

Curriculum Vitae

Gregory James Wadsworth

Department of Biology, Buffalo State College,
1300 Elmwood Ave., Buffalo, NY, 14222
(716) 878-5215 - Fax (716) 878 -4028
wadswogj@buffalostate.edu

Education

Ph.D., Genetics, 1989
Advisor: John G. Scandalios
North Carolina State University
Raleigh, North Carolina

B.S., Biology, 1984
University of New Orleans
New Orleans, Louisiana

Dissertation Title: Molecular Biology of the Catalase Gene-Enzyme System of Maize:
Gene Structure and Expression.

Professional Positions

1998-Present	Associate Professor Department of Biology Buffalo State College Buffalo, New York
1998-Present	Adjunct Assistant Research Professor Department of Molecular and Cellular Biophysics Roswell Park Cancer Institute Buffalo, New York
1992-1998	Assistant Professor Department of Biology Buffalo State College Buffalo, New York
2002	Visiting Scientist Soybean Genomics and Improvement Laboratory U.S. Department of Agriculture Beltsville, Maryland

1989-1992 Postdoctoral Research Associate
Plant Molecular Biology Laboratory
U.S. Department of Agriculture
Beltsville, Maryland

1984-1989 Graduate Research Associate
Department of Genetics
North Carolina State University
Raleigh, North Carolina

Teaching Experience

Undergraduate Courses

Bio 100: Principles of Biology
Bio 211: Intro to Cell Biology and Genetics
Bio 214: Introduction to Cell Biology
Bio 303: Genetics
Bio 305: Molecular Biology
Bio 314: Advanced Cell Biology
Bio 361: Genetics of Cancer (Undergraduate Seminar)
Bio 362: Biotechnology (Undergraduate Seminar)
Bio 450: Recombinant DNA Technology

Graduate Courses

Bio 601: Foundations of Molecular and Cell Biology
Bio 608: Molecular Genetics
Bio 612: Conservation Genetics
Bio 617: Research Seminar

College Service

Buffalo State College

College Senator 2004-Present
College Planning Council 2005-Present
Senate Academic Plan Committee 2004-Present,
(Chair 2005-Present)
Academic Technology Advisory Committee 2005- Present
Natural Science Intellectual Foundations ad hoc 2005
Senate Select Committee on General Education 2000-2003
(Chair 2000-2001)
Auxiliary Services Grant Allocation Committee 2000, Chair 2002-2004

Advisory Committee for Carnegie Campus Program on the
Scholarship of Teaching, 2000-2001
Senate General Education Subcommittee, 1996-1997
Commencement Committee 1997, 1999
President's Medal Committee 1997, 1998
Secondary Education Interdisciplinary Steering Committee 1999

School of Natural and Social Sciences, Buffalo State College

Science Bldg Renovation Advisory Committee, 2004-Present
Instruction and Curriculum Committee, 1994 - 1998
(Chair, 1995-1997)
Agenda, By-laws, and Elections Committee, 1998-2004
(Chair 2002-2004)

Biology Department, Buffalo State College

Assessment Committee, Chair 2002-Present
Biotechnology Track Coordinator 2003-Present
Undergraduate Academic Advisor, 1994-Present
Personnel Committee 1998-Present
Curriculum Committee, 1993 – 1999, 2003-Present
Chair 1994 – 1998
Cell Biologist Search Committee, Chair 2004-2005
Budget Committee 1992, 1995-1997
Computer Facility Committee 1992, 1997-2001
Department Chairman Pro Tem 1999-2001
Department Secretary 2003-2004
Graduate Committee, 1993 - 2001
Minority Faculty Search Committee 1997
MSed Program Revision Ad Hoc Committee, Chair 1998-2000

Current Research Interest

Recently, I have initiated two research projects utilizing the nematode *Caenorhabditis elegans*, a model research organism in genetics. The first project, a collaboration with Dr. Doug Easton, is a study of the physiology of the heat-shock protein 110 (HSP110). HSP110 is one of the stress proteins which cells express to protect themselves from harmful environmental conditions. Although HSP110 has been characterized at the cellular and molecular level, its role at the organismal level is less clear. My lab is investigating its role in the nematode, *Caenorhabditis elegans*. In initial experiments reducing expression of HSP110, we have observed a number of defects at the organismal level, including decreased lifespan, defective egg laying and reduced thermotolerance. The second project involves the behavioral genetics of *C. elegans*. My laboratory is focusing on characterizing two aspects of the chemotaxis response of *Caenorhabditis*

elegans. We are interested in plasticity of the negative chemotaxis response and the role of chemotaxis in prey acquisition.

Professional Societies

American Association for the Advancement of Science, 1992-Present

American Society of Plant Physiologist, 1993-2003

Workshops and Meeting

C. elegans Course 2005 – Cold Spring Harbor Laboratories, NY

BioBuffalo 2004 – The Business of Biotechnology in Western New York, Sponsored by the UB School of Management, Cheektowaga, NY.

Bioinformatics in Education 2003, Sponsored by the Bioquest Consortium, Ithaca, NY.

Funded Grants

National Science Foundation (2003-2006) – Integration of undergraduate experience by use of a common experimental organism: *Caenorhabditis elegans*. Co-PI (PI: Doug Easton)

Merck-AAAS Undergraduate Research Program (2003-2005) – Interdisciplinary Research Program in Biotechnology and Forensic Chemistry. Co-PI (PI: Hadar Isseroff)

Provost Incentive Grant (2005) – Funding to attend the Cold Spring Harbor *C. elegans* course.

Auxiliary Services Grant (2006) – Spring 2006 Biotech Speakers Series, Buffalo State College.

Peer Reviewed Publications

Stephens AS, Gebhardt JS, Matthews BF and **Wadsworth GJ** (1998) Purification and Preliminary Characterization of the Soybean Glyoxysomal Aspartate Aminotransferase Isozyme . *Plant Science* 139:233-242.

Gebhardt JS, **Wadsworth GJ**, and Matthews BF (1998) Characterization of a Single Soybean cDNA Encoding Cytosolic and Glyoxysomal Isozymes of Aspartate Aminotransferase. *Plant Molecular Biology* 37: 99-108.

Wadsworth GJ (1997) The Plant Aspartate Aminotransferase Gene Family. *Physiologia Plantarum* 100: 998-1006 (Invited review)

- Wadsworth GJ**, Gebhardt JS, and Matthews BF (1995) Characterization of a Soybean cDNA Clone Encoding a Plant Mitochondrial Aspartate Aminotransferase Isozyme. *Plant Molecular Biology* 27:1085-1095.
- Wadsworth GJ**, Marmaras, SM, and Matthews BF (1993) Isolation and Characterization of a Soybean cDNA Clone Encoding the Plastid Form of Aspartate Aminotransferase. *Plant Molecular Biology*. 21:993-1009.
- Wadsworth GJ** and Scandalios JG (1990) Molecular Basis for the CAT-3 Null Phenotype in Maize. *Genetics* 125:867-872.
- White JA, Plant S, Cannon RE, **Wadsworth GJ**, and Scandalios JG (1990) Developmental Analysis of Steady-State Levels of Cu/Zn and Mn Superoxide Dismutase mRNAs in Maize Tissue. *Plant Cell Physiology* 31,1163-1167.
- Wadsworth GJ**, and Scandalios JG (1989) Differential Expression of the Maize Catalase Genes during Kernel Development: The Role of Steady-State mRNA levels. *Developmental Genetics*, 10:304-310.
- Redinbaugh MG, **Wadsworth GJ**, and Scandalios JG (1988) Characterization of Catalase Transcripts and their Differential Expression in Maize. *Biochemica et Biophysica Acta* 951:104-116.
- Wadsworth GJ**, Redinbaugh MG, and Scandalios JG (1988) A Procedure for the Small Scale Isolation of Plant RNA suitable for RNA Blot Analysis. *Analytical Biochemistry* 172:279-283.

Abstracts and Short Reports

- Rose MD, White TD, **Wadsworth GJ** (2002) Phylogenetics of ancestral and extant populations of black-footed ferrets (*Mustela nigripes*) Annual Meeting of the American Association for the Advancement of Science.
- Paluch MS and **Wadsworth GJ** (1998) Analysis of peroxisomal targeting of the soybean glyoxysomal aspartate aminotransferase expressed in yeast. Annual Meeting of the Mid-Atlantic Plant Molecular Biology Society.
- Wood JL and **Wadsworth GJ** (1998) Soybean aspartate aminotransferase-1 gene: evidence for use of two distinct start codons using yeast expression system. Annual Meeting of the Mid-Atlantic Plant Molecular Biology Society.
- Stephens AJ and **Wadsworth GJ** (1996) Purification of the Glyoxysomal Aspartate Aminotransferase-1 Isozyme from Soybean. Annual Meeting of the Mid-Atlantic Plant Molecular Biology Society.

- Gebhardt JS, **Wadsworth GJ**, and Matthews BF (1995) Characterization of a Soybean cDNA clone Encoding the Cytosolic Isozymes of Aspartate Aminotransferase. Annual Meeting of the Mid-Atlantic Plant Molecular Biology Society.
- Matthews BF, **Wadsworth GJ**, and Gebhardt JS (1994) Cloning and Expression of Genes Encoding Aspartate Aminotransferase in Soybean. Annual Meeting of the Mid-Atlantic Plant Molecular Biology Society.
- Matthews BF, Marmaras SM, and **Wadsworth GJ** (1993) The Soybean Aspartate Aminotransferase Gene Family. Annual Meeting of the American Society of Plant Physiologist.
- Matthews BF, Gebhardt JS, Hughes CA, Silk GW, and **Wadsworth GJ** (1993) Cloning and Expression of Genes Encoding Enzymes Involved in the Synthesis of the Aspartate Family in Soybean. Amino Acids Vol 5.
- Wadsworth GJ** and Matthews BF (1992) The Soybean Aspartate Aminotransferase Gene Family. Current Topics in Plant Physiology Vol 7 .
- Matthews BF, Weisemann JM, Lewin KM, **Wadsworth GJ**, and Gebhardt JS (1992) Cloning and Analysis of cDNA's Encoding Bifunctional Aspartate Kinase-Homoserine Dehydrogenase Activities in Carrot and Soybean. Current Topics in Plant Physiology Vol 7 .
- Wadsworth GJ**, and Matthews BF (1992) Characterization of Soybean Aspartate Aminotransferase cDNA clones and their Expression in Bacteria. Annual Meeting of the American Society of Plant Physiologists
- Wadsworth GJ**, Wilson BF, Matthews BF (1991) Characterization of the Soybean Aspartate Aminotransferase Isozyme-Gene System. Third Congress of the International Society for Plant Molecular Biology
- Wadsworth G.J**, Redinbaugh MG, Bethards LA, Skadsen RW, and Scandalios JG, (1988) Isolation and Characterization of cDNA clones Encoding the Maize Catalase Isozymes, CAT-1, CAT-2 and CAT-3. Fourth International Congress of Cell Biology.

Mentored Student Research Projects

Undergraduate Summer Research Fellows

Brian C. Grabiner, 2002, Site-directed mutagenesis of the soybean *aat-1* gene. Written report, Student Research and Creativity Day Presentation, and Presentation to the Penn-York Undergraduate Research Association.

Deanna Rizzo, 2000, The use of yeast gal promoter to regulate expression of soybean aspartate aminotransferase-1 in yeast. Written report and Student Research and Creativity Day Presentation.

Biology Honors Research Projects (BIO498)

Jennifer Shemanksy, 2006, The role of GRP 170 proteins on lifespan in *Caenorhabditis elegans*. Written Report.

Jane Pesano, 2004, Behavior Modification of *Caenorhabditis elegans* toward chemically aversive stimuli. Written Report, Student Research and Creativity Day Presentation, 4th Annual Penn-York Undergraduate Research Conference.

John Nowak, 2001, Expression of full length AAT1 open reading frame in yeast: analysis of start codon use. Written report and Student Research and Creativity Day Presentation.

Amy Jesionowski, 2001, Expression of the P1 nuclease in *Escherichia coli* using the pFLAG expression vector. Written report and Student Research and Creativity Day Presentation.

John R. Leatherbarrow, 2000, Inverse PCR of the 5' flanking region of soybean AAT-1. Written report and Student Research and Creativity Day Presentation.

Brian Lucas, 2000, Expression of Nuclease P1 from *Penicillium citrinum* in *Escherichia coli*. Written report and Student Research and Creativity Day Presentation.

Deborah Pasternack, 2000, Analysis of evolution of aspartate aminotransferase gene family using 3D protein modeling. Written report and Student Research and Creativity Day Presentation.

Tarra Trottnow, 1996, Subcellular targeting of soybean glyoxysomal AAT in yeast. Written report and Sigma Xi presentation

Kris Kelly, 1995, Immunological characterization of the aspartate aminotransferase isozyme-3. Written report and Sigma Xi presentation

Tammy Felker, 1995, The expression and cellular localization of soybean aspartate aminotransferase-1 in *Saccharomyces cerevisiae*. Written report and Sigma Xi presentation.

Amy Stephens, 1995, Purification and characterization of the glyoxysomal aspartate aminotransferase of soybean. Written report, Sigma Xi presentation, Mid-Atlantic Molecular Biology Poster Session, Research Publication: Stephens AS, et al., (1998) Plant Science 139:233-242.

Ali Ousmanou, 1995, Immunological comparison of three soybean aspartate aminotransferase (AAT) isozymes with the protein product of a new cDNA clone. Written report and Departmental Seminar

Karen Bank, 1995, Molecular analysis of the AAT-4 gene in soybean. Written report and Departmental seminar.

Daniel Krause, 1994, Characterization of the glyoxysomal membrane proteins of monocots and dicots. Written report and Departmental seminar.

McNair Scholars Research Projects

Heather Horton, 1995, Analysis of bi bi ping pong enzyme mechanism of cloned soybean aspartate aminotransferase isozymes. Written Report and McNair presentation.

Angela Caba, 1995, Analysis of kinetic parameters of soybean aspartate aminotransferase isozymes. Written Report and McNair presentation.

Adisa Sills, 1995, Analysis of kinetic parameters of cloned soybean aspartate aminotransferase isozymes. Written Report and McNair presentation.

Jennifer Arnold, 1994, Analysis of cation exchange chromatography of soybean aspartate aminotransferase isozymes. Written Report and McNair presentation.

Independent Projects (Bio495/499)

Madchen Kpanlin, 2006, Pathogenic interactions of the bacterium *Escherichia coli* and its predator *Caenorhabditis elegans*. In Progress.

Sun Tran, 2006, Lethargic movement in *Caenorhabditis elegans* induced by RNAi of *hsp110* gene. In Progress

Patricia Gondry, 2005, Investigation of embryonic lethality in *Caenorhabditis elegans* caused by RNAi of *hsp110* gene. Poster Presentation

Barbara Oppong, 2005, Influence of bacterial substrate on chemotaxis behavior in *Caenorhabditis elegans*. Poster Presentation

Keven Marshal, 1999, Detection of UV induced thymine dimers in DNA using restriction endonucleases. Written Report.

Chun-Yen Tsao, 1997, Role of genetic context in the expression of yeast metabolic genes. Written Report.

Sara White, 1997, Evolution of mitochondrial aspartate aminotransferase. Written report.

Linda Laskowski, 1993, Zymograms to quantify soybean AAT enzyme activity. Written Report.

Jeffery Smith, 1993, Characterization of the proteins of the glyoxysomal membranes in corn. Written Report.

Graduate Students

Jason Scalia, 1998, Active oxygen species are required for the induced resistance response in cucumber. Master of Arts Thesis.

Michael S. Paluch, 1999, Expression and subcellular targeting of soybean glyoxysomal aspartate aminotransferase in yeast. Master of Arts Thesis.

Dongmei Liu, 1999, Cloning and expression of the nuclease P1 from *Penicillium citrinum*. Master of Arts Thesis

Michelle Rose, 2001, Phylogenetics of ancestral and extant populations of black-footed ferrets (*Mustela nigripes*). Master of Arts Thesis.

Joe Meyer, 2003, Attitude toward science and science performance in students from an alternative school and a traditional school. Master of Science in Education

Yinqing Wang, 2004, Analysis of the Role of HSP110 in the Development and Physiology of *Caenorhabditis elegans*. Master of Arts Thesis.

Joe Warwzyniak, In Progress, Characterization of the Egg-laying Defect generated in the Nematode *Caenorhabditis elegans* through the RNA interference (RNAi) of Heat-shock Protein HSP110 Gene.

Matthew Hout, In Progress, Method for measuring food consumption of *Caenorhabditis elegans* in culture.

Christine Kaczynski, In Progress, Taxis response of *Caenorhabditis elegans* to different species of bacteria

Melissa Krone, In Progress, Generating transgenic nematodes to study expression of large heat shock protein mRNA in *Caenorhabditis elegans*.