

## CURRICULUM VITAE

**Mary E. Rumpho-Kennedy, Professor**

### PRESENT APPOINTMENT

Dept. of Biochemistry, Microbiology & Molecular Biology  
5735 Hitchner Hall, Rm 302  
University of Maine  
Orono, ME 04469-5735

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### EDUCATION

1978 - 1982      PhD    Washington State University, Pullman, Washington  
Major: Horticulture    Emphasis: Plant Physiology  
1974 - 1978      BA    Winona State University, Winona, Minnesota  
Major: Biology    Minor: Chemistry    *summa cum laude*

### PROFESSIONAL EXPERIENCE

9/07 to present      Cooperating Professor of Graduate School of Biomedical Sciences, Univ. of  
Maine  
8/00 to present      Professor, Dept. of Biochemistry, Microbiology and Molecular Biology, Univ. of  
Maine, Tenured Sept. 2003; Post-tenure review Spring 2006  
7/01 to present      Cooperating Professor of Marine Sciences, University of Maine  
9/93 to 7/00      Faculty of Molecular and Environmental Plant Sciences, Texas A&M University  
9/92 to 7/00      Associate Professor, Dept. of Hort. Sci., Texas A&M University, Tenured 1996  
1/90 to 8/92      Assistant Professor, Dept. of Botany, University of Maryland  
7/89 to 12/89      Faculty Research Associate, Dept. of Botany, Univ. of Maryland  
1/89 to 6/89      Visiting Adjunct Lecturer, Dept. of Horticulture, The Ohio State University  
7/85 to 1/89      Research Scientist, Dept. of Horticulture, The Ohio State University  
10/82 to 5/85      Postdoctoral Research Associate, Dept. of Botany, Washington State University  
3/82 to 4/82      Visiting Research Associate, I.N.R.A., Laboratoire de Physiologie Vegetale, Dr.  
Alain Pradet, Bordeaux, France  
1/79 to 6/82      Teaching and Research Assistant, Washington State University  
8/78 to 12/78      Teaching Assistant, University of Iowa, General Botany  
6/78 to 8/78      Research Assist., Federal Water Quality Lab, USDA Forest Service, Winton, MN

### PROFESSIONAL AND SCIENTIFIC SOCIETIES

American Society of Plant Biologists  
Northeast Section of the American Society of Plant Biologists  
Phycological Society of America  
International Symbiosis Society  
The Society of Sigma Xi

### HONORS AND AWARDS

Travel award, Gordon Research Conference, "CO<sub>2</sub> fixation and metabolism in green plants," Oxford,  
England (1999)  
Gamma Sigma Delta, Member and Past-President of TAMU Chapter  
Sarah Bradley Tyson Foundation Graduate Fellowship  
Sigma Xi Member; 3<sup>rd</sup> place Student Speaking/Paper Competition; Student Research Award  
Washington State University Graduate Student Travel Grants (1979, 1981)

## HONOR SOCIETIES/RECOGNITIONS

Gamma Sigma Delta - International Agricultural Honor Society  
Golden Key National Honor Society  
Who's Who of American Women, 2008-2009  
Who's Who in the South and Southwest  
Who's Who in Science and Engineering  
Honored Member Strathmore's Who's Who 2002-2003 Edition  
Honored Member America's Registry of Outstanding Professionals, 2002-2003

## RESEARCH

1. Mollusc - algal chloroplast endosymbiosis: cellular, biochemical and molecular studies of algal chloroplasts intracellularly associated with the marine mollusc *Elysia chlorotica*.
  - a. Interdomain horizontal gene transfer.
  - b. Evolution of secondary endosymbiosis and photosynthesis.
  - c. Anti-cancer metabolites from marine organisms.
2. Invasive plants in Maine and New England.
3. *Porphyra* genomics working group.

### *Publications in Refereed Journals*

Rumpho ME, S Pochareddy, FP Dastoor, JR Manhart, KM Soule and EJ Summer 200x Molecular characterization of the phosphoribulokinase gene (*prk*) from the heterokont alga *Vaucheria litorea* and horizontal transfer to the kleptoplastic sea slug *Elysia chlorotica* (Mollusca). (in preparation)

Rumpho ME, JM Worful, J Lee, K Kannan, MS Tyler, D Bhattacharya, A Moustafa and JR Manhart 2008 Horizontal gene transfer of the algal nuclear gene *psbO* to the photosynthetic sea slug *Elysia chlorotica*. Proceedings of the National Academy of Sciences USA 105:17867–17871

Green BJ, TC Fox, JR Manhart and ME Rumpho 2005 Stability of isolated chromophytic algal chloroplasts that participate in a unique molluscan/algal endosymbiosis. Symbiosis 40:31-40

Fukao T, AH Paterson, MA Hussey, Y Yamasue, RA Kennedy, and ME Rumpho 2004 Construction of a comparative RFLP map of *Echinochloa crus-galli* toward QTL analysis of flooding tolerance. Theoretical and Applied Genetics 108:993-1001

Fukao T, S Ida, M Rumpho, R Kennedy and Y Yamasue 2003 Differential gene expression of the  $\alpha$ -chain of mitochondrial H<sup>+</sup>-transporting ATP synthase between dormant and nondormant seeds of paddy *Echinochloa* weeds. Weed Biology and Management 3:15-20

Fukao T, RA Kennedy, Y Yamasue and ME Rumpho 2003 Analysis of anaerobically-induced enzymes during germination of *Echinochloa crus-galli* varieties tolerant and intolerant of anoxia. Journal of Experimental Botany 54:1-9

Nolte BA and ME Rumpho 2001 Rapid micro-assay of camptothecin in *Camptotheca acuminata*. Planta Medica 67:376-378

Rumpho ME, EJ Summer, BJ Green, TC Fox and JR Manhart 2001 Mollusc/algal chloroplast symbiosis: How can isolated chloroplasts continue to function for months in the cytosol of a sea slug in the absence of an algal nucleus? Zoology 104:303-312

Rumpho ME, JR Manhart and EJ Summer 2000 Solar-Powered Sea Slugs. Mollusc/algal chloroplast symbiosis. Plant Physiology 123:29-38

Green BJ, W-y Li, JR Manhart, TC Fox, EJ Summer, RA Kennedy, SK Pierce and ME Rumpho 2000 Mollusc-algal chloroplast endosymbiosis: photosynthesis, thylakoid protein maintenance, and chloroplast gene expression continue for many months in the absence of the algal nucleus. Plant Physiology 124:331-342

Pierce SK, TK Maugel, ME Rumpho, JJ Hanten and WL Mondy 1999 Annual viral expression in a sea slug population: Life cycle control and symbiotic chloroplast maintenance. Biological Bulletin 197:1-6

Fox TC, BJ Green, RA Kennedy and ME Rumpho 1998 Changes in hexokinase activity in *Echinochloa phyllopogon* and *Echinochloa crus-pavonis* in response to abiotic stress. Plant Physiology

118:1403-1409

- Fox TC and ME Rumpho 1997 Modification of an *in situ* renaturation method for analysis of protein kinase activity with multiple substrates. *BioTechniques* 23:652-657
- Pierce SK, RW Biron and ME Rumpho 1996 Endosymbiotic chloroplasts in molluscan cells contain proteins synthesized after plastid capture. *Journal of Experimental Biology* 199:2323-2330
- Mujer CV, DL Andrews, JR Manhart, SK Pierce and ME Rumpho 1996 Chloroplast genes are expressed during intracellular symbiotic association of *Vaucheria litorea* plastids with the sea slug *Elysia chlorotica*. *Proceedings of the National Academy of Sciences USA* 93:12333-12338
- Fox TC, CV Mujer, DL Andrews, AS Williams, BG Cobb, MC Drew, RA Kennedy and ME Rumpho 1995 Identification and expression of anaerobically induced enolase in *Echinochloa phyllopogon* and *E. crus-pavonis*. *Plant Physiology* 109:433-443
- Mujer CV, TC Fox, AS Williams, DL Andrews, RA Kennedy and ME Rumpho 1995 Purification, properties and phosphorylation of anaerobically induced enolase in *Echinochloa phyllopogon* and *E. crus-pavonis*. *Plant and Cell Physiology* 36:1459-1470
- Zhang F, J-J Lin, TC Fox, CV Mujer, ME Rumpho and RA Kennedy 1994 Effect of aerobic priming on the response of *Echinochloa crus-pavonis* to anaerobic stress: Protein synthesis and phosphorylation. *Plant Physiology* 105:1149-1157
- Fox TC, RA Kennedy and ME Rumpho 1994 Energetics of plant growth under anoxia: Metabolic adaptations of *Oryza sativa* and *Echinochloa phyllopogon*. *Annals of Botany* 74:445-455
- Rumpho ME, CV Mujer, DL Andrews, JR Manhart and SK Pierce 1994 Extraction of DNA from mucilaginous tissues of a sea slug (*Elysia chlorotica*). *BioTechniques* 17:1097-1101
- Mujer CV, ME Rumpho, J-J Lin and RA Kennedy 1993 Constitutive and inducible aerobic and anaerobic stress proteins in the *Echinochloa* complex and rice. *Plant Physiology* 101:217-226
- Kennedy RA, ME Rumpho and TC Fox 1992 Anaerobic metabolism in plants. *Plant Physiology* 100:1-6
- Everard JD, DR LeCain, ME Rumpho and RA Kennedy 1991 Mesocotyl root formation in *Echinochloa phyllopogon* (poaceae) in relation to root zone aeration. *American Journal of Botany* 78:462-469
- Sticklen MB, ME Rumpho and RA Kennedy 1989 Media conditioning to convert nonembryogenic rice calli to embryogenic calli. *International Rice Research Newsletter* 14:8-9
- Rumpho ME and FD Sack 1989 Fluorescent microscopy and radiolabeling of C<sub>3</sub> and C<sub>4</sub> chloroplasts using DIDS (diisothiocyanatostilbene disulfonic acid) as a marker for the phosphate-translocator. *Planta* 179:137-147
- Rumpho ME, GE Edwards, AE Yousif and K Keegstra 1988 Identification of the phosphate translocator in C<sub>3</sub> and C<sub>4</sub> mesophyll chloroplasts: Specific labeling by tritiated dihydro-DIDS (1,2-ditritio-1,2-[2,2'-disulfo-4,4'-diisothiocyano] diphenyl ethane). *Plant Physiology* 86:1193-1198
- Rumpho ME and GE Edwards 1987 Influence of organic-phosphates on 3-phosphoglycerate dependent O<sub>2</sub> evolution in C<sub>3</sub> and C<sub>4</sub> mesophyll chloroplasts. *Plant and Cell Physiology* 28:805-813
- Rumpho ME and GE Edwards 1985 Characterization of DIDS (4,4'-diisothiocyano-2,2'-disulfonic acid stilbene) inhibition of 3-phosphoglycerate-dependent O<sub>2</sub> evolution in isolated chloroplasts: Evidence for a common binding site on the C<sub>4</sub> phosphate translocator for 3-phosphoglycerate, phosphoenolpyruvate and inorganic phosphate. *Plant Physiology* 78:537-544
- Rumpho ME, MSB Ku, SH Cheng and GE Edwards 1984 Photosynthetic characteristics of C<sub>3</sub>-C<sub>4</sub> intermediate *Flaveria* species III. Reduction of photorespiration by a limited C<sub>4</sub> pathway of photosynthesis in *Flaveria ramosissima*. *Plant Physiology* 75:993-996
- Rumpho ME, A Pradet, A Khalik and RA Kennedy 1984 Energy charge and emergence of the coleoptile and radicle at varying oxygen levels in *Echinochloa crus-galli*. *Physiologia Plantarum* 62:133-138
- Rumpho ME and GE Edwards 1984 Inhibition of 3-phosphoglycerate-dependent O<sub>2</sub> evolution by phosphoenolpyruvate in C<sub>4</sub> mesophyll chloroplasts of *Digitaria sanguinalis* (L.) Scop. *Plant Physiology* 76:711-718
- Rumpho ME and RA Kennedy 1983 Anaerobiosis in *Echinochloa crus-galli* (barnyard grass) seedlings: Intermediary metabolism and ethanol tolerance. *Plant Physiology* 72:44-49
- Kennedy RA, ME Rumpho and D VanderZee 1983 Germination of *Echinochloa crus-galli* (barnyard grass) seeds under anaerobic conditions: Respiration and response to metabolic inhibitors. *Plant Physiology*

72:787-794

- Rumpho ME and RA Kennedy 1983 Activity of the pentose phosphate and glycolytic pathways during anaerobic germination of *Echinochloa crus-galli* (barnyard grass) seeds. *Journal of Experimental Botany* 34:893-902
- Monson RK, ME Rumpho and GE Edwards 1983 The influence of inorganic phosphate on photosynthesis in intact chloroplasts from *Mesembryanthemum crystallinum* L. plants exhibiting C<sub>3</sub> photosynthesis or Crassulacean acid metabolism. *Planta* 159:97-104
- Rumpho ME, GE Edwards and WH Loescher 1983 A pathway for photosynthetic carbon flow to mannitol in celery leaves: Activity and localization of enzymes. *Plant Physiology* 73:869-873
- Rumpho ME and RA Kennedy 1981 Anaerobic metabolism in germinating seeds of *Echinochloa crus-galli*: Metabolite and enzyme studies. *Plant Physiology* 68:165-168
- Kennedy RA, SCH Barrett, D VanderZee and ME Rumpho 1980 Germination and seedling growth under anaerobic conditions in *Echinochloa crus-galli* (barnyard grass). *Plant, Cell and Environment* 3:243-248

### ***Publications in Books***

- Rumpho ME, FP Dastoor, JR Manhart and J Lee 2006 The Kleptoplast. In: *Advances in Photosynthesis and Respiration – The Structure and Function of Plastids*. RR Wise and JK Hooper, eds, Springer Pub., Vol. 23, pp 451-473
- Fox TC, MC Drew and ME Rumpho 2000 Ecological physiology of anaerobic stress tolerance. In: *Spanish Handbook on Plant Ecophysiology*. Manuel J. Reigosa Roger, ed.
- Kennedy RA, TC Fox, JD Everard and ME Rumpho 1991 Biochemical adaptations to anoxia: Potential role of mitochondrial metabolism to flood tolerance in *Echinochloa phyllopogon* (barnyard grass). In: *Plant Life Under Oxygen Deprivation*. MB Jackson, DD Davies and H Lambers, eds, SPB Academic Pub., The Netherlands, pp 217-227
- Kennedy RA, TC Fox, LD Dybiec and ME Rumpho 1990 Biochemical adaptations to anoxia in rice and *Echinochloa* seeds. In: *Recent Advances in the Development and Germination of Seeds*. RB Taylorson, ed, Plenum Press, NY, pp 151-163
- Kennedy RA, ME Rumpho and TC Fox 1987 Germination physiology of rice and rice weeds: Metabolic adaptations to anoxia. In *RMM Crawford, ed., Plant Life in Aquatic and Amphibious Habitats*, British Ecological Society Special Symposium, Blackwell, Oxford, pp 193-203

### ***Technical Articles***

- Rumpho ME, MS Tyler, JR Manhart and JM Worful 2007 Solar-powered sea slugs. *NSF Highlights* (online), No. 13921.
- D'Appollonio J, LB Stack, M Rumpho and D Zhang 2006 Is burningbush invading your woodlot? *SWOAM News*. Vol 31 No 8, pp 10-11
- D'Appollonio J, LB Stack, M Rumpho and D Zhang 2006 A volunteer opportunity: help us determine if burningbush is invasive in Maine. *Maine Master Gardener News*. The University of Maine Cooperative Extension pub., July
- Rumpho ME and JR Manhart 2001 *Elysia chlorotica* and *Vaucheria litorea*: Symbiosis between a mollusc and algal plastids produces solar-powered sea slugs. *ISS Symbiosis International*, Vol. 1, No. 2.

### ***Popular Articles written by Others***

- Dolloff A 2009 The Big Switcheroo. *UMaine Today* (in press, March 2009)
- Pennisi E 2006 Plant Wannabes. *Science* 313:1229

### ***GenBank Submissions***

- Worful JM and ME Rumpho 2008 Protein O from photosystem II of the heterokont alga, *Vaucheria litorea*. EU621881.
- Worful JM and ME Rumpho 2008 *Vaucheria litorea* like-protein O of photosystem II from *Elysia chlorotica*. EU621882.

- Kannan K and ME Rumpho 2008 *Elysia chlorotica* mitochondrion complete genome. EU599581.
- Kannan K, ME Rumpho and JR Manhart 2007 *Vaucheria litorea* 18S ribosomal RNA gene, partial sequence; internal transcribed spacer 1 and 5.8S ribosomal RNA gene, complete sequence; and internal transcribed spacer 2, partial sequence. EF441743.
- Worful JM, FP Dastoor and ME Rumpho 2006 *Vaucheria litorea* photosystem II extrinsic protein O (PsbO) mRNA, complete cds. DQ514337.
- Rumpho ME, S Pochareddy and F Dastoor 2006 *Vaucheria litorea* phosphoribulokinase (prk) gene, complete cds, nuclear gene for chloroplast product. DQ388997.
- Fukao T, RA Kennedy, Y Yamasue and ME Rumpho 2002 *Echinochloa crus-galli* var. *formosensis* pyruvate decarboxylase, partial cds. AF497855.
- Fukao T, RA Kennedy, Y Yamasue and ME Rumpho 2002 *Echinochloa crus-galli* var. *formosensis* 26S rRNA gene, partial sequence. AF497856.
- Fukao T, RA Kennedy, Y Yamasue and ME Rumpho 2002 *Echinochloa crus-galli* var. *formosensis* alcohol dehydrogenase mRNA, partial cds. AF497857.
- Fukao T, RA Kennedy, Y Yamasue and ME Rumpho 2002 *Echinochloa crus-galli* var. *formosensis* aldolase mRNA, partial cds. AF497858.
- Fukao T, EJ Summer and ME Rumpho 2001 An actin nuclear gene fragment from the photosynthetic sea slug, *Elysia chlorotica*. AF448493.
- Summer EJ and ME Rumpho 2001 *Vaucheria litorea* light harvesting complex protein 1 mRNA, complete cds.; nuclear gene for chloroplast product. AF336982.
- Summer EJ and ME Rumpho 2001 *Vaucheria litorea* cytochrome b6/f complex Rieske FeS protein mRNA, partial cds.; nuclear gene for chloroplast product. AF336983.
- Summer EJ and ME Rumpho 2001 *Vaucheria litorea* cyclophilin mRNA, partial cds.. AF336984.
- Summer EJ and ME Rumpho 2001 *Vaucheria litorea* light harvesting complex protein 2 mRNA, partial cds., nuclear gene for chloroplast product. AF336985.
- Summer EJ and ME Rumpho 2001 *Vaucheria litorea* phosphoribulokinase mRNA, complete cds.; nuclear gene for chloroplast product. AF336986.
- Li W-Y, ME Rumpho and JR Manhart 2000 *Vaucheria litorea* photosystem II subunit core 32 kD protein D1 (psbA) gene, complete cds; chloroplast gene for chloroplast product. AF227740.
- Li W-Y, JR Manhart and ME Rumpho 2000 *Vaucheria litorea* ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcL) and ribulose-1,5-bisphosphate carboxylase/oxygenase small subunit (rbcS) genes, complete cds. AF207527.

### ***Invited Speaker at Select National and International Meetings***

- International Symbiosis Society. Symposium on “Agents of dependence – from viruses to organelles.” Madison WI, August 2009.
- American Society of Plant Biologists. Symposium on "Genomics approaches for systematics, energy metabolism and acclimation." Honolulu, HA, July 2009.
- Gordon Research Conference on Mitochondria and Chloroplasts. “Horizontal gene transfer in a sea slug - algal chloroplast endosymbiosis.” University of New England, ME, August 2008.
- FEBS advanced course on the “Origin and evolution of mitochondria and chloroplasts.” Acquafredda di Maratea, Italy, March 2007.
- 5<sup>th</sup> International Symbiosis Society Congress. “Kleptoplasty in *Elysia chlorotica*: from molecular biology to aquaculture.” Vienna, Austria, August 2006.
- FEBS advanced course on the “Origin and evolution of mitochondria and chloroplasts.” Wildbad Kreuth, Germany, March 2005.
- 4<sup>th</sup> International Symbiosis Society Congress. “Does the chloroplast genome of *Vaucheria litorea* contain all the genes necessary to sustain kleptoplast activity in sea slugs or has lateral gene transfer occurred?” St. Mary’s University, Halifax, Nova Scotia, August 2003.
- FEBS advanced course on “Origin and evolution of mitochondria and chloroplasts.” Hvar, Croatia,

March/April 2001, 2002 (declined invitations due to travel advisories).  
Annual Meeting of the German Zoological Society, Symposia on “Symbiosis.” University of Osnabrueck, Germany, June 2001.

**University/Departmental Invited Seminars** (2000 to the present)

Michigan State University, Dept. of Plant Biology, March 2008  
Washington State University, Biology Dept., February 2008  
University of Maine, School of Marine Science, November 2007  
DuPont Chemical Company, DE, March 2007  
University of Maine, Dept. of Biology, February 2006  
University of New Brunswick, Dept. of Biology, January 2005  
University of New Hampshire, Zoology Dept. and Plant Biology Dept. (co-sponsored), March 2002  
Boston University, Dept. of Biology, April 2002  
University of Maine Research Café, April 2002  
Trinity College, Hartford, CT, Dept. of Biology, April 2001  
University of Maine, Dept. of Chemistry, October 2000  
University of Maine, Dept. of Biochemistry, Microbiology and Molecular Biology, March 2000

**Presentations at Annual Meetings**

My lab typically presents at the American Society of Plant Biologist’s annual meeting (formerly the American Society for Plant Physiologists), and occasionally at the Phycological Society meetings either as an oral or poster presentation. Every third year we present at the International Symbiosis Society congress and every two years at the FEBS conference in Europe when funded. Numerous abstracts have been published in journal proceedings or online and are available upon request.

**External Contracts and Grants**

\$ 40,000	National Science Foundation–Integrative Organismal Systems Supplement, “Generating a draft genome sequence from <i>Elysia chlorotica</i> to elucidate horizontal gene transfer (HGT) from its algal prey.” January 2009 – August 2010.
\$102,797	USDA-Federal Administration Research Grant, “Center for invasive plants: A New England initiative to manage noxious invasive weeds.” Grant to UConn, UVM and UMaine totaling \$293,705; M. Rumpho (34%), L. Stack (33%) and D. Zhang (33%). June 2008 to May 2009.
\$ 4,500	Maine Sea Grant, “Discovery of Natural Anticancer Compounds from a Marine Mollusc.” October 2007 – September 2008.
\$420,000	National Science Foundation–Integrative Organismal Systems, “Sea slug-algal chloroplast symbiosis: Towards an integrated understanding of long-term chloroplast functioning in an animal.” August 2007 – August 2010.
\$ 50,000	USDA-Federal Administration Research Grant, “Center for invasive plants: A New England initiative to manage noxious invasive weeds.” Grant to UConn, UVM and UMaine totaling \$393,822; \$50,000 to UMaine to Professors M. Rumpho, L. Stack and D. Zhang. June 2006 to May 2007.
\$ 10,000	Maine Technology Institute, “Commercialization of sea slug aquaculture.” September 2005 – August 2007.
\$ 10,000	American Society of Plant Biology, “Taking solar-powered sea slugs into the classroom.” September 2005 – January 2007.
\$ 6,000	National Science Foundation Research Experience for Undergraduates - Ecological and Evolutionary Physiology, “Biochemical and molecular autonomy of symbiotic chloroplasts.” June 2003 – January 2006
\$396,000	National Science Foundation - Ecological and Evolutionary Physiology, “Biochemical and molecular autonomy of symbiotic chloroplasts.” February 2001 - January 2006

\$ 2,000	Xylomed Research, "Production of the anti-cancer compound camptothecin (CPT) in <i>Camptotheca acuminata</i> ." December 1999,2000
\$ 80,000	National Science Foundation - Ecological and Evolutionary Physiology, "A novel system to study photosynthetic biochemical autonomy of chloroplasts." September 1998 - August 2000
\$180,000	National Science Foundation, "Cellular and molecular interactions between symbiotic chloroplasts and molluscan cells." Co-Author with Dr. Sidney Pierce, Univ. of MD, \$15,000 sub-contract to TAMU, July 1996 to June 1998
\$216,000	USDA - National Needs Graduate Fellowship - Plant Biotechnology, January 1996 to December 1998 (participant; PI=Andrew Patterson)
\$157,000	United States Department of Agriculture Competitive Research Grant, "Anaerobically induced enolase in <i>Echinochloa</i> : Biochemical and molecular characterization." August 1994 to February 1998
\$ 85,000	American Chemical Society, Herman Frasch Foundation Grant in Agricultural Chemistry, "Regulation of chloroplast biochemistry and metabolite transport." July 1992 - June 1997
\$100,000	National Science Foundation, "Chloroplast transport: Localization and characterization of the C <sub>4</sub> -phosphate/phosphoenolpyruvate translocator." Dec. 1989 to Nov. 1991
\$123,000	United States Department of Agriculture Competitive Research Grant, "Anaerobic metabolism in <i>Echinochloa oryzicola</i> (barnyard grass) seeds." Nov. 1989 to Oct. 1991
\$ 60,000	National Science Foundation, "Chloroplast transport:Characterization of the C <sub>4</sub> phosphoenolpyruvate translocator." Sept. 1986 to Feb. 1989
\$ 200	Grant-in-aid of Research from the Society of Sigma Xi, 1980

#### ***Internal Contracts and Grants***

\$ 50,000	Maine Agriculture and Forest Experiment Station, "Center for invasive plants: A New England initiative to manage noxious invasive weeds." M. Rumpho (lead Pi), L. Stack and D. Zhang. Oct. 2007 – Sept. 2008 (substitute for USDA earmark funds this year).
\$ 6,000	Faculty Research Award, University of Maine, Jan. 2007-Dec. 2007
~\$ 9,000/yr	Maine Agriculture and Forest Experiment Station, Project No. ME08756-01. Annual support, Sept. 2001 – Aug. 2008
\$50,000	Texas Agriculture Experiment Station-Faculty Research Development Program "Develop strategies to maximize accumulation of the anti-cancer compound camptothecin in <i>Camptotheca</i> - A new crop for Texas agriculture." Jan. 1998 to Aug. 1999
\$ 21,513	Texas A&M University Interdisciplinary Research Initiative Grant "Biochemical and Genetic Autonomy of Symbiotic Chloroplasts in Molluscan Cells." July 1996 to June 1997, Co-PI with Dr. James Manhart
\$ 25,000	Texas A&M University Interdisciplinary Research Initiative Grant "Biochemical and genetic autonomy of symbiotic chloroplasts in molluscan cells." July 1995 to June 1996, Co-PI with Dr. James Manhart
\$ 5,900	NIH - Biomedical Research Support Award "Chloroplast biochemistry of a marine slug/algal chloroplast symbiosis." April 1991 to April 1992, PI
\$ 6,500	NIH - Biomedical Research Support Award "Chloroplast biochemistry of a marine slug/algal chloroplast symbiosis." June 1990 to March 1991, PI
\$ 1,000	Ohio State University Small Equipment Grant, Nov. 1987, PI
\$ 500	Washington State University Graduate Student Travel Grants 1979, 1981, PI

## TEACHING

### **Formal Courses at UMaine (2001-2009)**

Introduction to Molecular and Cellular Biology (BMB280, 3 cr, 6 lectures) – Spring 2009  
Special Topics BMB – Molecular Biology – Symbiosis (BMB550, 1 cr) – Spring 2009  
Plant Physiology (BIO452, 2cr, 25% responsibility) – Fall 2008  
Special Topics BMB – Plant Biochemistry- Symbiosis (BMB597, 2 cr) – Fall 2008  
Special Topics BMB – Plant Biochemistry (BMB597, 3 cr) – Spring 2007  
Analytical and Preparative Biochemistry Lab (BMB464, 4 cr) – Fall 2006, Spring 2008, Spring 2009  
Special Topics BMB – Symbiotic Relationships (BMB597, 1cr) – Spring 2006  
Undergraduate & Graduate Seminars in Biochemistry (BMB582, 1cr) - Spring 2001, 03, 05, 06; Fall 2007  
Fundamentals of Chemistry (BMB207, 3cr) – Fall 2004, 2005  
Fundamentals of Chemistry Lab (BMB209, 1cr) – Fall 2004, 2005  
Special Topics in Molecular Biology – Plant Biochemistry (BMB550, 3 cr) – Spring 2004  
Fundamentals of Chemistry Lecture and Lab (BMB207, 4 cr) - Fall 2001, 2002, 2003  
Introduction to Biochemistry (BMB322, 3 cr, co-taught) - Spring 2002  
Introduction to Biochemistry Lab (BMB323, 1 cr, co-taught) - Spring 2002  
Special Topics in Microbiology - Symbiosis (BMB598, 1 cr) - Spring 2001

### **Informal Courses**

BMB699, Graduate Thesis, each semester, variable credit  
BMB491, Biochemistry, Microbiology and Molecular Biology research, each semester, variable credit

### **Graduate Student Advising**

Anne Roberts, MS student began 9/08, Biochemistry, University of Maine  
Vanessa Coats, MS student began 6/08, Biology, “New England Invasive Plants,” University of Maine  
Katie Clegg, MS student, co-advisor, began 9/07, Math & Science Teaching, University of Maine  
Kara Soule, MS student began 9/07, Biochemistry, University of Maine.  
Jared Worful, MS 12/08, Biochemistry, University of Maine. Research Technician Immunogen, Boston.  
Sirisha Pochareddy, MPS completed Aug. 2005, “Lateral transfer of two algal phosphoribulokinase gene fragments to the genome of the sea slug *Elysia chlorotica*.” Biochemistry, University of Maine. Currently: PhD student at Indiana State University.  
Takeshi Fukao, PhD Dec. 2002; Completed research at UMaine, but received degree from the Program in Molecular and Environmental Plant Sciences, Texas A&M University; Currently: Post-doctoral Associate Univ. CA Riverside.  
Brian J. Green, PhD May 2001, Program in Molecular and Environ. Plant Sciences, “Molecular and biochemical characterization of a mollusc/algal chloroplast endosymbiosis.” Texas A&M University; Completed Post-doctoral Associate Univ. of Penn.; currently: Junior Scientist, Fraunhofer USA, Delaware.  
Wei-ye Li, MS May 2000, “Chloroplast symbiosis: organization and expression of chloroplast genes and maintenance of chloroplast activity in a foreign host.” Program in Plant Physiology/Plant Biotechnology, Texas A&M University; MS program in computer science at the Univ. of North Texas.  
Beth Nolte, MS August 1999, “Micro-analysis and localization of camptothecin in *Camptotheca acuminata*.” Program in Plant Physiology/Plant Biotechnology, Texas A&M University; Dr. of Education Program, Louisville, KY.  
Allison Schweisguth Johnson, MS May 1996, “Heat shock induced changes in enolase and HSP 70 in *Echinochloa phyllopogon*.” Program in Plant Physiology/Plant Biotechnology, Texas A&M University. PhD from Univ. of TX.

- Co-advisor for Rachel Biron, MS 1994, "Protein synthesis occurs in symbiotic chloroplasts in residence in the cytoplasm of molluscan cells." Dept. of Zoology, University of Maryland; Completed PhD at Dartmouth.
- Co-advisor for Theodore C. Fox, PhD 1992, "Energetics and protein metabolism in *Echinochloa phyllopogon* during anaerobiosis." Department of Botany, University of MD; Assistant Professor Western Florida University.
- Co-advisor for Leslie D. Dybiec, MS 1989, "Anaerobiosis and ethanol effects on germination, growth, and protein synthesis of five *Echinochloa* species and rice." Dept. of Horticulture, The Ohio State University.

***Graduate Advisory Committee Member (in addition to my own students)***

- Aleksandra Kristo, PhD student 2008 – present (UMaine, Food Science & Nutrition)
- Venura Herath, PhD student, 2007 – present (UMaine, Biochemistry)
- Jamie Pinto, MS Aug. 2008 (UMaine, Ecology & Environmental Science)
- Nic Blouin, PhD student, 2007 – present (UMaine, Marine Biology)
- Sarah Burke, MPS student, 2007 – present (UMaine, Biochemistry)
- Aleksandra Kristo, MS May 2008 (UMaine, Food Science & Nutrition)
- Valerie Moreau, PhD student, 2005 – 2007 (UMaine, Marine Biology; left program Spring 2007)
- Chen Cheng, MS Aug. 2006 (UMaine, Biochemistry)
- Yvette Luyton, PhD student, 2001- present (UMaine, Microbiology)
- Con Sullivan, PhD May 2006 (UMaine, Biochemistry/Molecular Biology)
- Andrea Hermann, MS May 2004 (UMaine, Biochemistry)
- Meredith Moody, MPS 2002-left the program (UMaine, Microbiology)
- Brent Wells, MS Dec. 2003 (UMaine, Biochemistry)
- Judy Harris, MPS, May 2001 (UMaine, Biochemistry)
- Robert Corbett, PhD, May 2005, Program in Mol. and Envir. Plant Sciences, Texas A&M University
- Chris Tingle, PhD May 2000, Dept. of Soil & Crop Sciences, Texas A&M Univ.
- Jose Grossi, PhD 2001, Dept. of Horticulture, Texas A&M University
- Matthew Wargo, MS 2000, Biology Dept., Texas A&M University
- Mohammad Al-Saikhan, PhD 2000, Dept. of Horticulture, Texas A&M University
- Philip Jost, PhD 2000, Dept. of Soil & Crop Sciences, Texas A&M University
- Karen L. Posey, MS 1995, Program in Plant Physiol./Plant Biotech., Texas A&M University
- Greg Wolfe, PhD 1993, Department of Botany, University of Maryland
- Hema Bandaranayake, PhD 1992, Department of Botany, University of Maryland

***Undergraduate Research Students***

- Kate Dutil, University of Maine, Fall 2008 – present
- Kathleen Bradley, University of Maine, Fall 2008 - present
- Helen Mattsson, University of Maine, Fall 2008 - present
- Samantha Jewell, University of Maine, Spring 2008
- Alexander Paine, University of Maine, Fall 2007 – Fall 2008
- Amber Alborg, University of Maine, Fall 2007
- Susan Devine, University of Maine, Spring 2007 - present
- Craig Fournier, University of Maine, Spring 2007 – Fall 2007
- Jordan Pekrul, University of Maine, Spring 2007 – Spring 2008
- Ryan Colbeth, University of Maine, Fall 2006 – Spring 2007
- Kara Soule, University of Maine, Fall 2005 – Spring 2007
- Stefanie Almendinger, University of Maine, Fall 2005 – Spring 2007
- Crystal Zagwyn, University of Maine, Fall 2005 – Fall 2006
- Britta Sundquist, University of Maine, Senior Research Project, Fall 2005 – Spring 2006

Christopher Sweeney, University of Maine, Senior Research Project, Fall 2005 – Spring 2006  
 Charles Cooper, University of Maine, Senior Research Project, Spring 2005 – Summer 2005  
 Kim Commack, University of Maine, Senior Research Project, Spring 2005 – Summer 2005  
 Janine Guetterman, University of Maine, Senior Research Project, Summer 2004 – Spring 2005  
 Janine Livingston, University of Maine, Senior Research Project, Summer 2004 – Spring 2005  
 Michelle Benoit, University of Maine, Honors Program, Fall 2003 – Spring 2004  
 Jared Worful, University of Maine, Honors Program, Spring 2003 – Summer 2005  
 Nathaniel Abbott, University of Maine, Fall 2003 – Spring 2004  
 Chen Cheng, University of Maine, Senior Research Project, Summer 2003 – Fall 2004  
 Alex Needham, University of Maine, Senior Research Project, Summer 2002 - Spring 2004  
 Jayson Morrison, University of Maine, Senior Research Project, Fall 2003 – Spring 2004  
 Dane Refsland, St. Thomas Univ., St. Paul, MN, NSF REU Fellow, Summer 2003  
 Amber Benton, University of Maine, Spring 2003 - Summer 2003  
 Chris Sweeney, University of Maine, Spring 2003  
 Chun Wu, University of Maine, Spring 2003  
 Christina Welch, University of Maine, Senior Research Project, Fall 2002 - Spring 2003  
 Janet Bakeman, University of Maine, Senior Research Project, Fall 2001, Spring 2002  
 Jarod Rollins, University of Maine, Senior Research Project, Fall 2000 - Fall 2001  
 Brian Gaas, Texas A&M University, Spring 1999, Fall 1999, Spring 2000  
 Natalie Hauge, Texas A&M University, Spring 1997  
 Robin Miller, Texas A&M University, Summer 1996  
 Gavind Niamatali, Texas A&M University, Independent Study, June 1994 - 1997  
 Adrienne Williams, Texas A&M University, Lab Start Research Program, Fall 1993 - 1997

***Undergraduate Honors Research Program, University of Maine***

Susan Devine – Chair of Committee, Fall 2008-  
 Helen Mattsson – Chair of Committee, Fall 2008-  
 Alexandra Albert - Committee member, Fall 2008 -  
 Teagan O’Toole - Committee member, Fall 2007 – Spring 2008 (Highest Honors)  
 Colette Imbeau - Committee member, Spring 2007 – Fall 2007 (High Honors)  
 Jared Tucker - Chair of Committee, Summer 2005-Spring 2007 (High Honors)  
 Jared Worful - Chair of Committee, Spring 2005 (High Honors)  
 Allison Kelly - Committee member, Spring 2005 (High Honors)  
 Shinobu Uehara - Committee member, Spring 2002 (Honors)

***Undergraduate Advisees, Dept. of Biochemistry, Microbiology and Molecular Biology, UMaine***

Alexander Paine	(Fall 2008)	
Alexandra Albert	(Fall 2007 – present)	
Amber Alborg	(Fall 2007 – present)	
Lucas Emery	(Fall 2007 – present)	
Anjelica Hodgson	(Fall 2007 – present)	
Alex Hopke	(Fall 2007 – present)	
Beiyun Liu	(Fall 2007 – present)	
Samantha Jewell	(Fall 2007 – present)	
James Lyons	(Fall 2007 – present)	
Gregory Noyes	(Fall 2007 – present)	
Lynn Kenney	(Fall 2006 – present)	
Jordon Pekrul	(Fall 2005 – Spring 2008)	Vet. Assistant
Jennifer Upham	(Fall 2005 – Fall 2007)	
Brett Sowerby	(Fall 2005 – Spring 2008)	
James Murphy	(Fall 2005 – Spring 2006)	

Samuel Madore	(Fall 2005 – Spring 2008)	Application to DO School
Kara Soule	(Fall 2005 – Aug. 2007)	MS Biochem Prgm, UMaine
Jared Tucker	(Fall 2006 – Spring 2007)	Pharmacy Tech., Maine
James Hill	(Fall 2006 – Spring 2007)	
Marie-Michele Bouchard	(Fall 2006 – Spring 2007)	
Stefany Almendinger	(Fall 2005 – Spring 2007)	Technician, Boston
Amanda Theriault	(Fall 2005 – Spring 2007)	
David Kuwik-Amato	(Fall 2005 – Spring 2007)	
Vanessa Coats	(Fall 2005 – Spring 2007)	Graduate School, Botany, UMaine
Susannah Orzell	(Fall 2004 – Spring 2007)	Graduate School, Boston
Svetlana Miljkovic	(Fall 2004 – Fall 2007)	Technician, Boston
Andrew Hoskins	(Fall 2005 – Fall 2006)	
Crystal Zagwyn	(Spring 2006 – Fall 2006)	
Jared Worful	(Spring 2004 – Summer 2005)	MS Biochem Prgm, UMaine
Vernon Beasley	(Spring 2003 – Spring 2005)	
Hope Blackstone	(Fall 2002 – Spring 2005)	
Janine Livingston	(Fall 2001 – Summer 2005)	
Jayson Morrison	(Fall 2001 – Spring 2005)	
Janeen Shephard	(Fall 2001 – Spring 2005)	
Chen Cheng	(Fall 2002 – Spring 2004)	MS UMaine, Technician UCLA
Nichole Taylor	(Fall 2001 – Spring 2004)	MS Univ. North Texas, Forensics
Amber Benton	(Spring 2003 – Fall 2003)	
Christina Welch	(Fall 2001 – Spring 2003)	

#### ***High School Research Students***

Wendy Sanchez, Upward Bound Regional Math-Science Program, UMaine, Summer 2007, 2008  
Michelle Benoit, Orono High School, Orono, ME, University of Maine, Summer 2003  
Matthew Whorton, Orono High School, Orono, ME, University of Maine, Summer 2002  
Curran Kennedy, Orono High School, Orono, ME, University of Maine, Summer 2002, 2003  
Natalie Wilson, Texas A&M University, Lab Start Research Program, Summer 1998  
Shannon Mackey, Texas A&M University, Lab Start Research Program, Summer 1995  
Angela Cassas, Texas A&M University, Lab Start Research Program, Summer 1994  
Adrienne Williams, Texas A&M University, Lab Start Research Program, Summer 1993  
Caleb Kennedy, Roseville Area High School, MN, Texas A&M University, Summer 1993-95

#### ***Postdoctoral Research Associates and Research Scientists***

Dr. Karen Pelletreau, University of Maine, April 2008 - present  
Dr. Farahad Dastoor, University of Maine, October 2001 – August 2006  
Dr. Elizabeth Summer, Texas A&M University, October 1999 - October 2000  
Dr. Theodore Fox, Texas A&M University, Sept. 1992 - December 2000  
Dr. Cesar Mujer, Texas A&M University, Jan. 1990 - March 1992 & Feb. 1993 - May 1996  
Dr. David Andrews, Texas A&M University, Sept. 1993 - October 1995  
Dr. Jih-Jing Lin, University of Maryland, Jan. 1991 - October 1991  
Dr. Mariam Sticklen, Ohio State University, 1986 - 1987  
Dr. Ali Alani, Ohio State University, 1985 - 1987

#### ***Visiting Research Scientist***

Dr. Yugi Yamasue, Kyoto, Japan, June - July 1990

#### ***Collaborating Scientists***

Dr. Debashish Bhattacharya, University of Iowa

Mr. Ahmed Moustafa, University of Iowa  
Dr. Mark Hamann, Ole Miss  
Dr. James R. Manhart, Texas A&M University  
Dr. Jungho Lee, Seoul, South Korea  
Dr. Mary Tyler, University of Maine

### **SERVICE (UMaine only)**

#### ***Professional*** - Unpaid reviewing activities for agencies and journals

Served on NSF Panel (April 2008; October 2008)  
Served on USDA Competitive Grants Panel (June 2007)  
Participated in “Symbiosis” course offered online by Prof. Douglas Zook at Boston University (Summer 2005)  
Served on USDA/ARS Review Committee  
External reviewer for international PhD thesis (Australia) (2000)  
Review grant proposals for the National Science Foundation  
Review grant proposals for the USDA Competitive Grants Program  
Review manuscripts for *Agricultural and Food Chemistry*, *American Journal of Botany*, *Annals of Botany*, *Aquatic Biology*, *BioTechniques*, *Canadian Journal of Botany*, *HortScience*, *Journal of Agricultural Chemistry*, *Journal of Invertebrate Biology*, *Journal of Phycology*, *Marine Ecology-Progress Series*, *Marine Environmental Science*, *Oecologia*, *Phycology*, *Physiologia Plantarum*, *Plant Molecular Biology*, *Plant Physiology*, *Proceedings of the National Academy of Sciences USA*, and *Symbiosis*.

#### ***Departmental Committees***

PEER Committee, Fall 2003-Spring 2006; ad hoc Spring 2008  
Graduate Admissions Committee, Spring 2003-present  
Policy Advisory Committee (PAC), Spring 2003-Fall 2005  
Social Committee, Spring 2003-Fall 2005  
Chair Search Committee, Spring 2003

#### ***College Committees***

MAFES Research Council. October 2002-September 2005

#### ***University-wide Activities***

University of Maine Foundation 75<sup>th</sup> Anniversary committee, Fall 2008 – Spring 2009  
Preparation of composite medical school recommendation letters (2007 [1], 2008 [2])  
1<sup>st</sup> – 3<sup>rd</sup> Annual Women’s Symposia Committee, Spring 2006, 2007 (invited speaker), 2008  
Resendez Ethics Essay Committee Reader, Spring 2006, 2008  
Radiation Safety Committee, Spring 2003 - present  
Committee Member – Search Committee for Head Coach of Women’s Ice Hockey, Spring 2007  
Buchanan Alumni House Building Committee, Fall 2006-present  
Expanding Your Horizons program for 7<sup>th</sup> and 8<sup>th</sup> grade girls interested in science, Spring 2005  
Chair – Search Committee for Head Coach of Women’s Ice Hockey, Spring 2004  
Task Force on Student Centeredness, Spring 2002  
Presentation at the “Women in the Curriculum” and Women’s Studies Program lunch series on, “Calculating Women: Using and Thinking about Numbers.” May 2001  
Represented Dept., College and Univ. at 55<sup>th</sup> and 56<sup>th</sup> Annual Maine State Science and Technology Fair, Univ. of Maine, May 2001, May 2002  
Judge, 56<sup>th</sup> Annual Maine State Science and Technology Fair, Univ. of Maine, May 2002

#### ***Community and Public Service***

Board of Trustees, Acadia Hospital (Feb. 2007 – present)  
State Board of Directors, Special Olympics Maine (Fall 2003 – Spring 2008)  
Participant in American Cancer Society “Relay for Life” team (Spring 2001 - present)  
Presentation at the *Foundation to Cure Melanoma* conference, Bar Harbor, ME (Sept. 2007)  
Leader “Pink Tulip Campaign” on campus, Maine Cancer Foundation (Fall 2006 - present)  
Provided sea slugs and assisted with t-shirt printing for Mr. David Schreiber’s class at Upper  
Arlington High School, OH (2009)  
Established collaboration with Ms. Cindy Langdon, 6<sup>th</sup> grade teacher at Noble VI School in  
Berwick, ME, using the photosynthetic sea slugs as a class teaching tool and as a way to  
deliver novel science ideas to the public (2003)  
Assisted Ms. Susanna Corona at the New England Aquarium in Boston with incorporating sea slugs  
into their display (2002)