine, Johns Hopkins University School of Medicine
- \*“P2Y receptors and signaling” Jon Dranoff, M.D., Assistant Professor of Medicine, Yale University School of Medicine
- “Sodium-hydrogen exchangers in gill” Susan Edwards, Ph.D., Visiting Assistant Professor, Biology Department, Georgia Southern University

### Wednesday Evening Public Seminars

- July 3      “Molecular physiology of membrane transport in crab gills” David W. Towle, Ph.D., MDIBL Senior Scientist and Director of the Marine DNA Sequencing Center
- \*July 11      THE TWENTIETH WILLIAM B. KINTER MEMORIAL LECTURE - “Steroid and xenobiotic receptors – how a cell senses its chemical environment” Ronald M. Evans, Ph.D., Professor, Gene Expression Laboratory, The Salk Institute for Biological Studies, LaJolla, California
- July 18      THE SEVENTH HELEN F. CSERR MEMORIAL LECTURE – Beyond the Pale: Membrane Biogenesis and Stability in Anemic and Pigment-Deficient Mice” Luanne L. Peters, Ph.D., Staff Scientist/Program Director, Center for Mouse Models of Heart, Lung, Blood and Sleep Disorders, The Jackson Laboratory
- \*July 25      THE ELEVENTH THOMAS H. MAREN MEMORIAL SEMINAR - “The Scent of an Ion: Calcium Sensing from Fish to Man” Steven C. Hebert, M.D., Professor and Chairman, Department of Cellular and Molecular Physiology, Yale University School of Medicine.
- \*July 30      THE SIXTH LEONARD SILK MEMORIAL LECTURE – “A Question of Intent” David A. Kessler, M.D., Dean; Professor of Pediatrics, Medicine, and Public Health, Yale University School of Medicine
- \*August 8      THE NINETH JOHN W. BOYLAN MEMORIAL LECTURE – “The Dependency of Human Health on the Health of Other Species” Eric Chivian, M.D., Director, Center for Health & the Global Environment; Assistant Clinical Professor of Psychiatry, Harvard Medical School. *In 1980, Dr. Chivian co-founded International Physicians for the Prevention of Nuclear War, which was the recipient of the 1985 Nobel Peace Prize*

- August 15 "Molecular Basis for the Selectivity of Paracellular Transport" James Anderson, Ph.D., M.D., Chief, Section of Digestive Diseases; Professor, Internal Medicine and Cell Biology, Yale University School of Medicine
- \*August 22 "Structural basis for alpha-neurotoxin recognition of nicotinic acetylcholine receptors" Edward Hawrot, Ph.D., Upjohn Professor in Pharmacology; Professor of Medical Science; Chair, Department of Molecular Pharmacology, Physiology & Biotechnology, Brown University

### **Special Seminars and Presentations**

- \*July 20, 1:00 p.m. "Regulation of Drug Export Pump function in Renal Proximal Tubule" David S. Miller, Ph.D., Research Physiologist, Laboratory of Pharmacology and Chemistry, NIH, National Institute of Environmental Health Sciences
- July 20, 8:00 p.m. "Ancient Perspectives on Future Climate" Daniel Schrag, Ph.D., Professor of Earth and Planetary Sciences, Harvard University
- August 2, 7:30 p.m., "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
- August 7, 1:00 p.m. "A Cell-Mediated Gene Transfer Approach to the Production of Transgenic and Knockout Lines of Fish" Paul Collodi, Ph.D., Associate Professor, Department of Animal Sciences, Purdue University
- August 28, 4:00 p.m. "A conversation with Harold Varmus, M.D." Informal question and answer session with Harold Varmus, M.D., the President of Memorial Sloan Kettering; former Director of the National Institutes of Health; recipient of the 1989 Nobel Prize in Medicine.

### **All Campus Ethics Seminar Series "Responsible Conduct in Research"**

- July 10 Session #1 - hosted by J.B. Claiborne, Ph.D., Professor of Biology, Georgia Southern University, and David H. Evans, Ph.D., Professor and Chair, Department of Zoology, University of Florida
- July 17 Session #2 - hosted by Susan Edwards, Ph.D., Visiting Assistant Professor, Georgia Southern University, and John Mickle, Ph.D., Instructor, Institute of Genetic medicine, Johns Hopkins University School of Medicine

July 24

Session #3 – hosted by Jonathan Dranoff, M.D., Assistant Professor of Medicine, Yale University School of Medicine, and Alice Villalobos, Ph.D., Assistant Professor, Department of Environmental Medicine, University of Rochester School of Medicine

## 2001 WORKSHOPS AND CONFERENCES

### Workshop

\*May 4-6

### **Generation of New Marine Cell Lines and Transgenic Species**

#### *Generation of New Marine Cell Lines*

Co-Chairs: J. Larry Renfro, Ph.D., University of Connecticut, MDIBL; Dr. John Wise, Ph.D., Yale University School of Medicine, MDIBL

"Fish cell culture: advantages and limitations", David Barnes, Ph.D., American Type Cell Culture

"Development and use of fish cell lines", Neils Bols, Ph.D., University of Waterloo

"Endothelial cells isolated from teleosts", Rita Garrick, Ph.D., Fordham University

"Two and three dimensional marine mammal cell culture models for potential assessment of marine environmental toxicology", Thomas Goodwin, Ph.D., NASA

"Telomerase expression as a tool to create continuously proliferating normal cell lines", Shawn Holt, Ph.D., Medical College of Virginia

Plenary Speaker — Allan Teasley, Ph.D., National Institute of Environmental Health Sciences

#### *Generation of New Transgenic Marine Species*

Co-Chairs: Thomas Chen, Ph.D., University of Connecticut; Richard Winn, Ph.D., University of Georgia

"Pollution inducible transgenes in zebrafish: a work in progress", Michael Carvan, Ph.D., University of Wisconsin — Milwaukee

"Recent advances in production of transgenic aquatic organisms and its biotechnological applications", Thomas Chen, Ph.D., University of Connecticut

"Development of genetic tools for genomic analyses and transgenesis in fish", Perry Hackett, Ph.D., University of Minnesota

"Atlantic coast marine models for transgenic research in fish", Robin Wallace, Ph.D., University of Florida

"Development of transgenic fish models for biomedical and environmental research: myths, realities, and opportunities", Richard Winn, Ph.D., University of Georgia



### *Breakout Sessions*

"Strategies for New Marine Cell Culture Lines", Co-Chairs: J. Larry Renfro, Ph.D., University of Connecticut, MDIBL; John Wise, Ph.D., Yale University School of Medicine, MDIBL

"Strategies for New Marine Transgenic Species", Co-Chairs: Thomas Chen, Ph.D., University of Connecticut; Richard Winn, Ph.D., University of Georgia

"Strategies for Improving Resources/Collaboration/Funding", Co-Chairs: John Stegemen, Ph.D., Woods Hole Oceanographic Institute; John N. Forrest, Jr., M.D., Yale University School of Medicine, MDIBL

### **Symposia**

\* July 11-12

**EIGHTH ANNUAL MOUNT DESERT ISLAND BIOLOGICAL LABORATORY (MDIBL) ENVIRONMENTAL HEALTH SCIENCES SYMPOSIUM.** Sponsored by the NIEHS Center for Membrane Toxicity Studies at the MDIBL, the Kinter Memorial Lectureship Fund, and the MDIBL

#### **Intracellular Sensors of Environmental Chemicals**

Keynote Speaker — "Steroid and Xenobiotic Receptors – how a cell senses its chemical environment" Ronald M. Evans, M.D., The Salk Institute

"Dioxin, clocks and oxygen: Prototype signals of a nuclear sensor superfamily", Christopher A. Bradfield, Ph.D., McArdle Laboratory, Univ. of Wisconsin, Madison

"Evolution and function of the aryl hydrocarbon (AhR) receptors", Mark Hahn, Ph.D., Woods Hole Oceanographic Institution

"Use of genetically altered mice to define the function of xenobiotic receptors", Christopher J. Sinal, Ph.D., National Cancer Institute

"PXR, CAR, and PPAR: Broad specificity nuclear receptors", Steven A. Kliewer, Ph.D., Glaxo Wellcome

"Mechanisms and pathophysiology of the PPARs", Janardan K. Reddy, M.D., Northwestern University

"Membrane transporters as xenobiotic sensors: BSEP and its regulation by FXR", James L. Boyer, M.D., Yale University School of Medicine and MDIBL

"The MRP and MDR efflux transporters", John Riordan, Ph.D., The Mayo Clinic, Scottsdale and MDIBL

"The evolution of estrogen receptors", Peter Thomas, Ph.D., University of Texas at Austin

"Xenoestrogens and mammalian estrogen receptors", Tim Zacharewski, Ph.D., Michigan State University

"Estrogen receptors in fish", Gloria Callard, Ph.D., Boston University and MDIBL

\* July 24     **Biology of Killifish: *Fundulus heteroclitus***  
Organizer – John Mickle, Ph.D., Johns Hopkins University School of Medicine

Opening Remarks: “MDIBL and *Fundulus heteroclitus*” John N. Forrest, Jr.,  
M.D., Yale University School of Medicine; Director, MDIBL

Substrate secretion

“Opercular epithelium/chloride secretion” Karl J. Karnaky, Ph.D. Medical  
University of South Carolina

Cytoplasmic signaling pathways

“Phosphoprotein regulation” Dietmar Kültz, Ph.D., The Whitney Laboratory,  
University of Florida

Membrane proteins

“Xenobiotic transporters MRP2, Pgp” David S. Miller, Ph.D., NIH/NIEHS

Ion channels

NaK2Cl – Biff Forbush, Ph.D., Yale University School of Medicine  
NHE – J.B. Claiborne, Ph.D., Georgia Southern University  
CFTR – John Mickle, Ph.D., Johns Hopkins University School of  
Medicine

Extracellular signaling pathways

“Nucleotide receptors” Jonathan A. Dranoff, M.D., Yale University School of  
Medicine

“Paracrine control in gill” David H. Evans, Ph.D., University of Florida

Behavioral osmoregulation George W. Kidder III, Ph.D., MDIBL

Closing Remarks: Karl J. Karnaky, Ph.D.

## 2001 COURSES

May 27-June 9     Illinois State University, Physiology of Marine and Maritime Animals  
Course Directors - George Kidder, Ph.D. and Robert Preston, Ph.D.

June 2-9     University of Pittsburgh School of Medicine, Intensive Pedagogical  
Experience in Laboratory Research  
Course Directors - Raymond Frizzell, Ph.D. and Mark Zeidel, M.D.

- June 11-16      Yale University School of Medicine, Intensive Pedagogical Experience in Laboratory Research  
Course Directors - John N. Forrest, Jr., M.D. and David Kessler, J.D., M.D.
- \*June 16-22      Third Annual Intensive Course in Quantitative Fluorescent Microscopy  
Course Director - Simon C. Watkins, Ph.D., University of Pittsburgh School of Medicine
- \*June 20      The Polymerase Chain Reaction Protocol—mini course for high school biology students  
Faculty - David Towle, Ph.D., Jennifer Litteral, Michael McKernan, Christine Smith
- June 25-26      Marine Physiology and Molecular Biology for high school summer fellows  
Faculty - J.B. Claiborne, Ph.D. and Allison Morrison-Shetlar, Ph.D.
- September 5-10      Biomedical Exchange Program Forum and International Academy of Life Sciences Meeting  
Course Director - Hilmar Stolte, M.D.

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