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Dickinson College

Marilyn Hoffman
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School of Medicine
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SCIENTIFIC PERSONNEL

Principal Investigators

Ned Ballatori, Ph.D.
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University of Florida

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Deceased 8/15/99

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C. Zeien

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Mayo Clinic Scottsdale

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National Institute of Health

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Lake Forrest College

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Welsford, con't

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Beth Israel-Deaconess Medical Center

Mark L. Zeidel, M.D.
Department of Medicine
University of Pittsburgh

B. Steixner

Q. Ke
Y. Yang

J. Calleary
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S. Myers
R. Zeidel
S. Zeidel

1999 SUMMER FELLOWSHIP RECIPIENTS

NSF Hancock County High School Recipients:

Doug Calhoun, Mount Desert Island High School
Allison Cherry, Ellsworth High School
Nicola Giles, Kingswood High School, Bath, UK
Roy Gott, Sumner Memorial High School
Abby Gross, Deer Isle-Stonington High School
Amy McQuade, Ellsworth High School

Durham High School Recipients:

Agnes Heine, Riverside High School
Kevin Johnson, Hillside High School
Geoffrey Morochnick, C.E. Jordan High School
Brandy Reames, Hillside High School

SETH:

Kyomi Gregory, Queens Gtwy to Hlth Sciences HS
Moromoke Odina, Queens Gtwy to Hlth Sciences HS

Research Experience for Undergraduates:

Benjamin Barnes, Dartmouth College

Cassandra Brooks, Bates College

Peter Burrage, Dartmouth College
Monica Campoverde, Marymount College
Nichole Hair, Georgia Southern University
Blythe Janowiak, Depauw University
Benjamin Lenth, Wesleyan University
Heather Lewis, Illinois State University
Allison O'Neill, Yale University
John Pena, Oakland University
Cristina Salvador, Duke University
Martin Schnermann, Colby College
Jeff Sirota, Yale University
Jinaki Smith, University of Pittsburgh
Nicholas Stine, Dartmouth College

American Heart Association Fellowship:

Nina Derby, Smith College

Merit Recipients:

Brian Corrigan, Deer Isle-Stonington Jr./Sr. High School

Mentors:

John N. Forrest, Jr., M.D.
Gregg A. Kormanik, Ph.D.
Jack Riordan, Ph.D.
David Miller, Ph.D.
Karl Karnaky, Ph.D.
Michael H. Nathanson, M.D., Ph.D.

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David C. Dawson, Ph.D.
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Nancy Berliner, M.D.
Stephen Gehnrich, Ph.D.
J. Larry Renfro, Ph.D.
John N. Forrest, Jr., M.D.
Raymond P. Henry, Ph.D.
J.B. Claiborne, Ph.D.
Gregg A. Kormanik, Ph.D.
James L. Boyer, M.D.
Robert L. Preston, Ph.D.
Michael H. Nathanson, M.D., Ph.D.
John N. Forrest, Jr., M.D.
David W. Towle, Ph.D.
Franklin H. Epstein, M.D.
John N. Forrest, Jr., M.D.
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John N. Forrest, Jr., M.D.

Mentor:

Franklin H. Epstein, M.D.

Mentor:

David H. Evans, Ph.D.
Karl J. Karnaky, Jr., Ph.D.

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Helene Guizouarn, Ph.D., Laboratoire Jean Maetz
Herman Haller, M.D., Medizinische Hochschule Hannover
Raymond P. Henry, Ph.D., Auburn University
Karl Karnaky, Jr., Medical University of South Carolina
Dietmar Kultz, Ph.D., The Whitney Laboratory, University of Florida
Michael H. Nathanson, M.D., Ph.D., Yale University School of Medicine
Bruce A. Stanton, Ph.D., Dartmouth Medical School
Mark L. Zeidel, M.D., University of Pittsburgh

Blum/Halsey Fellowship:

David Petzel, Ph.D., Creighton University

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Raymond P. Henry, Ph.D., Auburn University
Lawrence E. Hightower, Ph.D., University of Connecticut
Karl Karnaky, Jr., Medical University of South Carolina
Michael H. Nathanson, M.D., Ph.D., Yale University School of Medicine
Frances M. Van Dolah, Ph.D., NOAA National Ocean Service
Yong-Fu Xiao, M.D., Ph.D., Beth Israel-Deaconess Medical Center

1999 SEMINARS

Morning Transport

- July 5 "CFTR: Fixed charger control the conductance of the pore" David C. Dawson, Ph.D., University of Michigan Medical School
- July 12 "Molecular biology of Cystic Fibrosis" Garry R. Cutting, M.D., Johns Hopkins University School of Medicine
- July 19 "Successful treatment of Cystic Fibrosis defect in mice by modification of membrane lipids" Dr. Steven Friedman, Harvard Medical School; Beth Israel Deaconess Medical Center
- July 26 "Osmotic regulation of the cell cycle" Dietmar Kültz, Ph.D., The Whitney Laboratory, University of Florida
- August 2 "An interaction of glycine with the renal classical organic anion secretion system" J. Larry Renfro, Ph.D., University of Connecticut
- August 9 "New insights into the regulation of Na excretion by the mammalian kidney" John B. Stokes, M.D., University of Iowa
- August 16 "Gas permeation of epithelia" Mark L. Zeidel, M.D., University of Pittsburgh
- August 23 "Transport knockouts in mouse models - Why aren't they like cholera?" Jurgen B. Schnermann, M.D., NIH

Noon

- July 2 Introductory 5 minute talks by MDIBL Principal Investigators to summarize summer research projects
- July 9 Remainder of introductory 5 minute talks by MDIBL Principal Investigators
- July 16 "Using covalent labels to monitor plasma membrane expression of CFTR" Xuehong Liu, Ph.D., University of Michigan
- July 23 "A primitive ATP receptor in skate liver" Jonathan Dranoff, M.D., Yale University School of Medicine
- July 30 "Endothelin signaling and toxicity in renal proximal tubule" David S. Miller, Ph.D., NIH/NIEHS (sponsored by the National Institute of Environmental Health Sciences and the MDIBL Center for Membrane Toxicity Studies)

August 5 "What triggers swelling activated transport pathways in trout red cells?" Hélène Guizouarn, Ph.D., Laboratoire Jean Maetz, Villefranche-sur-Mer, France

August 13 "Regulation of ion transport by the guanylin/uroguanylin family of peptides" Leonard Forte, Ph.D., University of Missouri

Evening

July 7 "Sodium channel diversity: Selective distribution of sodium channel isoforms in the peripheral nervous system" Simon Rock Levinson, Ph. D., University of Colorado School of Medicine

July 14 THE EIGHTEENTH WILLIAM B. KINTER MEMORIAL LECTURE - "Cell biology, neuropeptides and the interfaces with toxicology" Armen H. Tashjian, Jr., M.D., Harvard School of Public Health; Harvard Medical School

July 21 THE NINTH ANNUAL THOMAS H. MAREN SEMINAR - "Dimming the lights: The molecular mechanisms for turning down trimeric G-protein signaling" Paul G. Sigler, M.D., Ph.D., Howard Hughes Medical Institute; Yale University

July 28 THE FIFTH HELEN F. CSERR MEMORIAL LECTURE - "Using the mouse to find genes related to heart disease and hypertension" Beverly J. Paigen, Ph.D., The Jackson Laboratory

August 4 THE EIGHTH JOHN W. BOYLAN MEMORIAL LECTURE - "Play tag with death: A biochemist's view of the plague, cancer, and signal transduction" Jack E. Dixon, Ph.D., University of Michigan

August 11 "CFTR, 2000" John R. Riordan, Ph.D., Mayo Clinic Scottsdale

August 18 "Ion channel gene transfer into neurons and heart cells: first steps towards gene therapy of epilepsy and heart failure" Eduardo Marban, M.D., Ph.D., The Johns Hopkins University

Special Seminars

July 27 HEARTS IN SCIENCE - "Atherosclerosis" Hermann Haller, M.D., Franz Volhard Clinic, Humboldt University, Berlin, Germany

August 3 "The glomerular podocyte: Cell biology and pathological approaches" Peter Mundel, M.D., Albert Einstein College of Medicine

August 12 "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.

ALL CAMPUS ETHICS SEMINAR SERIES

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

- July 13 "Ethics Part One" J.B. Claiborne, Ph.D., Georgia Southern University; David H. Evans, Ph.D., University of Florida
- July 20 "Ethics Part Two" J.B. Claiborne, Ph.D. and David H. Evans, Ph.D.
- July 27 "Busman's Holiday" John Mickle, Ph.D., The Johns Hopkins University School of Medicine
- August 3 "Reading Signals" Barbara Kent, Ph.D., MDI Biological Laboratory and John N. Forrest, Jr., M.D., Yale University School of Medicine and MDI Biological Laboratory
- August 10 "Email: What is Fraudulent Data" George Kidder III, Ph.D., MDI Biological Laboratory

STUDENTS' "BASIC" LECTURE SERIES

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

- July 6 "Molecular Biology and Beyond" Alison Morrison-Shetlar, Ph.D., Nichole Hair and Danielle Gunning, Georgia Southern University
- July 13 "Cellular trafficking signals at the carboxy-terminus of the Cystic Fibrosis transmembrane conductance regulator are evolutionarily conserved" John Mickle, Ph.D., Johns Hopkins University School of Medicine, and Alex Lankowski, Cape Elizabeth, Maine
- July 20 "Fish Osmoregulation & MDIBL" David H. Evans, Ph.D., University of Florida
- July 26 "NHE and Acid Indigestion" J.B. Claiborne, Ph.D. and Brian Wall, Georgia Southern University; Keith Choe, University of Florida

WORKSHOP and COURSE - 1999

- June 17-19 Satellite Workshop to the Gordon Conference on Mycotoxins and Phycotoxins
Advances in detection methods for fungal and algal toxins

Coordinator - Frances M. VanDolah, Ph.D., Research Biochemist, NOAA National Ocean Service; Principal Investigator, MDIBL

June 21-25

“An Intensive Course in Quantitative Fluorescence Microscopy”

Goal - To provide investigators with the expertise to implement cutting edge microscopic methods in their laboratories. Lectures on the theory, mechanics, and application of fluorescent imaging methods were intermingled with extended laboratory tutorials and demonstrations in which students were able to use their own specimens

Course Director - Simon C. Watkins, Center for Biological Imaging, University of Pittsburgh School of Medicine

Coordinator - John N. Forrest, Jr., Yale University School of Medicine; Director, MDIBL

Faculty:

John H. Henson, Dickinson College

David S. Miller, NIH/NIEHS

Michael H. Nathanson, Yale University School of Medicine

David W. Piston, Vanderbilt University

Guillermo G. Romero, University of Pittsburgh School of Medicine

PUBLICATIONS

Ballatori, N., Rebbeor, J.F., Connolly, G.C., Seward, D.J., Lenth, B.E., Henson, J.H., Sundaram, P. and Boyer, J.L. Bile salt excretion in skate liver is mediated by a functional analog of Bsep/Spgp, the bile salt export pump. *Am. J. Physiol.* 278:G57-G63, 2000.

Ballatori, N., Hager, D.N., Nundy, S., Miller, D.S., and Boyer, J. Carrier-mediated uptake of lucifer yellow in skate and rat hepatocytes: a fluid-phase marker revisited. *Am. J. Physiol.* 277:G896-G904, 1999.

Betka, M. and Callard, G. Stage-dependent accumulation of cadmium and induction of metallothionein-like binding activity in the testis of the dogfish shark *Squalus acanthias*. *Biol. Reprod.* 60:147-157, 1999.

Callard, G. and Callard, I. Spermatogenesis in subvian vertebrates. In: Encyclopedia of Reproduction (eds., Knobil, E. and Neill, J.), Vol 4, Academic Press, pp. 563-570, 1999.

Choe, K.P., Edwards, S.E., Morrison-Shetlar, A.I., Toop, T. and Claiborne, J.B. Immunolocalization of Na⁺/K⁺-ATPase in mitochondrion-rich cells of the atlantic hagfish (*Myxine glutinosa*) gill. *J. Comp. Biochem. and Physiol.* 124A, 161-168, 1999.

Claiborne et al., *J. Exp. Biol.* 202:315-324, 1999.

Crockett, E.L., et al. Enzymatic capacities for β -oxidation of fatty fuels are low in the gill of teleost fishes despite presence of fatty acid-binding protein. *J. Exp. Biol.* 284: 276-285, 1999.

Crockett, E.L. Lipid restructuring does not contribute to elevated activities of Na⁺/K⁺-ATPase in basolateral membranes from the gill of seawater-acclimated eel (*Anguila rostrata*). *J. Exp. Biol.* 202: 2385-2392, 1999.

Donald, J.A., Toop, T. and Evans, D.H. Natriuretic peptide binding sites in the brain of the Atlantic hagfish, *Myxine glutinosa*. *J. Exp. Zoo.* 284: 407-13, 1999.

Evans, D.H., Claiborne, J.B. and Kormanik, G.A. Osmoregulation, Acid-Base Regulation and Nitrogen Excretion. *Life of Two Worlds: Ecology, Behavior and Physiology of Intertidal Fishes*, ed. Horn, M.H., Martin, K.L.M., and Chotkowski, M.A., Academic Press, 79-96, 1999.

Evans, D.H. and Gunderson, M.P. Characterization of an endothelin ET_B receptor in the gill of the dogfish shark *Squalus acanthias*. *J. Exp. Biol* 202 (in press).

Evans, D.H., Piermarini, P., and Potts, W.T.W. Ionic transport in the fish gill. *J. Exp. Zool.* 283:641-652, 1999.

Fricker, G., Guttman, H., Droulle, A., Drewe, J., and Miller, D.S. Epithelial transport of antihelminthic, Ivermectin, in a novel model of isolated renal proximal tubules. *Pharm. Res.*, 16:1570-1575, 1999.

Gutman, H., Fricker, G., Drewe, J., Toeroek, M., and Miller, D.S. Interactions of HIV protease inhibitors with ATP-dependent drug export proteins. *Mol. Pharmacol.*, 56:383-389, 1999.

Gutman, H., Miller, D.S., Drewe, J., Droulle, A., and Fricker, G. p-Glycoprotein- and Mrp2-mediated octriotide transport in renal proximal tubule. *Brit. J. Pharmacol.*, in press.

Hamlett, W.C. and Koob, T.J. Female reproductive system. In: *Sharks, Skates and Rays: Biology of Elasmobranchs*, Hamlett, W., ed., Johns Hopkins University Press, 1999.

Jacoby, J.A., Gagnon, E., Caron, L., Chang, J. and P. Isenring. Inhibition of Na-K-2Cl cotransport by mercury. *A. J. Physiol.* 277:C684-C692, 1999.

Karnaky, K. Regulating epithelia from the apical side: new insights. Focus on "Differential signaling and regulation of apical vs. basolateral EGFR in polarized epithelial cells." *Amer. J. Physiol.* 275: C1417-C1418, 1998.

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AUTHORS

Aleksandrov, Andei	68	Franks, D.G	110
Aller, Stephen J	37, 123, 126, 129, 131, 133, 135	Fredericks, Gregory	15
Bailey, David	88	Frizzell, Raymond A	92, 131
Ballatori, Nazzareno	1, 8, 63, 65	Gangopadhyay, Nupur	92
Barnes, Benjamin	14	Gehnrich, Stephen	26, 28
Behnke, Rachel	98	Giménez, Ignacio	98, 100
Benz, Edward	14	Goldstein, Leon	23
Berliner, Nancy	14	Gross, Abby	17, 25, 52, 75
Betka, Marlies	111	Guizouarn, Hélène	23
Borst, David	21	Gunning, Danielle	46
Boyer, James	1, 8, 63, 65	Guynn, Sierra	25
Briggs, Josephine	30, 31, 33, 35, 37	Hagen, Joseph	15, 16, 17
Brooks, Cassandra	26, 28, 88, 90	Hahn, Mark	110
Burgess, David	60	Hair, Nichole	48
Busman, Mark	95	Haller, Hermann	82, 108
Cai, Shi-Ying	1, 8	Haynes, Bennie	95
Calhoun, Douglas A	126, 135	Heine, Isabel	65
Callard, Gloria	110	Henry, Raymond	21, 26, 28
Calleary, John	120	Henson, John	15, 63
Campoverde, Monica	21	Hightower, Lawrence	78
Caramanica, J	62	Hug, Martin	92
Chen, Min	30, 31, 33, 35	Hurst, John	95
Cherry, Alison	100, 102	Janowiak, Blythe	102
Choe, Keith	80	Jensen, Timothy	68, 75, 80, 86
Claiborne, J.B.	46, 48, 50, 80	Jeza, V	62
Cleemann, Lars	54, 58	Karlson, Katherine	12
Connolly, Gregory	8, 63, 65	Karnaky, Karl	17, 25, 52, 75
Corrigan, Brian	17, 75	Ke, Qingen	40, 43
Cutting, Garry	74, 75	Kidder, George	11
Czuwala, Peter	104	Kinne, Rolf	67
Decker, Sarah	129	Kinne-Saffran, Evamaria	67
Derby, Nina	5, 72	Kirsch, Torsten	82, 108
Dorfman, Ana	54, 58	Koob, Thomas	104, 113, 116
Dranoff, Jonathan	8	Koob-Edmunds, Magdalena	104, 116
Dukagjin, Adriana	14	Kormanik, Gregg	102
Dukagjin, Blakaj	14	Kültz, Dietmar	10
Endo, Yoshim	30, 31, 35, 37	Lankowski, Alex	74
Epstein, Franklin	5, 69, 72	Lavelle, John	120
Evans, David	15, 16, 17	Leighfield, Tod	95
Forbush, Biff	98, 100	Long, John	104
Forbush, Jocelyn	98	MacKichan, Carrie	102
Forrest, John N	37, 40, 43, 123, 126, 129, 131, 133, 135	Maren, Thomas	88
Forrest, Josh K	74	Masereeuw, Rosalinde	84
Forrest, Suzanne	37, 129	Mickle, John	74, 75
Franco, Ann Marie	8	Milewski, Michal	74
		Miller, David	52, 75, 84, 86, 90
		Moeller, Peter	95

Morad, Martin	54, 58, 69	Smith, Christine M	123
Morgenthau, L	62	Smith, D. David	25
Morrison-Shetlar, Allison	46, 48, 50, 80	Solomon, Richard	69
Morton, Steve	95	Spokes, Katherine	5, 72
Myers, Susan	120	Stanton, Bruce	12
Nathanson, Michael	8	Steixner, B	62
O'Neill, Allison	8	Stine, Nicholas	37, 129
Pedigo, Elizabeth	62	Terlouw, Sylvie	75, 84
Pena, John T.G	131	Towle, David W	19, 26, 28, 123
Penrod, S	62	Trotter, John	116
Petitpain, Debra	95	Vallon, Volker	31, 33, 35
Petzel, Dave	25, 52	Van Dolah, Frances	95
Plattus, Rachel	14	Villalobos, Alice	88, 90
Plesch, Florian	126, 129, 135	Wall, Brian	50, 80
Ramage, Richard	120	Walsh, Patrick	3
Ratner, Martha	40, 43, 129	Wang, Yuxiang	3
Reames, Brandy	74	Weihrauch, Dirk	19, 26, 28
Rebbeor, James	63	Welenec, Alice	110
Renfro, J. Larry	88, 90	Wellner, Maren	82, 108
Riordan, John	68, 75, 86	Welsford, Ian	62
Runnegar, Maria	65	Woo, Sun-Hee	54, 58
Russel, Frans	84	Wren, Ed	25
Schnermann, Jurgen	5, 30, 31, 33, 35, 37	Xiao, Yong-Fu	40, 43
Schnermann, Martin	72	Yang, Paul	12
Schröder, Anikka K	133	Yang, Tianxin	30, 33, 37
Scott, Cinda P	126, 129, 135	Yang, Yinke	40, 43
Sedmerova, Martina	52	Zeidel, Mark	120
Shuster, Charles	60	Zeidel, Rebecca	120
Siebers, Dietrich	19	Zeidel, Sarah	120
Silva, Patricio	5, 69, 72	Zeien, Cristina	88, 90
Smart, Ann	35		

SPECIES

<i>Anguilla rostrata</i> (eel)	120
<i>Carcinus maenas</i> (green shore crab)	19, 21, 26, 28
<i>Cancer irroratus</i> (common rock crab)	21
<i>Cucumaria frondosa</i> (orange footed sea cucumber)	116
<i>Cyclopterus lumpus</i> (lumpfish)	3
<i>Danio rerio</i> (zebrafish)	14, 30, 31, 33, 35
<i>Dissostichus mawsoni</i> (Antarctic cod)	25
<i>Echinarachnius parma</i> (sand dollar)	60
<i>Fundulus heteroclitus</i> (killifish, mummichog)	1, 10, 11, 12, 17, 25, 50, 74, 75, 84, 86
<i>Limax maximus</i> (coastal beer slug)	62
<i>Lophius americanus</i> (goosefish)	3
<i>Myoxocephalus octodecimspinosus</i> (longhorned sculpin)	3, 46
<i>Mytilus edulis</i> (blue mussel)	95
<i>Myxine glutinosa</i> (hagfish)	104
<i>Paralychtis dendatus</i> (summer flounder)	67, 120
<i>Periplaneta americana</i> (common American cockroach)	52
<i>Pseudopleuronectes americanus</i> (winter flounder)	1, 88
<i>Raja erinacea</i> (little skate)	1, 8, 23, 48, 63, 65, 80, 92, 113
<i>Scophthalmus aquosa</i> (windowpane flounder)	3
<i>Squalus acanthias</i> (spiny dogfish)	5, 12, 15, 16, 37, 40, 43, 54, 58, 68, 69, 72, 82, 90, 98, 100, 102, 108, 110, 123, 126, 129, 131, 133, 135
<i>Xenopus laevis</i> (African claw toed frog)	8

KEY WORDS

14-3-3	10	DNA sequencing	123, 129
7-ethoxyresorufin <i>O</i> -deethylase	65	Dogfish	15, 16
A ₁ receptor antagonist	33	Echinoderm	116
Acid-base	50	Egg capsule	113
Acid-base regulation	48	Egg jelly	113
Actin	5	Elasmobranch	80
Adenosine	33	Endothelin	15, 17
Ammonia	102	Endothelin B-receptor	84
Angiotensin II	25	Enzyme inhibitors, converting	35
Angiotensinogen	31	Epithelial permeability	120
Anion exchanger	23	Epoxyeicosatrienoic acid	43
Antarctic fish	25	Erythrocyte	23
Arylhydrocarbon receptor	14	Expressed Sequence Tags (ESTs)	123, 129
Aspartic proteinase	35	Extracellular matrix	78
Association	68	F-actin	15
ATP-dependent	63	Fluorimetry	67
ATP production	133	Forkhead transcription factor	108
β-adrenergic agonists	54	Forskolin	5, 54
Biomechanics	104	G protein coupled receptor	8
Biosynthetic processing	68	Gel properties	113
Blocker of I _{Na-Ca}	58	GHRH-like hormone	126
Bumentinide	100	GHRH-PACAP Precursor	126
C-type natriuretic peptide	5, 72	Gill(s)	3, 48, 75, 80
Calcium	8	Gill, crab	28
Catch connective tissue	113	Gill epithelium	67
Carbonic anhydrase	21, 28, 88	Glutathione S-Transferase	46
Cardiac development	33	Glutamine synthetase	102
Cathepsin D	31	Green fluorescent protein	78, 86
cDNA library screening	46	Head kidney	25
cDNA sequence	19	I _{Ca} activated Cl ⁻ current	58
CFTR	12, 68, 74, 75, 86, 131	Ion transport	92
Cell cycle	60	Isonine 5-monophosphate dehydrogenase	82
Chloride current	40, 43	K ⁺ currents	58
Chloride secretion	69, 72, 98	Kidney	82, 108
Choroid plexus	90	Killifish	17
Cloning	23, 82, 108, 126, 135	Lactoferrin	14
Collagen fibrils	116	Malphighian tubule	52
Conformational state	100	Mercury	40
Cortisol	88	Microelectrodes	92
Crab	19	Microtubules	60
Crustaceans	21	Mitochondria	133
Cystic fibrosis	74	ML-7	5
Cytochalasin D	5	Mrp2	63
Cytokinesis	60	Multispecific organic anion transporter	52
Dephosphorylation	98	Mutation	74
Diarrhetic shellfish poisoning	95	Myosin light chain kinase	5
Dibutyryl cyclic AMP	69	Na ⁺ —Ca ²⁺ exchanger	54