

**Curriculum Vitae**  
**October 2009**  
**Daniel K. Owens, Ph.D.**

**Home Address**

Withheld for  
online publication

**Professional Address**

East Tennessee State University  
Biological Sciences Department  
P.O. Box 70703  
Johnson City, TN 37614  
Phone: (423) 439-5838  
E-mail: [owens1@etsu.edu](mailto:owens1@etsu.edu)

**EDUCATION**

- Ph.D. Virginia Polytechnic Institute and State University** – 2005  
Biology with Molecular Cellular Biology and Biotechnology option
- B.S. East Tennessee State University** – 1999  
Biochemistry Concentration  
Magna Cum Laude

**EMPLOYMENT**

- Postdoctoral Associate** East Tennessee State University  
Laboratory of C. McIntosh, Ph.D. in Department of Biological Sciences  
October 2006 – Present
- Instructor** East Tennessee State University  
Biology for Non Majors Lecture II  
August 2006 – December 2006
- Interim Instructor** Greeneville High School  
Biology and AP Biology  
March – May 2006
- Instructor** East Tennessee State University  
Biochemistry Laboratory  
Fall Semester 2005 and Spring Semester 2006
- Instructor** Virginia Polytechnic Institute and State University  
Molecular Biology Laboratory including supervision of 2 teaching assistants  
Fall Semester 2004
- Research Assistant** Virginia Polytechnic Institute and State University  
Laboratory of B. Winkel, Ph.D. in Department of Biological Sciences  
August 2000 to October 2005
- Teaching Assistant** Virginia Polytechnic Institute and State University  
Instructor for General Biology and Principles of Biology Laboratories  
Fall Semester 2000 to Spring Semester 2002
- Laboratory Technician** East Tennessee State University  
Laboratory of L. Wilson, Ph.D. in Department of Chemistry  
July 1999 to May 2000

**Laboratory Technician** East Tennessee State University  
Laboratory of C. McIntosh, Ph.D. in Department of Biological Sciences  
August 1998 to July 2000

## **PROFESSIONAL SOCIETIES**

Sigma Xi Scientific Honor Society  
Phytochemical Society of North America (Co-Chair, Young Members Committee,  
2008-present)  
American Chemical Society  
American Society of Plant Biologists  
American Association for the Advancement of Science  
Beta Beta Beta Biological Honor Society (Regional Vice President; Secretary Pi  
Delta Chapter, 1998-1999)  
National Eagle Scout Association (Lifetime Member)

## **FELLOWSHIPS AND SCHOLARSHIPS**

July 2000, Michigan State University Plant Sciences Fellowship (declined  
acceptance)

August 1995 to May 1999, East Tennessee State University Advanced  
Placement Scholarship

## **HONORS AND AWARDS**

2008 Frank and Mary Loewus Travel Award; Phytochemical Society of North  
America

2008 First Place Postdoctoral Fellow/Medical Resident; Appalachian Research  
Forum Poster Competition

2005 Outstanding Teaching Award; Virginia Tech Biology Department

1998 Dr. Herman O'Dell Award for the Outstanding Junior in Biological  
Sciences; ETSU Biological Sciences

1995 Eagle Scout Rank; Boy Scouts of America

## **RESEARCH GRANTS**

2004 Graduate Research Development Project "Examination of the Flavonol  
Synthase Isozymes in *Arabidopsis thaliana*" \$150

2003 Graduate Research Development Project "Examination of 2-Oxoglutarate  
Dependent Dioxygenases in the Central Flavonoid Biosynthetic Pathway  
of *Arabidopsis thaliana*" \$300

- 2002 Virginia Tech GSA Travel Grant Program \$300
- 2002 Graduate Research Development Project "Characterization of Flavonol Synthase Isozymes in *Arabidopsis thaliana*" \$300
- 2001 Virginia Tech GSA Travel Grant Program \$100
- 2001 Graduate Research Development Project "Expression and Characterization of Flavonol Synthase Isozymes in *Arabidopsis thaliana*" \$300
- 2001 Sigma Xi Grant in Aid of Research "Expression and Characterization of Flavonol Synthase Isozymes" \$450
- 1998 Faculty-Student Collaborative Research Grant "Distribution of Flavanone-3 Hydroxylase During Growth and Development of Grapefruit and Petunia Seedlings" \$800

#### **PRESENTED SEMINARS AND TALKS**

- 2009 Citrus Flavonoid Glycosides: *In planta* Roles, Commercial Importance, and Biochemical Analysis. King College Science Seminar Series, Bristol, TN.
- 2009 Identification, Biochemical Characterization, and Structure Function Analysis of a Flavonol 3-O-Glucosyltransferase from *Citrus paradisi*. Annual Meeting of the Phytochemical Society of North America, Towson, MD.
- 2007 Identification and Characterization of Putative Flavonoid Glucosyltransferases from *Citrus paradisi*. Annual Meeting of the Phytochemical Society of North America, St. Louis, MO.
- 2005 Characterization of 2-Oxoglutarate Dependant Dioxygenases Leading to the Production of Flavonols in *Arabidopsis thaliana*. Department of Biological and Health Sciences Seminar Series, Johnson City, TN.
- 2005 Characterization of 2-Oxoglutarate Dependant Dioxygenases Leading to the Production of Flavonols in *Arabidopsis thaliana*. 2<sup>nd</sup> Annual Virginia Tech Biology Department Research Forum, Blacksburg, VA.
- 2002 Examination of 2-Oxoglutarate Dependant Dioxygenases in the Central Flavonoid Biosynthetic Pathway of *Arabidopsis thaliana*. Virginia Tech Biology Department Botany Seminar Series, Blacksburg, Va.

- 2002 Examination of 2-Oxoglutarate Dependant Dioxygenases in the Central Flavonoid Biosynthetic Pathway of *Arabidopsis thaliana*. Plant Molecular Biology Discussion Group, Blacksburg, Va.
- 1999 Development of a Sensitive Quantitative Assay for Flavanone 3 Hydroxylase. Beta Beta Beta regional meeting in conjunction with The 60<sup>th</sup> annual conference of the Association of Southeastern Biologists, Wilmington, NC.

## PUBLICATIONS

### Peer-Reviewed

Daniel, J.J., Owens, D.K., and McIntosh, C.A. (In Preparation) Expression of characterized and putative secondary product glucosyltransferases during *Citrus paradisi* growth and development. To be submitted to: *Phytochemistry*.

Owens, D.K. and McIntosh, C.A. (In Review) Biosynthesis and function of citrus glycosylated flavonoids. In *Recent Advances in Phytochemistry*, (Vol. 41) (Gang, D. et al, eds.), Springer Press. (invited review)

Knisley, D., Seier, E., Lamb, D., Owens, D., and McIntosh, C. (2009) A graph-theoretic model based on primary and predicted secondary structure reveals functional specificity in a set of plant secondary product UDP-glucosyltransferases. In *Proceedings of the 2009 International Conference on Bioinformatics, Computational Biology, Genomics and Chemoinformatics*, (BCBGC-09), (Loging, W. et al, eds.) pp. 65-72, ISRST.

Owens, D.K. and McIntosh, C.A. (2009) Identification, recombinant expression, and biochemical characterization of a flavonol 3-O-glucosyltransferase clone from *Citrus paradisi*. *Phytochemistry* 70, 1382-1391.

Owens, D.K., Crosby, K.C., Runac, J., Howard, B. and Winkel, B.S. (2008) Biochemical and genetic characterization of Arabidopsis flavanone 3 $\beta$ -hydroxylase. *Plant Physiology and Biochemistry* 46, 833-843.

Owens, D.K., Alerding, A.B., Crosby, K.C., Bandara, A.B., Westwood, J.H. and Winkel, B.S. (2008) Functional analysis of a predicted flavonol synthase gene family in Arabidopsis. *Plant Physiology* 147 (3), 1046-1061.

Owens, D.K., Hale, T., Wilson, L.J. and McIntosh, C.A. (2002) Quantification of the production of dihydrokaempferol by flavanone 3-hydroxytransferase using capillary electrophoresis. *Phytochemical Analysis* 13 (2), 69-74.

**Abstracts Presented and Published  
(presenting author underlined)**

Lin, Z., D.K. Owens, and C.A. McIntosh. 2009. Cloning and Expression of a Putative Secondary Product Glucosyltransferase Clone, PGT10, from *Citrus paradisi* using *E. coli* and Agrobacterium-Mediated Transient Expression in *Nicotiana tabacum*. Annual Meeting of the Phytochemical Society of North America, Towson, MD.

Mallampalli, V.S., D.K. Owens, and C.A. McIntosh. 2009. Heterologous Expression and Elucidation of Biochemical Function of Putative Flavonoid Glucosyltransferase Clones from *Citrus paradisi*. Annual Meeting of the Phytochemical Society of North America, Towson, MD.

Daniel, J.J., D.K. Owens, and C.A. McIntosh. 2009. Putative Secondary Product Glucosyltransferase Expression During *Citrus paradisi* Growth and Development. Annual Meeting of the Phytochemical Society of North America, Towson, MD.

Owens, D.K. and C. McIntosh. 2008. Identification, Recombinant Expression, and Biochemical Characterization of a Flavonol-3-O-Glucosyltransferase from *Citrus paradisi*. Annual Meeting of the Phytochemical Society of North America, Pullman, WA.

Daniel, J.J., D.K. Owens, and C.A. McIntosh. 2008. Determining Secondary Product Glucosyltransferase Expression during *Citrus paradisi* Growth and Development. Annual Meeting of the Phytochemical Society of North America, Pullman, WA.

Knisley, D., E. Seier, D. Lamb, D.K. Owens and C. McIntosh. 2008. Using Graph Theory Models to Predict Secondary Product Glucosyltransferase Function. Annual Meeting of the Phytochemical Society of North America, Pullman, WA.

Siddhartha, M.V.K.P., D.K. Owens, and C.A. McIntosh. 2008. Heterologous Expression and Elucidation of Biochemical Function of Two Putative Flavonoid Glucosyltransferase Clones (PGT2 and PGT3) from *Citrus paradisi*. Annual Meeting of the Phytochemical Society of North America, Pullman, WA.

Owens, D.K. and C. McIntosh. 2008. Identification, Recombinant Expression, and Biochemical Characterization of a Flavonol-3-O-Glucosyltransferases from *Citrus paradisi*. Appalachian Student Research Forum, Johnson City, TN.

Owens, D.K. and C. McIntosh. 2007. Identification and Characterization of Putative Flavonoid Glucosyltransferases from *Citrus paradisi*. Appalachian Student Research Forum, Johnson City, TN.

Cooke, J.K., D.K. Owens, and C. McIntosh. 2007. Isolation and Identification of the Putative Glucosyltransferase PGT8 from *Citrus paradisi*. Annual Meeting of the Phytochemical Society of North America, St. Louis, MO.

Epling, L., S. McConnell, J. Asiago, D.K. Owens, and C.A. McIntosh. 2007. Isolation, Analysis, and Expression of PGT2 and PGT3, Putative Glucosyltransferase Clones from *Citrus paradisi*. Annual Meeting of the Phytochemical Society of North America, St. Louis, MO.

Owens, D.K., A.B. Walton, and B. Winkel. 2004. Examination of the Flavonol Synthase Isoforms in *Arabidopsis thaliana*. American Society of Plant Biologists: Plant Biology 2004, Orlando, FL.

Owens, D.K. and B. Winkel. 2003. Examination of 2-Oxoglutarate Dependant Dioxygenases in the Central Flavonoid Biosynthetic Pathway of *Arabidopsis thaliana*. 1<sup>st</sup> Annual Virginia Tech Biology Department Research Forum, Blacksburg, VA.

Owens, D.K. and B. Winkel. 2003. Examination of 2-Oxoglutarate Dependant Dioxygenases in the Central Flavonoid Biosynthetic Pathway of *Arabidopsis thaliana*. Virginia Tech Graduate Student Assembly 19<sup>th</sup> Annual Research Symposium, Blacksburg, VA.

Owens, D.K. and B. Winkel. 2003. Examination of 2-Oxoglutarate Dependant Dioxygenases in the Central Flavonoid Biosynthetic Pathway of *Arabidopsis thaliana*. 14<sup>th</sup> International Conference on Arabidopsis Research, Madison, WI.

Winkel, B.S.J., C.D. Dana, D.K. Owens, D.R. Bevan, J.P. Noel, and S. Krueger. 2003. Understanding Flavonoid Metabolism in Three Dimensions. 14<sup>th</sup> International Conference on Arabidopsis Research, Madison, WI.

Owens, D.K. and B. Winkel-Shirley. 2002. Examination of 2-Oxoglutarate Dependant Dioxygenases in the Central Flavonoid Biosynthetic Pathway of *Arabidopsis thaliana*. Gordon Research Conference on Macromolecular Organization and Cell Function, Queens College, Oxford, UK.

Owens, D.K. and B. Winkel-Shirley. 2001. Characterization of Flavonol Synthase Isozymes in *Arabidopsis thaliana*. American Society of Plant Biologists: Plant Biology 2001, Providence, RI.

Owens, D.K., T.L. Hale, L.J. Wilson, and C.A. McIntosh. 2000. Quantification of Dihydrokaempferol Production by Flavanone 3-

Hydroxytransferase Using Capillary Electrophoresis. Annual Meeting of the Phytochemical Society of North America, Bethesda, MD.

Owens, D.K., T.L. Hale, L.J. Wilson, and C.A. McIntosh. 2000. Quantification of Dihydrokaempferol Production by Flavanone 3-Hydroxytransferase Using Capillary Electrophoresis. East Tennessee State University Quillen College of Medicine 16<sup>th</sup> Annual Research Forum, Johnson City, TN.

Owens, D.K., T.L. Hale, L.J. Wilson, and C.A. McIntosh. 1999. Development of a Sensitive Quantitative Assay for Flavanone 3-Hydroxylase. East Tennessee State University Quillen College of Medicine 15<sup>th</sup> Annual Research Forum, Johnson City, TN.

## **EDUCATIONAL SERVICE**

Granted interim graduate faculty status at East Tennessee State University, 2007-present.

Served on the following student's graduate committees:

Jala J. Daniel

Mallampalli V. Siddhartha

## **PROFESSIONAL SERVICE**

### **Peer Review**

#### Granting Agencies

National Science Foundation (approved by MCB program director to co-review proposal)

#### Journals

Journal of Agricultural and Food Chemistry

### **Scientific Societies**

Phytochemical Society of North America, Young Member Committee Co-Chair, 2008-present.

Beta Beta Beta Biological Honor Society, Secretary Pi Delta Chapter, 1998-1999.

Beta Beta Beta Biological Honor Society, Regional Vice President, 1998-1999.

## **COMMUNITY SERVICE**

### **East Tennessee State University**

Served as a judge for the 2007, 2008, and 2009 Upper East Tennessee Science Fairs.

Assisted two East Tennessee State University High School seniors in design and completion of experiments for the 2007 Tennessee Academy of Sciences poster competition.

### **Virginia Polytechnic Institute and State University**

#### Biology Graduate Student Association (BGSA) outreach program

Assisted a student teacher at Radford University by teaching a second grade class the importance of plants in their daily lives.

#### Fralin Biotechnology Center outreach programs

Acted as a tour guide of the Fralin Biotechnology Center for elementary and middle school aged children during a number of visits.

Served as a reviewer of data from research performed on *Arabidopsis thaliana* conducted and presented by high school students and made suggestions for improvement as part of the Partnership for Research Education in Plants (PREP) program headed by Erin Dolan, Ph.D.

### **Not University Affiliated**

Participated in the American Cancer Society (Greeneville/Greene County chapter) 2008 and 2009 Relay for Life

## REFERENCES

**Cecilia A. McIntosh, Ph.D.**

Department of Biological Sciences  
P.O. Box 70703  
East Tennessee State University  
Johnson City TN 37614-0703  
Phone: (423) 439-5838  
e-mail: [mcintoshc@mail.etsu.edu](mailto:mcintoshc@mail.etsu.edu)

**Brenda S.J. Winkel, Ph.D.**

Department of Biology  
409 Latham Hall  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061-0390  
Phone: (540) 231-3013  
e-mail: [winkel@vt.edu](mailto:winkel@vt.edu)

**John M. McDowell, Ph.D.**

Department of Plant Pathology and Weed Science  
550 Latham Hall  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061-0390  
Phone: (540) 231-2388  
e-mail: [johnmcd@vt.edu](mailto:johnmcd@vt.edu)