David Michael Donnell, Ph.D.

Department of Biology, The Citadel
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EDUCATION

2002 Ph.D. Insect Science - University of Arizona, Tucson, AZ
Dissertation title: Early nutrition and embryonic development in two congeneric parasitoids, *Encarsia formosa* and *E. pergandiella* (Hymenoptera: Aphelinidae)
Advisor: Martha S. Hunter

1992 B.S. Biochemistry - California State University, Chico, CA
2nd Major: Philosophy

ACADEMIC POSITIONS

2014-Present Associate Professor
Dept. of Biology, The Citadel, Charleston, SC

2009-2014 Assistant Professor
Dept. of Biology, The Citadel, Charleston, SC

2007-2009 Research Scientist (2008-2009); Visiting Lecturer of Biology (2007-2008)
Dept. of Biology, University of Richmond, Richmond, VA

2006-2007 Assistant Professor
Dept. of Biological Sciences, University of the Pacific, Stockton, CA

2002-2006 USDA Postdoctoral Research Fellow (2004-2006), Postdoctoral Research Associate (2002-2004), Laboratory of M. Strand,
Dept. of Entomology, University of Georgia, Athens, GA

2001-2002 Optics Research Fellow, Laboratories of L. Nagy and M. Hunter,
Depts. of Biology and Entomology, University of Arizona, Tucson, AZ

1998-2001 Laboratory Instructor, Introduction to Biology,
Dept. of Ecology and Evolutionary Biology, University of Arizona, Tucson, AZ

1996-1998 Flinn Graduate Fellow, Laboratories of L. Restifo, M. Wells, L. Tolbert and D. Byrne, Insect Science Program, University of Arizona, Tucson, AZ

1995-1996 Research Technician, Laboratory of J. Staub,
Dept. of Horticulture, University of Wisconsin, Madison, WI

1995 Instructor, Physical Education; Assistant Coach, Track and Field
Universal American School, Khaldiyah, Kuwait

1992-1994 Research Assistant, Laboratory of R. Ham,
Dept. of Molecular, Cellular & Developmental Biology,
University of Colorado, Boulder, CO

1991–1992 Undergraduate Research Assistant, Laboratory of B. Markham,
Dept. of Biology, California State University, Chico, CA

1989 Volunteer Research Assistant, Laboratory of L. Ungerleider,
National Institute of Mental Health, Bethesda, MD

1987-1989 Teaching Assistant, Introduction to Logic and Critical Thinking,
Dept. of Philosophy, California State University, Chico, CA

CITADEL TEACHING EXPERIENCE

2018 **General Biology II** (Biol 102, 3 credits) Undergraduate lecture; Spring
Introduction to Biology Lab II (Biol 141, 1 credit) Spring
Intern Research (Biol 320, 3 credits - 2 interns) Undergraduate lab; Spring
Molecular Genetics (Biol 624, 4 credits) Graduate lecture/lab; Spring
General Biology I (Biol 101, 3 credits – 2 sections) Undergraduate lecture; Fall
Undergraduate Research in Biology I (Biol 321, 3 credits) Undergraduate lab; Fall
Molecular Genetics (Biol 424, 4 credits) Undergraduate lecture/lab; Fall
2017 **Genetics** (Biol 308, 4 credits) Undergraduate lecture section + 2 lab sections; Fall
2016 **Genetics** (Biol 508, 4 credits) Graduate lecture/lab; Spring
General Biology II (Biol 102, 3 credits) Undergraduate lecture – 1 section; Spring
2015 **Genetics** (Biol 308, 4 credits) Undergraduate lecture section + 2 lab sections; Fall
Genetics for The Classroom (Biol 610, 3 credits) Graduate lecture section; Summer
Bioethics (Biol 412, 4 credits) Undergraduate lecture section; Spring
General Biology II (Biol 102, 3 credits) Undergraduate lecture – 2 sections; Spring
2014 **Genetics** (Biol 308, 4 credits) Undergraduate lecture section + 2 lab sections; Fall
Intern Research (Biol 320, 3 credits) Molecular Genetics (Ryan Rhodes); Fall
Molecular Genetics (Biol 424, 4 credits) Undergraduate lecture/lab; Spring
Introduction to Genetic Engineering (Honr 400, 3 credits) undergraduate independent study (Regis Bigness) Spring
2013 **Genetics** (Biol 308, 4 credits) Undergraduate lecture section + 3 lab sections; Fall
Genetics (Biol 508, 4 credits) Graduate lecture/lab; Spring
2012 **Genetics** (Biol 308, 4 credits) Undergraduate lecture section + 3 lab sections; Fall
Molecular Genetics (Biol 424, 4 credits) Undergraduate lecture/lab; Spring
Molecular Genetics (Biol 624, 4 credits) Graduate lecture/lab; Spring
2011 **Genetics** (Biol 308, 4 credits) Undergraduate lecture section + 2 lab sections; Fall
Genetics (Biol 308, 4 credits) Undergraduate lecture section + 2 lab sections; Spring
2010 **Cell Biology** (Biol 612, 3 credits) Graduate lecture; Fall
General Biology I (Biol 101, 3 credits) Undergraduate lecture section; Fall
Literature Seminar (Biol 429, 1 credit) Undergraduate independent study (Rachelle Riegerix) Fall
Genetics (Biol 308, 4 credits) Undergraduate lecture section + 2 lab sections; Spring
2009 **General Biology I** (Biol 101, 3 credits) Undergraduate lecture section; Fall
Genetics (Biol 508, 4 credits) Graduate lecture/lab; Fall

CITADEL MENTORING EXPERIENCE

MUSC Graduate teaching interns

Ryan De Palma (Fall, 2013)
Elizabeth Fowler (Spring, 2012)
Tara Burns (Spring, 2010)

Graduate researchers (research interval)

Nicholas Harper (Spring, 2019)

Jonathan Tudor (Spring, 2019)
Meaghan Flessa (Fall, 2011 – Summer, 2012)
Steven Ratigan (Spring, 2011 – Summer, 2012)
Adam Akerman (Spring, 2010 – Summer, 2011)
Jamel Brown (Fall, 2010)

Undergraduate researchers (research interval)

Daniel Burkhalter (Spring, 2019)
Lucas Moran (Spring, 2018 – Spring, 2019)
Jacob Crawford (Spring, 2018)
Mark Johnson (Spring, 2016)
Richard Zealy (Fall, 2015 – Spring, 2016)
William Best (Fall, 2015)
Andrew Lock (Fall, 2015)
Bradley Mueller (Summer, 2014– Spring, 2015)
Rocco Consiglio (Summer, 2014– Fall, 2014)
Edward Tray Godowns (Summer, 2014)
Kevin Stewart (Spring, 2014 – Spring, 2015)
Daniel Mendez (Spring, 2012 – Summer, 2012)
Matthew Breen (Spring, 2012)
David Hatch (Spring - Fall, 2011)
Dan Pederson (Spring, 2011 – Summer, 2011)
Brian Burnley - iGEM participant (Spring - Summer, 2010)
Patrick Sullivan - iGEM participant (Summer, 2010 – Fall, 2010)
Cole Hunter Matthews - iGEM participant (Summer, 2010 – Fall, 2010)
Trey Williams (Spring, 2010)

CITADEL FOUNDATION SUPPORT

Research Grants

2018 "Proteins at the interface of *Copidosoma floridanum* larvae and the blood of their host, *Trichoplusia ni*." ($2998)
2017 "Characterizing the teratocyte transcriptome of the wasp *Encarsia suzannae*" ($2980)
2016 "Characterizing the transcriptome of an endoparasitoid wasp" ($2948)
2015 "Investigation of the role of a new class of proteins, Syncytial-specific Proteins (SSPs), in the syncytial membrane surrounding larvae of the endoparasitoid wasp *Copidosoma floridanum*." ($2765)
2014 "Investigation of proteins with a potential role in mediating the interactions of an endoparasitoid wasp with the immune system of its host." ($2892.00)
2013 **"**Identification of proteins in the syncytial membrane surrounding larvae of the polyembryonic wasp, *Copidosoma floridanum*" ($3000)
2012 "Isolation and characterization of novel protein-encoding genes in the syncytial membrane surrounding larvae of the polyembryonic wasp, *Copidosoma floridanum*" ($2950)
2011 "Genes mediating kin recognition and cloaking in the larvae of the polyembryonic wasp, *Copidosoma floridanum*" ($2996)

2010 "Sequencing of the polydnavirus genome of the parasitoid wasp, *Cotesia orobenae*" (Continuation grant - $2945)
2009 "Sequencing of the polydnavirus genome of the parasitoid wasp, *Cotesia orobenae*" (New Faculty grant - $2250)

Presentation Grants

2015 Association of Southeastern Biologists Annual Meeting in Chattanooga, TN. Poster presentation of Cadet Kevin Stewart; April 1-4, 2015 ($1382)
2013 Third International Entomophagous Insects Conference in Montreal, Canada. Oral presentation; June 2-6, 2013 ($1850)

Development Grants

2018 Funding to support attendance at the RNA-Seq Workshop 2018 at UC, Davis, California. June 18-22 ($1750.00). "Using the command line to analyze RNA-Seq data".
2017 Blast2GO Software subscription for annotating RNA sequence data ($967)
2016 Funding to support research in laboratory of Dr. Martha Hunter at the University of Arizona, Tucson. January 4-12, 2017 ($746) "Developing tools for RNA sequence assembly and investigating the extraembryonic membrane of *Encarsia suzannae*."
2014 Case Study Workshop at the National Center for Case Study Teaching in Science (NCCSTS) in Buffalo, NY. May 25-30 ($1902)
2010 58th Annual Meeting of the Entomological Society of America in San Diego, CA. Attended pedagogy workshops; Dec. 12-15, 2010 ($2945)

PREVIOUS SUPPORT

2004 Principal Investigator, USDA CSREES NRI Competitive Grants Program, Caste Formation in a Polyembryonic Wasp ($110,000)
2002 Graduate Research Award, Center for Insect Science, University of Arizona ($750)
2001 Optics Fellowship, Dept. of Radiology, University of Arizona ($30,000)
2001 Sigma Xi Grant-in-Aid of Research ($350)
2001 Best Poster Award, Center for Insect Science, University of Arizona ($250)
2001 Graduate Research Award, Center for Insect Science, University of Arizona ($1000)
2001 NSF RTG Small Grant, Dept. of Ecology, University of Arizona ($2,000)
2000 Travel Award, Dept. of Entomology, University of Arizona ($250)
2000 NSF RTG Small Grant, Dept. of Ecology, University of Arizona ($2,000)
1999 BP Cardon Scholarship, College of Agriculture, University of Arizona ($500)
1997 Honorable Mention, NSF Predoctoral Research Fellowship Program
1996 Flinn Foundation Fellowship, University of Arizona ($60,000)

PROFESSIONAL SOCIETIES

American Association for the Advancement of Science
Entomological Society of America

MANUSCRIPT REVIEWS

Annals of the Entomological Society of America
Biological Control
Biology Letters
Comparative Biochemistry and Physiology
Evolution and Development
Insect Biochemistry and Molecular Biology
Insect Molecular Biology
Journal of Insect Physiology
Journal of Insect Science
Journal of Experimental Biology
PLOSone

TEXTBOOK REVIEWS

Essentials of Genetic Analysis, Sanders and Bowman
Genetics Essentials, 3rd Edition. Benjamin Pierce

RECENT PRESENTATIONS (*denotes presenter, student co-author)

2018 Graham, G.D., DeStefano, J.*, Rocha, C., **Donnell, D.M.**, Zanin, M.K.B. (Poster) Post-Translational Modification of Histone H3 in Mitochondria of Human Jurkat Cells and Related Stress Relief Studies. Association of Southeastern Biologists Annual Meeting. Myrtle Beach, SC. March 28-31.

2017 1. Zanin, M.K.*, Rocha, C., **Donnell, D.M.**, Graham, G.D. (Poster) Evidence Supports Claims the Histone H3 is Present in Mitochondria of Diverse Species. Association of Southeastern Biologists Annual Meeting. Montgomery, AL. March 29-April 1.
2. **Donnell, D.M.*** (Oral) How to survive an alien invasion – an alien perspective. Invited lecture for Charleston Audubon Society, Charleston, SC. November 8.

2016 1. Zealy, R.*, **Donnell, D.M.** (Poster) Cysteine-rich peptides of the parasitoid wasp, *Copidosoma floridanum*. Association of Southeastern Biologists Annual Meeting. Concord, NC. March 31-April 2.
2. Johnson, M.*, **Donnell, D.M.** (Poster) Effects of diet manipulation on the caterpillar *Trichoplusia ni* and its parasitoid *Copidosoma floridanum*. Association of Southeastern Biologists Annual Meeting. Concord, NC. March 31-April 2.

2015 1. **Donnell, D.M.*** (Oral). Case Studies in Genetics - Going to the Cats. Citadel Academy for the Scholarship of Teaching, Learning and Evaluation (CASTLE) presentation at The Citadel. October 14.
2. Mueller, B.M.*, **Donnell, D.M.** (Poster) Purification of antibodies to an odorant-binding protein from the wasp *Copidosoma floridanum*. Citadel Student Research Conference. March 13.
3. Stewart, K.S.*, **Donnell, D.M.** (Poster) Assembling a larval transcriptome for the parasitoid wasp *Copidosoma floridanum*. Citadel Student Research Conference. March 13 (*First Place Winner*)

4. Stewart, K.S.*, **Donnell, D.M.** (Poster) Assembling a larval transcriptome for the parasitoid wasp *Copidosoma floridanum*. Association of Southeastern Biologists Annual Meeting. Chattanooga, TN. April 1-4.

2014 1. **Donnell, D.M.*** (Oral). Caste-bias in odorant-binding protein genes of the polyembryonic wasp *Copidosoma floridanum*. Association of Southeastern Biologists Annual Meeting. Spartanburg, SC. April 2-5.
2. **Donnell, D.M.*** (Poster). Odorant-binding protein gene activity in the larval castes of the polyembryonic wasp *Copidosoma floridanum*. Entomological Society of America - Southeastern Branch Meeting. Greenville, South Carolina, March 2-5.

2013 1. **Donnell, D.M.*** (Oral). Syncytial encapsulins of the polyembryonic wasp, *Copidosoma floridanum*: A role in kin recognition and chemical camouflage? June 2–6, Orford, Quebec, Canada.
2. **Donnell, D.M.*** (Oral). Incorporating Case Studies into the Genetics Laboratory. Citadel Academy for the Scholarship of Teaching, Learning and Evaluation (CASTLE) presentation at The Citadel. November 18.

2012 1. **Donnell, D.M.*** (Oral). Aliens and predators – A biological thriller. The Citadel Sigma Xi brownbag lunch presentation, Sept. 21, Charleston, SC.
2. Mendez, D.P.*, **Donnell, D.M**. (Poster). The use of a duplex-specific nuclease in genome walking, Association of Southeastern Biologists, Annual Meeting. April 4-7, Athens, GA.

2010 1. Burnley, B.*, Matthews, H.*, Sullivan, P.*, Rocha, C.L., **Donnell, D.M.** (Poster/Oral) Appetuners – A system for the expression and control of an appetite regulation protein in *E. coli*. iGEM Jamboree, Massachusetts Institute of Technology. Nov. 6-8, Boston, MA.
2. **Donnell, D.M.*** (Oral). Cloak and dagger strategies of parasitoid wasps. College of Charleston Biology Seminar Series, April 12, Charleston, SC.

PEER-REVIEWED PUBLICATIONS (student co-author)

Donnell, D.M., 2014. Analysis of odorant-binding protein gene family members in the polyembryonic wasp *Copidosoma floridanum*: Evidence for caste bias and host interaction. Journal of Insect Physiology 60, 127-135.

Telang, A., Rechel, J.A., Brandt, J.R., **Donnell, D.M.**, 2013. Analysis of ovary-specific genes in relation to egg maturation and female nutritional condition in the mosquitoes *Georgecraigius atropalpus* and *Aedes aegypti* (Diptera: Culicidae). Journal of Insect Physiology, 59, 283-294.

Donnell, **D. M.**, Strand, M. R., 2006. Differential gene expression in castes of the polyembryonic wasp, *Copidosoma floridanum*. Insect Biochemistry and Molecular Biology 36, 141-153.

Wilson, T. G., Yerushalmi Y., **Donnell**, **D. M.**, Restifo, L. L., 2006. Interaction between hormone-signaling pathways in *Drosophila* revealed by genetic interaction between *Methoprene tolerant* and *Broad Complex*. Genetics 172(1), 253-264.

Donnell, **D. M.**, Corley, L. S., Chen, G., Strand, M. R., 2004. Inheritance of germ cells mediates caste determination in a polyembryonic wasp. Proceedings of the National Academy of Sciences, USA 101(27), 10095-10100.

Donnell, **D. M.**, 2004. Vitellogenin of the parasitoid wasp, *Encarsia formosa* (Hymenoptera: Aphelinidae): Gene organization and differential use within the genus. Insect Biochemistry and Molecular Biology 34, 951-961.

Donnell, D. M., Hunter, M. S., 2002. Developmental rates of two congeneric parasitoids, *Encarsia formosa* and *E. pergandiella* (Hymenoptera: Aphelinidae), utilizing different egg provisioning strategies. Journal of Insect Physiology 48(4), 487-493.

SERVICE

College-wide service

Member, Research and Presentation Grants Committee (Fall, 2018 – present)
Outside reviewer, Tenure and Promotion application for Breeanne Swart in the Department of Math and Computer Science (Fall, 2018)
STEM Scholars Committee (Fall, 2017 – present)
Chair, Faculty Athletic Advisory Council (Fall, 2012 – Fall, 2015)
Liaison, Faculty Athletic Advisory Council (Fall, 2011 – Spring, 2016)
Member, Faculty Council (Fall, 2012 – Fall, 2015)
Campus Security Authority (Fall, 2012 - present)
Title IX Trainee (Fall, 2013 – present)

Department service

Member, Faculty Search Committee – Physiologist position (Fall, 2017 – Spring, 2018)
Member, Biology Tenure and Promotion Guideline Revision Committee (Spring – Summer, 2012)
Member, Non-majors Biology Curriculum Revision Committee (Fall, 2011 – Spring, 2012)
Member, Equipment Committee (Fall, 2010)

Student service

Tri-Beta Honor Society Advisor (Fall, 2012 – Spring, 2016)
iGEM Team Advisor (Spring – Fall, 2010; Spring, 2014)

Community service

Co-host, ALERT/STEM Initiative for Richland School District students (Fall, 2010 – 2011)
Stewards of Children, Darkness to Light Trainee (Fall, 2012, 2015)
Student Oral Presentations Judge (College of Charleston), Grice Marine Labs Colloquium (Fall, 2009, 2010)