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Pittsburgh, Pennsylvania

SCIENTIFIC PERSONNEL 1998

Principal Investigators

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University of Rochester School of Medicine

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Physiologie et Pathologie Experimentale
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B. Huber
B. Lenth
J. Rebbeor
M. Tran

D. Blakaj

B. Barnes
D. Blakaj

T. Cohen
B. Huber
B. Lenth
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L. McClusky
L. Zhong

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Massachusetts General Hospital

R. Jackson

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Beth Israel Deaconess Medical Center

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S. Edwards
A. Morrison-Shetlar

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Kansas State University

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S. Ohene

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K. Vekasi

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A. Schroeder
J. Sonsino

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D. Lynn

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Division of Nephrology
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G. Weber

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Technol., University of Heidelberg

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H. Gutmann
D. Seward

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Physiology & Biotechnology
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Universitat Freiburg, Freiburg, Germany

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D. Heitzmann
M. Hug
M. Odina

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O. Schaefer
M. Senison

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M. McCarty

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L. Dobak
R. Nazarian

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August Krogh Institute
University of Copenhagen, Denmark

E. Colon
E. Hoffmann
A. Lankowski

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Medical University of South Carolina

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J.D. Stidham

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L. Ferry-Graham
M. Koob-Emunds
B. Sinwell
A. Summers

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And Therapeutics
University of Florida College of Medicine

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Junior Researcher
Department of Pharmacology
University of Nijmegen, The Netherlands

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Associate Professor of OB/GYN
And Physiology and Pharmacology
OB Research Lab
Oregon Health Sciences University

David S. Miller, Ph.D.
Research Physiologist
NIH/NIEHS

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Volen Institute
Brandeis University

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Yale University School of Medicine

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Professor of Pharmacology and Medicine
Department of Pharmacology
Georgetown University Medical Center

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T. Leach
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C. Zeien

I. Favre
B. Ruck

J. Dorfman

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Mayo Clinic Scottsdale

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Temple University

N. Derby

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University of Washington

C. Zeien

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McGaw Professor of Biology
Lake Forrest College

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RSMAS
University of Miami

Ian G. Welsford, Ph.D.
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Keene State College

Zijian Xie, Ph.D.
Assistant Professor
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Medical College of Ohio

Jose A. Zadunaisky, M.D., Ph.D.
Professor
Division of Marine Biology
Rosensteil School of Atmospheric Science
University of Miami

V. Jeza
L. Morganthau
A. Mountcastle

Z. Nabih

E. Colon
N. Delamere

1998 SUMMER FELLOWSHIP RECIPIENTS

Research Experience for Undergraduates:

Pamela Apolaya, University of New York Medical School
Alison Burtch, University of Michigan
Yolanda Carrasquillo, Maine Maritime Academy
Nina Derby, Smith College
Tatiana Gott, Cornell University
Anne Harrie, Unity College
Benjamin Lenth, Yale University
Laura Morgenthau, Keene State College
Alison O'Neill, Yale University
Cindy Scott, Middlebury College
David Seward, Williams College
Jeff Sirota, Yale University
Minh Tran, University of Texas

American Heart Association Fellowship:

Dukagjin Blakaj, Wesleyan University
Julia Dorfman, Georgetown University
Peter Piermarini, University of Florida
Martha Ratner, Wheaton College
Drew Sommerville, Illinois State University

SETH:

Tiffany Cohen, Brooklyn Technical HS
Moromoke Odina, Queens Gateway to Health Sciences HS

Selvin Ohene, Martin Luther King HS

Johanna Pino, Environmental Studies HS

NSF Hancock County High School Recipients:

Alecia Ball, MDI HS
Sara Decker, Ellsworth HS
Ben Huber, Sumner HS
Alex Lankowski, Cape Elizabeth HS

Tanner Leach, Bucksport HS

Matt Senison, Bronx HS of Science
Kristin Vekasi, MDI HS

Mentors:

Gloria Callard, Ph.D.
David Dawson, Ph.D.
John Henson, Ph.D.
Frank Epstein, Ph.D.
Robert Preston, Ph.D.
David Evans, Ph.D.
James Boyer, M.D.
Ian Welsford, Ph.D.
Michael Nathanson, M.D. Ph.D.
John Forrest, M.D.
James Boyer, M.D.
John Forrest, M.D.
Ned Ballatori, Ph.D.

Mentors:

Nancy Berliner, M.D.
Martin Morad, Ph.D.
Karl Karnaky, Jr., Ph.D.
John Forrest, M.D.
Robert Preston, Ph.D.

Mentors:

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Robert Preston, Ph.D.
Rainer Greger, M.D.
David Dawson, Ph.D.
Kristine Erickson, OD, Ph.D.
Michael Nathanson, M.D. Ph.D.

Mentors:

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John Forrest, M.D.
James Boyer, M.D.
Gary Cutting, M.D.
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Bodil Schmidt-Nielsen Fund:

Lise Bankir, Ph.D., INSERM, Paris France

John R. Riordan, Ph.D., Mayo Clinic Scottsdale

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David R. Burgess, Ph.D., Boston College

Hermann Haller, M.D. Humboldt University, Berlin Germany

Rosalinde Masereeuw, Ph.D., University of Nijmegen, The Netherlands

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Gloria V. Callard, Ph.D., Boston University

Karl J. Karnaky, Jr., Ph.D., Medical University of South Carolina

James Maylie, Ph.D., Oregon Health Sciences University

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Zijian Xie, Ph.D., Medical College of Ohio

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Michael H. Nathanson, M.D., Ph.D., Yale University School of Medicine

J. Larry Renfro, Ph.D., University of Connecticut

Patrick J. Walsh, Ph.D., University of Miami

1 9 9 8 S E M I N A R S

Morning Transport

- July 6 "CFTR: The physical basis of anion selectivity" David C. Dawson, Ph.D.,
University of Michigan Medical School; Director, MDIBL
- July 13 "Receptor signaling in epithelial morphogenesis" Lloyd G. Cantley, M.D.,
Beth Israel Deaconess Medical Center
- July 20 "Apical chloride channels in shark rectal gland: A molecular who's who"
Joseph A. Mindell, M.D., Ph.D., Volen Institute, Brandeis University
- July 27 "Protein kinase C - in and out of the nucleus" Hermann Haller, M.D.,
Humboldt University, Berlin, Germany
- August 3 "The ABC's of bile secretion" James L. Boyer, M.D., Yale University
School of Medicine
- August 10 "Regulatory phosphorylation of the shark Na-K-Cl cotransporter"
Bliss Forbush, Ph.D., Yale University School of Medicine
- August 17 "An unusual epithelial chloride channel" Arthur Finn, M.D., University of
North Carolina-Chapel Hill
- August 24 "CFTR, a thorn among the roses" John R. Riordan, Ph.D., Mayo Graduate
School of Medicine, Mayo Clinic Scottsdale

Noon

- June 26 Introductory 5 minute talks by MDIBL Principal Investigators to
outline summer research projects
- July 3 No Brown Bag
- July 10 Remainder of introductory 5 minute talks by MDIBL Principal Investigators
- July 17 "Regional tension reduction and cell division mechanism formation"
Raymond Rappaport, Ph.D., Senior Research Scientist, MDIBL

"Small conductance calcium activated potassium channels: Function.
structure and cellular mechanism for Ca gating" James Maylie, Ph.D.,
Oregon Health Sciences University
- July 24 Centennial Symposium - no Brown Bag
- July 31 "Choline uptake across the ventricular membrane of choroid plexis of the
rat" Alice R. Villalobos, Ph.D., University of Connecticut
- August 7 "Science in the park and research and monitoring at Acadia National Park"
Dave Manski, Chief of Resource Management, Acadia National Park

"Molecular biology of osmoregulation in crabs" David W. Towle, Ph.D.,
Lake Forest College

- August 14 “Short and long time adaptation to salt and fresh water in *Fundulus heteroclitus*” Else Hoffmann, Ph.D., University of Copenhagen, Denmark
- “Effect of HgCl₂ on ion conductance in skate hepatocytes” Horacio F. Cantiello, D.V.M., Ph.D., Harvard Medical School; Massachusetts General Hospital

Evening

- July 1 “Insights into urea transport across membranes: a personal odyssey in comparative physiology from the Arizona desert to MDIBL” Bodil Schmidt-Nielsen, Ph.D., University Professor, University of Florida; Senior Research Scientist, MDIBL 1972-1986; Current member MDIBL Board of Trustees
- July 8 “Calcium waves in secretory epithelia: a tale of two tissues” Michael H. Nathanson, M.D., Ph.D., Yale University School of Medicine
- July 15 THE FOURTH HELEN F. CSERR MEMORIAL LECTURE - “Neuroestrogen” Gloria V. Callard, Ph.D., Boston University
- July 22 Centennial Celebration and dedication of The Maren Auditorium - 5:00 - 7:00 p.m. (No Wednesday Evening Seminar)
- July 29 THE EIGHTH ANNUAL THOMAS H. MAREN SEMINAR - “Role of the aquaporins as gas channels” Walter F. Boron, M.D., Ph.D., Yale University School of Medicine
- August 5 THE SEVENTH JOHN W. BOYLAN MEMORIAL LECTURE - “The evolution of the peace process in Northern Ireland and MDIBL’s contribution to the community and the country” Senator George J. Mitchell
- August 12 “Antisense strategies - the poor man’s approach to gene therapy” Hermann Haller, M.D., Humboldt University, Berlin, Germany

Special Seminars

- June 25 “Flying lizards and other strange beasts” Bettina Dudley, Ph.D. in Biology, resident of Town Hill, Maine, presented a talk and showed slides from her adventures in Malaysia
- July 16 “Mercury poisoning in the waters of MDI” Dr. Terry Haines, University of Maine and Dr. James L. Boyer of the MDI Bio Lab discussed the current levels of mercury in island waters and the effect this toxin has on the body
- August 6 “Marine Biology of the Great Barrier Reef” - James Stidham, Ph.D., Presbyterian College; MDIBL Investigator
- August 13 “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.

June 30 - ALL CAMPUS ETHICS SEMINAR SERIES- Plenary Lectures
July 28 and Discussions -Judith Swazey, Ph.D., Acadia Institute for
Medicine and Society. Compulsory for all fellowship recipients.

Program

June 30 "Why Research Ethics Matter"
July 9 "Responsibility and Credit"
14 "Academic-Industry Relationships"
21 "Laboratory Relationships"
28 "Openness and Secrecy in Science"

STUDENTS' "BASIC" LECTURE SERIES

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

July 7 "Osmoregulation at MDIBL" David H. Evans, Ph.D., University of
Florida
July 14 "Nitrogen excretion by fish" Gregg A. Kormanik, Ph.D., University of
North Carolina-Asheville
July 21 "Cellular defenses against toxic chemicals" Ned Ballatori, Ph.D.,
University of Rochester School of Medicine
July 28 "Structure and function of the cytoskeleton in two marine experimental
models" John H. Henson, Ph.D., Lauren Dobak, Ronniel Nazarian,
Dickinson College; Yolanda Carrasquillo, Maine Maritime Academy
August 4 "The ins and outs of drug transport in the kidney" David S. Miller, Ph.D.,
NIH/NIEHS

SYMPOSIUM AND POSTER SESSION:

MDIBL CENTENNIAL SYMPOSIUM

*Gifts from the Sea:
Contributions of MDIBL to basic science,
biotechnology and human health
July 24-25, 1998*

Program

Session I: *From Fish to Philosopher: Insights into fluid and Electrolyte Homeostasis*

"The Sea Within Us" Franklin H. Epstein, M.D., Harvard Medical School

"The Shark Rectal Gland: Molecular Mechanism of Ion Transport" John N.
Forrest, Jr., M.D., Yale University School of Medicine

"Shark/Human Chimeras: Insights into the Molecular Mechanism of Na-K-Cl
Cotransport" Biff Forbush, Ph.D., Yale University School of Medicine

“Cotransporters: Diuretic Targets in Fish and Man” Steven Hebert, M.D.,
Vanderbilt University Medical School

“Comparative Physiology of Carbonic Anhydrase” Thomas H. Maren, M.D.,
University of Florida Medical School

“Mechanisms of Ion Transport in the Gill” J.B. Claiborne, Ph.D., Georgia
Southern University

“Volume Regulation: Lessons from the Skate” Leon Goldstein, Ph.D., Brown
University

Keynote address: “The Kidney: Integrated Function - Lessons from Potassium
Transport” Gerhard Giebisch, M.D., Yale University School of Medicine

“Volume Regulation in Renal Medullary Cells: The Role of Organic Osmolytes”
Rolf K.H. Kinne, M.D., Ph.D., Max-Planck-Institute, Dortmund

“CFTR: Regulated Traffic in Shark and Man” Raymond A. Frizzell, Ph.D.,
University of Pittsburgh Medical School

“Ocular Ion Transport: Fish and Man” Jose Zadunaisky, M.D., Ph.D., University
of Miami

“Hepatic Transporters and Biliary Secretion” James L. Boyer, M.D., Yale
University School of Medicine

“Calcium Signaling in the Heart: An Evolutionary Bonanza” Martin Morad,
Ph.D., Georgetown University Medical School

Keynote Address: “CLC Chloride Channels on Land and Sea” Christopher Miller,
Ph.D., Brandeis University

Public Keynote Lecture: THE SEVENTEENTH WILLIAM B. KINTER
MEMORIAL LECTURER - “Environmental Genomics” Kenneth Olden, Ph.D.,
Director, NIEHS

Session II: *The Cradle of the Sea: Embryology and Reproduction to Toxicology*

“Mechanisms of Animal Cell Division” Raymond Rappaport, Ph.D., MDIBL

“Roles for Actin and Myosin Interactions outside of Cell Division” John H.
Henson, Ph.D., Dickinson College

Keynote Address: “Forces in Cell Division” Lansing Taylor, Ph.D., Carnegie-
Mellon University

“Ammonia and Nitrogen Processing by Dogfish Shark Embryos” Gregg A.
Kormanik, Ph.D., University of North Carolina-Asheville

“Xenobiotic Transport Mechanisms in Renal Proximal Tubule” David S. Miller,
Ph.D., NIEHS

“Transport of Toxicants by the Liver” Ned Ballatori, Ph.D., University of

Rochester School of Medicine

"Marine Toxins: Origins and Impact" Fran Van Dolah, Ph.D., U.S. National Marine Fisheries

"Insights from Two Saxitoxin Sites: The Voltage-Grated Sodium Channel and Saxiphilin" Edward G. Moczydlowski, Ph.D., Yale University School of Medicine

Keynote Address: "Mechanisms of Toxin Action: Molecular Insights in Neurodegenerative Disease" Daniel G. Baden, Ph.D., University of Miami

Session III: *The Abundance of the Sea: Resources for Planet Earth*

"Biomaterials From the Sea" Thomas J. Koob, Ph.D., Shriners Hospital for Children

"Antibiotics and Anticancer Drugs From the Sea" Michael Zasloff, M.D., Ph.D., Magainin Research Institute

"The Emergence of Biotechnology as a Research and Corporate Enterprise in the 1990s" H. William Harris, M.D., Ph.D., Harvard Medical School and AquaBio Products Sciences, Inc.

Poster Session
Friday July 24, 1998
4:00 p.m. - 6:00 p.m.

1. "Vasopressin increases GFR, induces kidney hypertrophy, and increases albumin excretion through its V2 antidiuretic actions on the kidney" Lise Bankir, Pascale Bardoux, Helene Martin, and Nadine Bouby, Inserm U. 367, 17 Rue du Fer a Moulin, 75005 Paris, France.
2. "Glycine stimulates teleost renal tubule organic anion (OA) secretion" J.L. Renfro, D.S. Miller, M.A. Dawson, S.G. Lechter, S. Fujikawa, B. Toomey, Mount Desert Island Biological Laboratory, Salisbury Cove, ME 04672. University of Connecticut, Storrs, CT 06269. NIH-NIEHS, Research Triangle Park, NC 27709.
3. "Choline uptake across the ventricular membrane of choroid plexus" Alice R. Villalobos and J. Larry Renfro, University of Connecticut, Storrs, CT 06269.
4. "Na-Pi cotransport sites in the kidney of winter flounder, *Pleuronectes americanus*" Marlies Elger, Andreas Werner, Beate Kohi, Rolf K.H. Kinne, Hartmut Hentschel, Institut für Anatomie und Zellbiologie, Universität Heidelberg, Im Neuenheimer, Heidelberg, Germany. Max-Planck-Institut für molekulare Physiologie, Rheinlanddamm 201-D-44139 Dortmund, Germany. Mount Desert Island Biological Laboratory, Salisbury Cove, Maine.
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