

A Brief Curriculum Vitae

ACADEMIC TRAINING:

Yale University, 1970-74, NIH Postdoctoral Fellow, Department of Physiology; Advisor, Dr. Peter F. Curran.

University of California, Irvine, 1970; Ph.D. in Biology.

University of Minnesota, 1966; B.A. in Zoology.

PROFESSIONAL POSITIONS:

Professor of Physiology - Illinois State University, Department of Biological Sciences. 1974 – current

Principal Investigator, Center for Membrane Toxicology, Member of the Corporation - 1985-current; Board of Trustees, 1988-94. Mount Desert Island Biological Laboratory (MDIBL), Salsbury Cove, Maine.

Visiting Professor and Fulbright Scholar (Sabbatical leave) - Thaksin University, Songkhla, Thailand. 2001-2002.

Visiting Professor (Sabbatical leave) - University of Oxford, Oxford, England. University Laboratory of Physiology, 1994-1995.

Visiting Professor (Sabbatical leave) - University of Hawaii, Honolulu, Hawaii. Department of Zoology, 1987.

Visiting Professor (Sabbatical Leave) - University of Cambridge, Cambridge, England. Physiological Laboratory. 1981-1982.

Postdoctoral Fellow and Research Associate - Yale University, Department of Physiology, 1970-74.

Graduate Research Assistant - University of California, Irvine, Department of Organismic Biology. Advisor: Dr. Grover C. Stephens, 1966-1970.

Laboratory Assistant - University of Minnesota, Department of Zoology under Dr. Alan B. Hooper, 1965-66.

Laboratory Assistant - University of Minnesota, Department of Zoology under Dr. Grover C. Stephens, 1963-64.

Laboratory Assistant - University of California, Los Angeles, Department of Biochemistry (Summer 1963) and University of Minnesota, Department of Physiological Chemistry (1960-63) under Dr. Paul D. Boyer (Nobel Laureate, 1997).

SELECTED GRANTS:

NSF, Osmoregulation in Euryhaline Fish: Physiology, Ecology and Molecular Biology (with 2 co-PIs). 2001-2008

Fulbright Scholar Program. Physiology and Distribution of D-Amino Acids in Tropical Marine Invertebrates. 2001-2002 (Thailand).

National Institutes of Environmental Health Sciences, Joint grant for the Center for Membrane Toxicity Studies, Mount Desert Island Biological Laboratory (with 6 other Co-PIs), The Molecular Mechanism of Mercury Interaction with the Taurine Transport System of Red Blood Cells, 1994-1998.

National Sea Grant and National Oceanic and Atmospheric Administration. Osmoregulatory Physiology of Zebra Mussels., 1991-1994.

National Institutes of Environmental Health Sciences, Joint grant for the Center for Membrane Toxicity Studies, Mount Desert Island Biological Laboratory (with 9 other Co-PIs), Mechanism of Heavy Metal Interaction with

Amino Acid Transport Systems of Red Blood Cells, 1989-1993.

American Heart Association, Maine Affiliate. Energetics of Taurine Transport in Red Blood Cells, 1990-1992.

National Institutes of Health. Transport and Metabolism of D-Amino Acids by Mammals, 1987-1990.

American Heart Association, Maine Affiliate. Effect of Heavy Metals on Red Cell Amino Acid Transport, 1987-1990.

National Science Foundation, Occurrence, Transport and Metabolism of D-Amino Acids in Marine Invertebrates. 1985-1988.

Burroughs Wellcome Fund, Wellcome Research Travel Grant, Radiation Inactivation Analysis of the Molecular Weights of Red Cell Amino Acid Transport Systems, for continuing research at Cambridge and Oxford Universities, England, 1988.

NATO Collaborative Research Grants, Radiation Inactivation Analysis of Transport Systems, for continuing research at Cambridge and Oxford Universities, England, 1985-1986, 1988.

Illinois Heart Association, Taurine Transport in Cat Erythrocytes. 1984-85.

National Institutes of Health, National Research Service Award Senior Fellowship. Radiation Inactivation Analysis of Transport Systems. 1981-82.

SUPERVISION OF STUDENT RESEARCH:

Three Ph.D. students and 4 Master's students have completed their degrees in my laboratory. In addition, I have served on many graduate degree committees within the Department.

I have also supervised on the average 3-5 undergraduate students each semester in research projects in my laboratory. In addition, 3-6 graduate students or undergraduate students have been part of my summer laboratory at Mount Desert Island Biological Laboratory in Maine since 1985.

MEMBERSHIP IN SOCIETIES:

The Biochemical Society (Britain), American Association for the Advancement of Science, Society of Comparative and Integrative Biology, Society of General Physiologists, Phi Sigma Honorary Biological Society, Sigma Xi, American Society for Molecular Marine Biology and Biotechnology

SELECTED PUBLISHED PAPERS:

Kidder, G. W. III, Christopher W. Petersen and Robert L. Preston, 2006. Energetics of osmoregulation: I) Oxygen consumption by *Fundulus heteroclitus*. Jour. Exp. Zool 305A: 309-317.

Kidder, G. W. III, Christopher W. Petersen and Robert L. Preston. 2006. Energetics of osmoregulation: II) Water flux and osmoregulatory work in the euryhaline fish, *Fundulus heteroclitus*. Jour. Exp. Zool. 305A: 318-327.

Baldwin, J.L., C. W. Petersen, R. L. Preston and G. W. Kidder. 2006. Aerobic and submerged development of embryos of *Fundulus heteroclitus*. Bull. Mount Desert Island Biological Laboratory 45: 45-46.

Bradley, M.E., E. M. Maltz, J.M. Childers, M.P. DeBerge, R. L. Preston, G. W. Kidder and C. W. Petersen. 2006. The effects of ion concentrations on sperm motility in the estuarine fish, *Fundulus heteroclitus*. Bull. Mount Desert Island Biological Laboratory 45: 12-14.

Preston, R. L., A.E. Flowers, B.C. Lahey, S.R. McBride, C. W. Petersen and G. W. Kidder. 2006. Measurement of the desiccation of *Fundulus heteroclitus* embryos in controlled humidities. Bull. Mount Desert Island Biological Laboratory 45: 101-103.

Kocot, K. M., J. L. Baldwin, C. W. Petersen, R. L. Preston and G. W. Kidder 2005. The efficiency of wire minnow traps in assessing populations of *Fundulus heteroclitus*. Bull. Mount Desert Island Biological Laboratory 44: 65-66.

Preston, R. L., M.E. Gille, D. M. Richmond, Lauren B. Sliga, C. W. Petersen and G. W. Kidder, III. 2005 Osmoregulation in *Fundulus heteroclitus* oocytes and embryos measured by sedimentation pycnometry. Bull. Mount Desert Island Biological Laboratory 44: 84-85.

Preston, R. L., R. J. Clifford, J.A. Thompson, D. L. Slager, C. W. Petersen and G. W. Kidder, III. 2004. CFTR mRNA expression in developing *Fundulus heteroclitus* embryos. Bull. Mount Desert Island Biological Laboratory 43: 25-27.

Baldwin, J. L., C. E. Goldsmith, C. W. Petersen, R. L. Preston and G. W. Kidder. 2004. Synchronous hatching in *Fundulus heteroclitus* embryos: Production and properties. Bull. Mount Desert Island Biological Laboratory 43: 110-111.

Salinas, S., Y. J. Brandvain, R. Anderson, J. Marty, R. L. Preston, G. W. Kidder, III and C. W. Petersen. 2004. Reproductive ecology of *Fundulus heteroclitus* and *Fundulus diaphanus* in a New England watershed. Bull. Mount Desert Island Biological Laboratory 43: 115-117.

Preston, R. L., R. J. Clifford, A. K. Guy, N. B. Richards, C. W. Petersen and G. W. Kidder, III. 2003. Preliminary studies of salinity adaptation in *Fundulus heteroclitus* and apparent CFTR mRNA expression in gill tissue and oocytes. Bull. Mount Desert Island Biological Laboratory 42: 68-70.

- Kidder, G. W. III., C. E. Goldsmith, M. J. Neville, C. W. Petersen and R. L. Preston. 2003. Salinity effects on aquatic surface respiration in *Fundulus heteroclitus* during hypoxia. Bull. Mount Desert Island Biological Laboratory 42: 96-97.
- Fundis, A. T., K. A. Zarella, E. Donnelly, R. L. Preston, G. W. Kidder, III and C. W. Petersen. 2003. *Fundulus heteroclitus* distribution in Northeast Creek: Sex and size class changes along a salinity gradient. Bull. Mount Desert Island Biological Laboratory 42: 18-20.
- Preston, R. L., I. Sud, V. Williams, A. Buddai and A. S. Bryant. 2002. Racemase activities of marine mollusks. Bull. Mount Desert Island Biological Laboratory 41: 65-66.
- Preston, R. L., J. Sherman and V. Petit. 2001. Serine and alanine racemase activity in marine invertebrates. Bull. Mount Desert Island Biological Laboratory 40: 117-118.
- Preston, R. L., B. D. Crisp, H. D. Lewis and K. Gregory. 2001. Preliminary identification of an alanine racemase gene in *Mya arenaria*. Bull. Mount Desert Island Biological Laboratory 40: 116.
- Preston, R. L., D. Sommerville, B. McQuade, T. Gott and M. Odina. 1999. Distribution of catalase activity in animal tissues. Bull. Mount Desert Island Biological Laboratory 32: 87-89.
- Stevens, B.R., and Preston, R.L. 1998. Sodium-dependent amino acid transport is preserved in lyophilized reconstituted apical membranes from intestinal epithelium. *Analyt. Biochem.* 265:117-122.
- Preston, R. L., D. Sommerville and T. Gott. 1998. Preliminary molecular studies on the taurine transport system of the coelomocytes of the marine polychaete, *Glycera dibranchiata*. Bull. Mount Desert Island Biological Laboratory 32: 83.
- Preston, R. L., B. McQuade, R. McCaw, S. Cancel, E. J. D. Preston, D. Sommerville and B. R. D. Preston. 1998. Racemization of amino acids by mammalian tissues. Bull. Mount Desert Island Biological Laboratory 37: 80-82.
- Preston, R. L., D. Sommerville, S. Lu and T. Gott. 1997. Na-independent taurine transport by the coelomocytes of the marine polychaete, *Glycera dibranchiata*. Bull. Mount Desert Island Biological Laboratory 36: 84-85.
- Preston, R. L., B. McQuade, O. Oladokun, and J. Sharp. 1997. Racemization of amino acids by invertebrates. Bull. Mount Desert Island Biological Laboratory 36: 86.
- Cantiello, H. F., L. Altoro, C. F. Jones, G. R. Jackson and R. L. Preston. 1997. ATP content and release in *Glycera dibranchiata*. Bull. Mount Desert Island Biological Laboratory 36: 92-94.
- Preston, R. L., D. Sommerville, S. Lu and T. Gott. 1997. Na-independent taurine transport by the coelomocytes of the marine polychaete, *Glycera dibranchiata*. Bull. Mount Desert Island Biological Laboratory 36: 84-85.

Preston, R. L., B. McQuade, O. Oladokun, and J. Sharp. 1997. Racemization of amino acids by invertebrates. *Bull. Mount Desert Island Biological Laboratory* 36: 86.

Preston, R. L., K. M. Katsma, G. Lapetina and P.R. Zimmerman. 1996. Effect of anion composition on mercury inhibition of taurine transport by the coelomocytes of the marine polychaete, *Glycera dibranchiata*. *Bull. Mount Desert Island Biological Laboratory* 35: 55-58.

Preston, R. L., M. T. Kaleta, K. M. Katsma, G. Lapetina, K. A. Simokat and P.R. Zimmerman. 1996. Quinidine inhibits taurine transport by the coelomocytes of the marine polychaete, *Glycera dibranchiata*. *Bull. Mount Desert Island Biological Laboratory* 35: 52-54.

Preston, R. L., P. R. Zimmermann, M. T. Kaleta and K. A. Simokat (1994) Evidence for HgCl_3^- as the form of mercury that inhibits taurine transport in the coelomocytes of the marine polychaete, *Glycera dibranchiata*. *Bull. Mount Desert Island Biol. Lab.* 33: 53-55.

Preston, R. L. (1993) Transport of amino acids by marine invertebrates. *Jour. Exp. Zool.* 265: 410-421.

Preston, R. L., K. L. McQuade, S. J. Janssen and S. Lu. (1991) D-Glucose transport by the red blood cells of the marine polychaete, *Glycera dibranchiata*. *Bull. Mount Desert Island Biol. Lab.* 30: 51-53.

Preston, R. L. (1990) Sodium/amino acid cotransport systems in marine invertebrates. In: Kinne, R. (Ed.) *Comparative physiology, comparative aspects of sodium cotransport systems.* vol. 7. pp 1 - 129, Karger Press, New York.

Preston, R. L. and C. W. Chen. (1989) Inhibition of sodium dependent taurine transport in red blood cells from the marine polychaete, *Glycera dibranchiata*, after exposure to mercury. *Bull. Environ. Contam. Toxicol.* 42: 620-627.

Preston, R. L. (1987) Occurrence of D-amino acids in higher organisms: A survey of the distribution of D-amino acids in marine invertebrates. *Comp. Biochem. Physiol.* 87B: 55-62.

Preston, R. L. (1987) D-Alanine transport and metabolism by the coelomocytes of the bloodworm, *Glycera dibranchiata* (Polychaeta). *Comp. Biochem. Physiol.* 87B: 63-71.

Chen, C. W. and R. L. Preston. (1987) Effect of mercury on taurine transport by the red blood cells of the marine polychaete, *Glycera dibranchiata*. Bull. Environ. Contam. Toxicol. 39: 202-208.