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C. Sides

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R. Behnke
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Univ. of Pittsburgh School of Medicine

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R. Warth, M.D.

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C. Zeien

S. Fujikawa
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S. Gersh

M. Boos
P. Saint-Cyr

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J. Alt
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Rosensteil School of Marine and Atmospheric Science
University of Miami

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J. Li, Ph.D.
Z. Nabih

E. Colon
J. Einhorn
K. Erickson, Ph.D.

1997 SUMMER FELLOWSHIP AWARDEES

Research Experience for Undergraduates:

Yvonne Chadwick, Mount Holyoke College
Curtis Chong, Harvard University
Nina Derby, Smith College
Shelly Fujikawa, Harvey Mudd College
Tatiana Gott, Cornell University
Yolanda Hawkins, Florida A&M College
Karen Huang, University of Michigan
Carlin Jones, Lake Erie College
Susan Letcher, Carleton College
Martha Ratner, Wheaton College
Joahd Toure, Harvard University
Erin Wilkes, Colby College

American Heart Association Fellowship:

Melissa McGuinn, Brown University
Magdalena Popesco, Ohio University
Christine Smith, Bowdoin College
Drew Summerville, Illinois State University

MERITS:

Sarah Kates-Chinoy, Bangor HS

SETH:

Seneca Cancel, HS for Environmental Studies (NYC)
Rory McCaw, Jamaica HS (NYC)

MSTF/NASA Recipient:

Laurie Roberts, Colby College

NSF Hancock County High School Recipients:

Rachel Cox, MDI HS
Jesse Einhorn, MDI HS
Sara Giles, Kingswood School
Samantha Hawkins, Deer Isle-Stonington HS
Davin O'Connell, MDI HS
Paul St-Cyr, Ellsworth HS

Mentors:

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Carol Beuchat, Ph.D.
Patricio Silva, M.D.
David Miller, Ph.D.
Robert Preston, Ph.D.
David Evans, Ph.D.
David C. Dawson, Ph.D.
Horacio Cantiello, DVM, Ph.D.
David S. Miller, Ph.D.
John N. Forrest, Jr., M.D.
James L. Boyer, M.D.
Elizabeth L. Crockett, Ph.D.

Mentors:

Leon Goldstein, Ph.D.
Elizabeth L. Crockett, Ph.D.
John N. Forrest, Jr., M.D.
Robert L. Preston, Ph.D.

Mentors:

Rui Wang, M.D., Ph.D.

Mentors:

Robert L. Preston, Ph.D.
Robert L. Preston, Ph.D.

Mentors:

Horacio Cantiello, DVM, Ph.D.

Mentors:

John N. Forrest, Jr., M.D.
Jose Zadunaisky, M.D.
Franklin H. Epstein, M.D.
Karl J. Karnaky, Ph.D.
James L. Boyer M.D.
Carolyn R. Newton Ph.D.

1997 SEMINARS

Morning Transport

- July 7 "CFTR: Designing an anion-selective channel" David C. Dawson, Ph.D., University of Michigan Medical School; Director, MDIBL
- July 14 "Gill acid-base transport: from fish to antiporter" J.B. Claiborne, Ph.D., Georgia Southern University
- July 21 "Heart and sole: Cardiac osmolyte channels in fish" Leon Goldstein, Ph.D., Brown University
- July 28 "CFTR: The ATP story" Horacio F. Cantiello, DVM, Ph.D., Harvard Medical School; Massachusetts General Hospital
- August 4 "No chloride secretion without K^+ channels" Rainer Greger, Prof. Dr. med., Universitat Freiburg, Germany
- August 11 "Apical-side regulation of epithelia: Status report of an emerging new field" Karl J. Karnaky, Ph.D., Medical University of South Carolina
- August 18 "Some unconventional ideas about renal physiology" Lise Bankir, Ph.D., Hopital Necker, Paris, France
- August 25 "No K^+ channels, No Na^+ absorption: The role of K (ATP) channels" Stanley G. Schultz, M.D., University of Texas Medical School at Houston

Noon

- July 11 12:00-12:30 Five MDIBL Principal Investigators presented a series of 5 minute talks to outline summer research plans
- "Cloning CLC Chloride Channels from the Shark" Joe Mindell, M.D., Ph.D., Brandeis University
- July 25 "Shark rectal gland: A multifunctional organ?" David S. Miller, Ph.D., NIH/NIEHS
- "Finally, a function for carbonic anhydrase in marine teleost kidney" J. Larry Renfro, Ph.D., University of Connecticut, and Thomas H. Maren, M.D., University of Florida College of Medicine
- August 1 "Behavioral osmoregulation" George W. Kidder III, Ph.D., Illinois State University
- August 8 "CFTR meanderings - you will come...you will come...you will come...etc." Raymond A. Frizzell, Ph.D., School of Medicine, University of Pittsburgh

- August 15 Experimental revelations about the functioning cell division mechanism” Raymond Rappaport, Ph.D., Mount Desert Island Biological Laboratory
- “Metabolic regulation of NaPi-1 gene expression” Zijian Xie, Ph.D., Medical College of Ohio
- August 22 “Structure-function studies on the Na-K-Cl cotransporter” Bliss Forbush III, Ph.D., Yale University School of Medicine
- “Regulation of amionic drug transport in renal proximal tubules” Rosalinde Masereeuw, Ph.D., University of Nijmegen, The Netherlands
- August 29 SPECIAL NOON SEMINAR - “Calcium sparks in vascular smooth muscle cells” Michael Gollasch, M.D., University of Vermont; Franz-Volhard-Klinik, University of Berlin

Evening

- July 2 AFTERNOON LECTURE-4:00 p.m. “Regulating epithelial ion transport from the APICAL side: novel new mechanisms for autocrine and paracrine signalling” Karl J. Karnaky, Jr., Ph.D., Medical University of South Carolina; MDIBL Senior Fellow of the Salsbury Cove Research Fund
- July 9 THE SEVENTH ANNUAL THOMAS H. MAREN SEMINAR - “The role of G-proteins in information processing” Martin Rodbell, Ph.D., National Institute Environmental Health Sciences
- July 23 THE THIRD HELEN F. CSERR MEMORIAL LECTURE - “Mechanisms of recovery of function after spinal cord injury” Marion Murray, Ph.D., Allegheny University of the Health Sciences
- July 30 “Ion channel mutations in mouse neurological mutants” Miriam H. Meisler, Ph.D., University of Michigan
- August 6 THE SIXTH JOHN W. BOYLAN MEMORIAL LECTURE - “Intracellular signalling in cell volume regulation” Else K. Hoffmann, Ph.D., August Krogh Institute, University of Copenhagen, Denmark
- August 13 “Diuretics and renal NaCl transport” Rainer Greger, Prof. Dr. med., Albert-Ludwigs-Universitat Freiburg, Freiburg, Germany
- August 20 “Hummingbirds, diabetes, and the evolution of nitrogen excretion in vertebrates” Carol A. Beuchat, Ph.D., Associate Professor, Department of Biology, San Diego State University

Special Seminars

- June 25 “Arctic Flora, Fauna, and Eskimos” Paul Denoncourt, M.D., researcher and local physician, lectured on his observations of plants, animals, and people from his travels to Barrow, Alaska, the northernmost point in Alaska and the U.S.

- July 31 "Coral Reefs" - To celebrate 1997, the International Year of the Coral Reef, James Stidham, Ph.D., Presbyterian College, presented a program on the ecological importance of the reefs, and illustrated, through slides, their beauty as well as the marine organisms dependent on them for survival.
- August 7 "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 24 to August 5 - ALL CAMPUS ETHICS SEMINAR SERIES- Plenary Lectures and Discussions -Judith Swazey, Ph.D., Acadia Institute for Medicine and Society. Compulsory for all fellowship recipients.
- Program:
- June 24 Introduction; Discussion: "Doing science: what are your scientific values and ethical standards?", Judith P. Swazey, Ph.D.
- July 2 "Openness and secrecy in science: what is intellectual property?" Stephanie J. Bird, Ph.D., Director, Educational Programs in the Responsible Conduct of Research, MIT
- July 8 "Credit and responsibility in research" - MDIBL Panel Discussion
- July 16 Discussion by REU Students: "Case study analyses." Leaders, Barbara Kent, Ph.D., Administrative Director, MDIBL; Judith Swazey, Ph.D.
- July 22 "Felonies and misdemeanors - what is research misconduct?" Judith Swazey, Ph.D.
- July 29 "Hello, Dolly: Ethical, legal, and social policy issues in genetics research" - ALL-LAB ETHICS AFTERNOON -
- "Commercializing basic and applied genetics research" David Einhorn, Esq., General Counsel, The Jackson Laboratory
- "Uses of genetic information: screening, counseling, and data banks" Judith Swazey, Ph.D.
- "Should humans be cloned?: ethical and social policy issues." Judith Swazey, Ph.D.
- August 5 "Laboratory relationships" - MDIBL Panel Discussion

STUDENTS' "BASIC" LECTURE SERIES

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

- July 8 "Fish osmoregulation and the MDIBL" David H. Evans, Ph.D., University of Florida
- July 15 "Cytoskeletal structure and function in polarized cells" John H. Henson, Ph.D. Dickinson College

- July 22 "Cystic fibrosis; An ion channel disease" David C. Dawson, Ph.D.,
University of Michigan Medical School; Director, MDIBL
- July 29 "The ins and outs of renal drug transport" David S. Miller, Ph.D.,
NIH/NIEHS
- August 5 "Fish gills; the acid truth" J.B. Claiborne, Ph.D., Georgia Southern
University

SYMPOSIA

- June 27 A SYMPOSIUM IN HONOR OF THOMAS H. MAREN, M.D.,
Emeritus Professor of Pharmacology, University of Florida College of
Medicine; Senior Research Scientist, MDI Biological Laboratory
*Aqueous Humor Formation and The Development of
New Carbonic Anhydrase Inhibitors*
hosted by the Mount Desert Island Biological Laboratory, sponsored by
Merck & Company, organized by Dr. Henry F. Edelhauser

Program:

- "Welcome." David C. Dawson, Ph.D., Director of the MDIBL; University of
Michigan School of Medicine
- "Historical Development of the Carbonic Anhydrase Inhibitors: Their Use in the
Eye." Thomas H. Maren, M.D., University of Florida.
- "Effects of Some Novel Compounds on Fluorophotometrically Measured Aqueous
Flow in Monkeys." Paul L. Kaufman, M.D., University of Wisconsin.
- "New Insights in the Physiology of Aqueous Humor Dynamics" Kristine A.
Erickson, Ph.D., Boston University.
- "Homologous Desensitization of the Beta Adrenergic Receptor and Circadian
Rhythm of Aqueous Flow." Marvin L. Sears, M.D., Yale University.
- "Bicarbonate and Cyclic AMP." Thomas W. Mittag, Ph.D., Mount Sinai School of
Medicine.
- "Tom Maren - A View From the Trabecular Meshwork." David L. Epstein, M.D.,
Duke University.
- "An Active Role for Trabecular Meshwork Cells in the Control of IOP." Jose A.
Zadunaisky, M.D., Ph.D., University of Miami.
- "Topical Trifluoromethozolamide and Beyond Dr. Maren's Quest." Theodore
Krupin, M.D., Northwestern University.
- "Recollections of Maren's First Summer Student at MDIBL." Albert R. Frederick,
M.D., Ophthalmic Consultants of Boston.
- "Dorzolamide - Its Pharmacological Properties." Michael F. Sugrue, Ph.D., Merck
& Company.

"Merck's Interaction with Tom Maren: The Development of Topical CAI's." Robert L. Smith, Ph.D., Merck & Company (Retired).

"Corneal and Scleral Permeability in the Development of Topical CAI's." Henry F. Edelhauser, Ph.D., Emory University.

"Corneal vs. Scleral Penetration of Methazolamide: Effect of Ionization State." Curtis W. Conroy, Ph.D., University of Florida.

"Corneal Safety of Dorzolamide, Timolol and Betaxolol After One Year of Therapy." Jonathan H. Lass, M.D., Case Western Reserve University.

"Aqueous Humor Flow Changes Following Topical Carbonic Anhydrase Inhibition in Rabbits." Amir Bar-Ilan, Ph.D., Pharmos Corporation, Israel.

"Acetazolamide Induced Changes in Aqueous Composition - Clues to the Inhibitory Effects of CAI's on Ion Transport." Nicholas A. Delamere, Ph.D., University of Louisville.

"The Effect of Topical vs. Systemic CAI's in Rabbits." Maher M. Fanous, M.D., University of Pittsburgh.

"Clinical Trials and Patient Experience with Topical Carbonic Anhydrase Inhibitors." Beth R. Friedland, M.D., University of North Carolina.

"The Safety of Topical CAI's: An Important Addition to Lower IOP." Thom J. Zimmerman, M.D., Ph.D., University of Louisville.

July 16-17 **Second Annual Two-day Toxicology/Marine
Biotechnology Symposium**

Wednesday, July 16 - presented by the Center for Innovation in Biomedical Technology (CIBT) -

"Commercial Applications of Marine Biotechnology"

Thursday, July 17 - presented by the MDIBL & the NIEHS Center for Membrane Toxicity Studies at MDIBL -

"Health Effects of Metals in Marine and Freshwater Environments"

"Welcome," David C. Dawson, Ph.D., Director of the MDIBL, Professor, Univ. of Michigan School of Medicine, and James L. Boyer, M.D., Director of the MDIBL Center for Membrane Toxicity Studies; Professor, Yale University School of Medicine

"Introduction: History of global metal pollution" Ned Ballatori, Ph.D., Univ. of Rochester School of Medicine and MDIBL

"Chemical and biological interactions affecting heavy metal fate and effects in New Bedford Harbor, MA" Timothy Ford, Ph.D., Harvard School of Public Health

"Metal detoxification mechanisms in phytoplankton: implications for bioaccumulation" Beth A. Ahner, Ph.D., Cornell University

"Food web structure and heavy metals in fish of northeastern U.S. lakes" Celia Y. Chen, Ph.D. and Carol L. Folt, Ph.D., Dartmouth College

"Metal uptake, distribution and excretion in mammals" Ernest C. Foulkes, D.Phil., University of Cincinnati

"Metallothionein in cytotoxicity of metals and apoptosis" M. George Cherian, Ph.D., University of Western Ontario

"Metals as endocrine disrupters" David Barnes, Ph.D., University of Arkansas and MDIBL

"Metal-induced impairment of cell volume regulation" Ned Ballatori, Ph.D., University of Rochester School of Medicine and MDIBL

"Molecular basis for effects of carcinogenic heavy metals on inducible gene expression" Joshua W. Hamilton, Ph.D., Dartmouth Medical School

"Metal inhibition of signal transduction pathways in the shark rectal gland" John N. Forrest, Jr., M.D., Yale University School of Medicine and MDIBL

"Mercury inhibition of amino acid transport" Robert L. Preston, Ph.D., Illinois State University and MDIBL

"Inhibition of plasma membrane cotransporters by heavy metals" Rolf Kinne, M.D., Ph.D. and Evamaria Kinne-Saffran, M.D., Ph.D., Max-Planck-Institut für molekulare Physiologie and MDIBL

THE SIXTEENTH WILLIAM B. KINTER MEMORIAL LECTURE

"Methylmercury toxicology" Thomas W. Clarkson, Ph.D., Professor and Chair of the Department of Environmental Medicine, and Director of the NIEHS Toxicology Center at the University of Rochester School of Medicine

1997 PUBLICATIONS

- Ballatori, N. and J.L. Boyer. ATP regulation of a swelling-activated osmolyte channel in skate hepatocytes. *J. Exp. Zool.* 279:471-475, 1997.
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AUTHOR INDEX

- | | | | |
|---------------------------|---|-------------------------------|------------------------|
| Albanese, Mark..... | 123 | Goldstein, Leon..... | 84 |
| Aller, Stephen..... | 20, 23, 32, 55, 57, 60 | Gott, Tatianna..... | 83 |
| Alt, Jen..... | 103 | Greger, Rainer..... | 30, 47, 49, 51, 52, 53 |
| Ballatori, Nazzareno..... | iv, 9, 85, 87 | Gunderson, Mark..... | 105, 106, 107 |
| Barnes, David..... | 40, 85, 112 | Harris, William..... | 123 |
| Barth, Petra..... | 30, 51 | Hawkins, Samantha..... | 91 |
| Beauchat, Carol..... | 77 | Hawkins, Yolanda..... | 106 |
| Behnke, Rachel..... | 45 | Henson, John..... | 6, 85, 91 |
| Betka, Marlies..... | 111 | Hoffmann, Else..... | 67, 70, 74 |
| Billings, Carol..... | 99, 101 | Hoffmann, Erik..... | 67, 70, 74 |
| Blackston, Christie..... | 33 | Holtzer, Caleb..... | 103 |
| Bleich, Markus..... | 47, 49, 51, 52, 53 | Homerova, Dagmar..... | 43 |
| Bridges, Robert..... | 26 | Huang, Karen..... | 18 |
| Brill, Susan..... | 42 | Isenring, Paul..... | 42 |
| Burrage, Peter..... | 23, 55 | Jackson, G. Robert..... | 23, 87 |
| Boos, Markus..... | 108 | Jones, Carlin..... | 23, 63 |
| Boyer, James..... | 40, 85, 87 | Karnaky, Karl..... | 91 |
| Callard, Gloria..... | 111 | Kidder, George..... | 79 |
| Callard, Ian..... | 97 | Kinne, Rolf K.H..... | 43 |
| Cancel, Seneca..... | 80 | Kinne-Saffran, Evamaria..... | 43 |
| Cantiello, Horacio..... | 23, 63, 87 | Koob, Thomas..... | 97, 114, 117, 120 |
| Chadwick, Yvonne..... | 99, 101 | Koob-Emunds, Magdalena..... | 114, 120 |
| Choe, Keith..... | 38 | Kormanec, Jan..... | 43 |
| Claiborne, James B..... | 33, 36, 38 | Kormanik, Gregg..... | 99, 101 |
| Clayton, Catherine..... | 91 | Lang, Florian..... | 30, 47, 51, 67 |
| Cleemann, Lars..... | 13, 15 | Lehrich, Rudiger..... | 32 |
| Colon, Elizabeth..... | 70, 74 | Letcher, Susan..... | 93 |
| Conrad, Abigail..... | 2 | Lombardo, Ilise..... | 57 |
| Conrad, Gary..... | 2, 4 | Long, John..... | 114 |
| Cukan, Michael..... | 42 | Long, Thomas..... | xiii |
| Cutting, Gary..... | 17 | McCaw, Rory..... | 76, 80 |
| Dawson, David..... | 18, 20 | McQuade, Bryan..... | 80 |
| Dawson, Margaret..... | 95 | MacKenzie, L.A..... | 36 |
| Derby, Nina..... | 73 | Mainardi, Timothy..... | 103 |
| Dobak, Lauren..... | 85 | Maren, Thomas..... | 65, 76 |
| Dorfman, Julia..... | 13, 15 | Masereeuw, Rosalinde..... | 91, 93 |
| Edelhauser, Henry..... | xvi | Mendola, Robert..... | 6 |
| Einhorn, Jesse..... | 74 | Mickle, John..... | 17 |
| Epstein, Franklin..... | 63, 73, 102 | Miller, David..... | 40, 85, 91, 93, 95 |
| Evans, David..... | 105, 106, 107 | Morad, Martin..... | 13, 15 |
| Forbush, Biff..... | 42, 45 | Morrison-Shetlar, Alison..... | 33, 36, 38 |
| Forrest, John K..... | 55 | Nabih, Ziad..... | 41 |
| Forrest, John N..... | 23, 30, 51, 53, 55, 20,
57, 60, 32, 26 | Nearing, Jackie..... | 123 |
| Frizzell, Raymond..... | 26 | Newton, Carolyn..... | 108 |
| Fujukawa, Shelly..... | 95 | Noren, Bradley..... | 97 |
| George, Albert..... | 57, 60, 32 | O'Connell, Davin..... | 9, 85 |
| | | Oliver, Heather..... | 6 |

Peters, Kathi.....	26
Preston, Elisabeth.....	80
Preston, Robert.....	80, 83
Qi, Juanjuan.....	26
Rappaport, R.....	1
Ratner, Martha.....	20
Reddy, Prasanth.....	2
Renfro, J. Larry.....	65, 95
Rizor, Kelly.....	18, 20
Roberts, Laurie.....	23
Runnegar, Maria.....	6, 9, 85
Saint-Cyr, Paul.....	108
Seward, David.....	9, 85
Silva, Patricio.....	63, 73, 102
Smith, Christine.....	20
Smith, Stephen.....	18
Sojka, Kate.....	22
Sommerville, Drew.....	83
Spokes, Katherine.....	73

Stidham, James.....	91
Straus, William.....	117
Swenson, Erik.....	65, 76
Thiele, Ina.....	47, 49, 52, 53
Tilden, Andrea.....	103
Toomey, Barbara.....	95
Toure, Joahd.....	85
Trotter, John.....	120
Van Driessche, Willy.....	26
Waldegger, Siefgried.....	30, 51, 67
Warth, Richard.....	47, 49, 52, 53
Weber, Gerhard.....	20
Wells, Diane.....	4
Wilson, Elizabeth.....	84
Winterberg, Susan.....	123
Xie, Zijian.....	40, 41, 85
Zadunaisky, Jose.....	67, 74
Zasloff, Michael.....	102
Zeien, Christina.....	65

SPECIES INDEX

<i>Anguilla rostrata</i> , (American eel).....	106, 107
<i>Archilochus colubris</i> , (ruby-throated hummingbird).....	77
<i>Bos taurus</i> , (cow).....	80
<i>Carcinus maenus</i> , (green shore crab).....	103
<i>Cucumaria frondosa</i> , (orange-footed cucumber).....	120
<i>Echinarachnius parma</i> , (sand dollar)	1
<i>Fundulus heteroclitus</i> , (killifish).....	36, 67, 70, 74, 79, 93, 95
<i>Glycera dibranchiata</i> , (blood worm)	80, 83
<i>Ilyanassa obsoleta</i> , (eastern mud whelk).....	2, 4
<i>Myoxocephalus octodecimspinosus</i> , (long-horned sculpin)	33, 38
<i>Myxine glutinosa</i> , (hagfish).....	114
<i>Pholis gunnellus</i> , (rock gunnel).....	101
<i>Pseudopleuronectes americanus</i> , (winter flounder)	65, 95
<i>Raja erinacea</i> , (little skate)	6, 9, 40, 84, 85, 87, 97, 112, 117
<i>Rattus norvegicus</i> , (rat).....	41
<i>Squalus acanthias</i> , (spiny dogfish).....	13, 15, 17, 20, 26, 30, 32, 42, 43, 45, 47, 49, 51, 52, 53, 55, 57, 60, 63, 73, 76, 91, 99, 102, 105, 108, 111
<i>Sus scrofulus</i> , (pig).....	80
<i>Xenopus laevis</i> , (African clawed frog).....	23, 83, 18

KEY WORD INDEX

- | | | | |
|---------------------------------------|--------------------|--|----------------|
| Acetylcholine..... | 106, 107 | Enterotoxin, <i>E. coli</i> heat-stable..... | 73 |
| Acid-base regulation..... | 33, 36, 38 | Egg capsule..... | 117 |
| Adenosine triphosphate..... | 63 | Egg jelly..... | 117 |
| AE-2 anion exchanger | 32 | Embryos..... | 99 |
| Ag+..... | 4 | Endothelin | 107 |
| Aminosterol..... | 102 | Enzymatic dissociation..... | 15 |
| Androgen..... | 111 | Enzyme immunoassay..... | 105 |
| <i>Anguilla rostrata</i> | 106, 107 | Erythrocytes..... | 84 |
| Anion conductance..... | 87 | Estuary..... | 123 |
| Anion | 18 | Ethoxzolamide..... | 65 |
| ATP..... | 45 | G-proteins..... | 60 |
| ATP release..... | 23 | Gill..... | 33, 36, 38, 76 |
| Behavior..... | 79 | Glutaminase..... | 99 |
| Bending..... | 114 | Glutamine synthesis..... | 99 |
| Bending tests..... | 120 | Glutamine synthetase..... | 101 |
| Bird..... | 77 | Glycine | 95 |
| Brain..... | 80 | Hagfish..... | 114 |
| Ca ²⁺ imaging..... | 13 | Heart..... | 80 |
| Calcium overload..... | 15 | Heavy Metals | 41 |
| Carbaprostacyclin..... | 105 | Hepatic transport..... | 9 |
| Carbohydrate..... | 117 | Hepatocytes..... | 6, 41 |
| Carbonic anhydrase..... | 65, 76 | Hummingbird..... | 77 |
| Cardiomyocyte..... | 13 | Hypercapnia..... | 76 |
| Catch connective tissue..... | 120 | Hypotonicity..... | 74 |
| Catechol oxidase..... | 97 | Immunohistochemistry..... | 32 |
| cDNA cloning..... | 42 | Insulin..... | 40 |
| Cell volume..... | 112 | Kidney..... | 42, 77 |
| CFTR..... | 18, 20, 23, 55, 64 | Lectins..... | 108 |
| CFTR, shark..... | 26 | Liquefaction..... | 117 |
| Chloride cells..... | 67, 70, 74 | Luciferin-Luciferase assay..... | 23 |
| Chloride secretion..... | 26, 30, 51, 73 | Melatonin..... | 103 |
| Circadian rhythm..... | 103 | Membrane polarity..... | 85 |
| Cl ⁻ secretion..... | 47, 49, 52, 53, 55 | Membrane traffic regulation..... | 26 |
| Cloning..... | 57, 60 | Mannose-binding proteins..... | 108 |
| CNP..... | 55, 57 | Mercury..... | 18, 112, 20 |
| Confocal fluorescence microscopy..... | 93 | Mercury chloride | 87 |
| Confocal microscopy..... | 95 | Mercury inhibition..... | 43 |
| Contractile ring..... | 1 | Microcystin..... | 6, 9 |
| Contransport..... | 42, 45 | Microtubules | 4 |
| Crustacean..... | 103 | Multispecific organic anion transporter..... | 91 |
| Cyclic GMP..... | 57 | Myosin..... | 2 |
| Cysteine residues..... | 43 | Na-K-Cl cotransporter..... | 42, 45 |
| Cystic fibrosis..... | 17 | Na-K-2Cl cotransporter..... | 43 |
| Cytokinesis..... | 1 | Na/Pi cotransporter..... | 40 |
| Cytoskeleton..... | 6, 85 | NaPi-1..... | 41 |
| Dehydration..... | 77 | NHE..... | 33, 36 |
| Dermis..... | 120 | Nidamental gland..... | 97 |
| EC-coupling..... | 13 | | |

Nitric oxide.....	106, 107
Notochord.....	114
NPR-B.....	55, 57
Oocyte expression.....	83
Organic anion transport.....	95
Osmolality.....	77
Osmoregulation.....	79, 84, 123
Patch clamping.....	87
PCR.....	60
PGE.....	105, 107
PGI2.....	105
PH acidity.....	15
Phosphorylation.....	45
Plasticizing factor.....	120
Pneumatic duct.....	106
Polar lobe constriction.....	2
Procaine.....	73
Protein kinase.....	30, 51
Protein kinase C.....	93
Protein synthesis.....	112
Protein phosphatase 1 and 2A.....	9
Proximal tubule.....	95
Racemization.....	80
Rectal gland.....	20, 32, 60, 63, 91, 102
Red blood cell.....	83
Regulation.....	45
Regulatory function.....	17
Renal clearance	65
Renal secretion.....	93
Renal transport.....	42

RT-PCR.....	42
Salinity.....	79, 123
Salt water adaptation.....	67, 70
Secretagogues.....	47, 49, 52, 53
Signal transduction.....	47, 49, 52, 53
Silver ions.....	4
Skate hepatocyte.....	40
Skate hepatocyte culture.....	85
Species conservation.....	17
Spermatogenesis.....	111
Steroid receptor.....	111
Stiffening factor.....	120
Stoichiometry.....	45
Strychnine.....	95
Taurine transport.....	80
Tension at the surface.....	1
TMAO.....	84
TIRF microscopy	13
Transcription factors.....	2
Transcriptional regulation.....	30, 51, 67, 70
Urea	108
Urea cycle.....	101
Urine.....	77
Vasoactive intestinal peptide	63
Ventral aorta.....	105, 107
Volume regulation.....	74, 87
Western blots	38
<i>Xenopus</i> oocyte	20
Xenobiotic transport	91