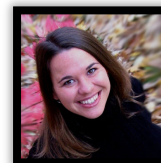


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TONIA S. SCHWARTZ, PhD

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RESEARCH FOCUS

From Molecular Networks to Life History Evolution

I use systems-oriented approaches to understand (i) *why* organisms vary in their response to environmental stressors at the individual level (plasticity, acclimation, maternal effects); (ii) how this response affects life history traits, particularly rates of growth, reproduction, and aging; and (iii) how the *stress response can evolve across populations* and species under varying environmental conditions. I use two experimental frameworks to address these questions: testing hypotheses derived from the biomedical literature *in natural populations*; and testing ecological and evolutionary theory in the lab using traditional and emerging model organisms.

BRIEF RESEARCH BIOGRAPHY

Current – 2015: James S. McDonnell Post-doctoral Fellowship in Complexity Science. Advisors: Drs. David Allison and Julia Gohlke, University of Alabama at Birmingham.

PROJECT TITLE: EVOLUTION OF MOLECULAR STRESS NETWORKS AND COMPLEX TRAITS.

2007-2012: PhD in Genetics. Advisors: Drs. Anne Bronikowski and Jo Anne Powell-Coffman, Iowa State University, Ames, Iowa, U.S.A. DISSERTATION TITLE: THE EVOLUTION OF STRESS RESPONSE AND LIFE HISTORY TRAITS IN NATURAL POPULATIONS OF GARTER SNAKES.

- 2010-12: National Science Foundation Doctoral Dissertation Improvement Grant.
- 2010-11: National Science Foundation GK-12 fellow.
- 2007-09: National Science Foundation IGERT fellow in Computational Molecular Biology.

2002-2007: Research Employment

- 2005-2007: Lab Manager. Univ. of Wollongong, AUS. Sexual selection in natural lizard populations.
- 2004-2005: Research Assist. Univ. of Sydney, AUS. Molecular evolution of metabolic proteins.
- 2003-2004: Research Assist. Macquarie Univ., AUS. Hybridization and speciation in fishes.
- 2002-2003: Research Scientist. Florida Marine Research Institute, USA. Population genetics, fisheries.

1999-2003: MS in Zoology, Advisor: Dr. Stephen Karl, University of South Florida, Tampa, emphasis in Evolutionary Genetics, Molecular Ecology, and Conservation Genetics.

TITLE: POPULATION STRUCTURE OF THE GOPHER TORTOISE (*GOPHERUS POLYPHEMUS*) IN FLORIDA, USING MICROSATELLITES.

1998-1999: Women in Science and Engineering Undergraduate Internship. Advisor: Dr. Carol Vleck; molecular sexing of Adélie penguins.

1994-1998 BS in Zoology, minor in Genetics, Iowa State University, Ames, Iowa, U.S.A.

- 1998: Undergraduate Research Assistant. Dr. Bonnie Bowen; conservation genetics of birds & mussels.

PUBLICATION SUMMARY

- 1 book chapter, 32 manuscripts published in peer-reviewed journal articles (12 first author)
- Citations = 577; h-index = 14; i10-index = 19

FULL CURRICULUM VITAE

CURRENT POSITION

James S. McDonnell Post-doctoral Fellowship in Complexity Science. Advisors: Drs. David Allison and Julia Gohlke, University of Alabama at Birmingham.

PROJECT TITLE: EVOLUTION OF MOLECULAR STRESS NETWORKS AND COMPLEX TRAITS.

EDUCATION

PhD: 2012 **Doctorate of Philosophy in Genetics.** Advisors: Drs. Anne Bronikowski and Jo Anne Powell-Coffman, Iowa State University, Ames, Iowa, U.S.A. Research Excellence Award. DISSERTATION TITLE: THE EVOLUTION OF STRESS RESPONSE AND LIFE HISTORY TRAITS IN NATURAL POPULATIONS OF GARTER SNAKES.

MS: 2003 **Masters of Science,** Advisor: Dr. Stephen Karl, University of South Florida, Tampa, Florida, U.S.A. Degree in Zoology; emphasis in Evolutionary Genetics, Molecular Ecology, and Conservation Genetics. THESIS TITLE: POPULATION STRUCTURE OF THE GOPHER TORTOISE (*GOPHERUS POLYPHEMUS*) IN FLORIDA, USING MICROSATELLITES.

BS: 1998 **Bachelor of Science,** Iowa State University, Ames, Iowa, U.S.A.

Degree in Zoology and Minor in Genetics. Graduated 'With Distinction'.

1997 Semester Study Abroad in Costa Rica, Biology Subjects and Field Research Projects.

WORKSHOPS, TRAINING AND CERTIFICATIONS

2014 Environmental Genomics, sponsored by MDIBL &NERC at University of Birmingham, UK

2013 University of Alabama at Birmingham, Short Course on Next Generation Sequencing: Technology and Statistical Methods.

2013 University of Alabama at Birmingham, Short Course on Statistical Genetics and Genomics

2011 Marine Biological Laboratory, Molecular Biology of Aging Workshop

2008 Computational Phyloinformatics Course, National Evolutionary Synthesis Center (NESCent)

2005 Linkage and Gene Mapping Course: Berlin, Germany

2005 Scientific Writing Workshop: University of Wollongong, Australia

2003 Radiation Certification: New South Wales, Australia

2002 First Aid/CPR & Oxygen Administration Certification: University of South Florida. FL. U.S.A.

2000-2003 Research Certification in SCUBA Diving: University of South Florida. FL, U.S.A.

1999 SCUBA Diving Certification: NAUI Open Water I. Iowa State University, U.S.A.

PUBLICATIONS

SUMMARY

- 1 book chapter, 32 manuscripts published in peer-reviewed journal articles (12 first author)
- Citations = 577; h-index = 14; i10-index = 19

*** indicates dual-first authorship**

MANUSCRIPTS IN REVIEW OR IN PREPARATION
(TO PROVIDE PERSPECTIVE OF ON ONGOING RESEARCH)

In Review

- McGaugh, S., A. M. Bronikowski, C.-H. Kuo, D. M. Reading, E. A. Addis, L. E. Flagel, F. J. Janzen, and **T. S. Schwartz**. In Review. Rapid molecular evolution across amniotes of the IIS/TOR network (Insulin and Insulin-like Signaling/Target of Rapamycin).
- Schwartz, TS**, S Carter, JM Wyss, MS Johnson, ED Dohm, R Gainer, and D Allison. In Review. Second-hand eating? Perception of the food environment affects reproductive investment in mice.
- Schwartz, TS**, ZW Arendsee, and AM Bronikowski. In Review. Neofunctionalization of duplicated mitochondrial control regions provides transcriptional plasticity in response to stress.
- Schwartz TS** and Bronikowski AM. In Review. Gene expression of components of the insulin/insulin-like signaling pathway in response to heat stress in the garter snake, *Thamnophis elegans*.

PUBLISHED

BOOK CHAPTERS

- Schwartz, TS** and AM Bronikowski. 2011. Molecular Stress Pathways and the Evolution of Life Histories in Reptiles. In Flatt & Heyland (Eds) *Molecular Mechanisms of Life History Evolution*, Oxford University Press.

PEER-REVIEWED JOURNAL ARTICLES

32. Allison, DB, LH Antoine, SW Ballinger, MM Bamman, P Biga, VM Darley-Usmar, G Fisher, JM Gohlke, GV Halade, JV Hartman, GR Hunter, JL Messina, TR Nagy, EP Plaisance, ML Powell, KA Roth, MW Sandel, **TS Schwartz**, DL Smith, JD Sweatt, TO Tollefsbol, SA Watts, Y Yang, J Zhang, and SN Austad, 2014. Aging and Energetics 'Top 40' Future Research Opportunities 2010-2013. *F1000Research* 3:219 DOI: [10.12688/f1000research.5212.1](https://doi.org/10.12688/f1000research.5212.1)
31. **Schwartz, TS**, and AM Bronikowski. 2013. Dissecting molecular stress networks: identifying nodes of divergence between life-history phenotypes. *Molecular Ecology*. 22(3): 739-756
DOI: [10.1111/j.1365-294X.2012.05750.x](https://doi.org/10.1111/j.1365-294X.2012.05750.x)
Best young investigator presentation in the Evolutionary Ecological Genomics Symposium at the 13th Congress for the European Society for Evolutionary Biology.
30. Uller. T, **T Schwartz**, T Koglin, M Olsson. 2013. Sperm storage and sperm competition across ovarian cycles in the dragon lizard, *Ctenophorus fordi*. *Journal of Experimental Zoology*. 319A:404-408.
29. Ungvari, D, D Sosnowska, JB Mason, H Gruber, SW Lee, **TS Schwartz**, et al. 2013. Resistance to genotoxic stresses in *Arctica islandica*, the longest living noncolonial animal: is extreme longevity associated with a multistress resistance phenotype? *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*. 69(5): 521-529 DOI: [10.1093/gerona/gls193](https://doi.org/10.1093/gerona/gls193)
28. Abramyan, J, DBadenhorst, KK Biggar, GM Borchert, CW Botka, RM Bowden, et al. (**58 authors**). 2013. The western painted turtle genome, a model for the evolution of extreme physiological adaptations in a slowly evolving lineage. *Genome Biology* 14(3): R28. DOI:[10.1186/GB-2013-14-3-R28](https://doi.org/10.1186/GB-2013-14-3-R28).
27. Sparkman, AM*, **TS Schwartz***, J Madden, SE Boyken, JM Serb, NB Ford, and AM Bronikowski. 2012. Evolutionary rates vary among reptiles for insulin-like growth factor-1 (IGF-1), a pleiotropic locus involved in life history traits. *General and Comparative Endocrinology*. 178(1): 164-173.

26. Olsson, M, **T Schwartz**, E Wapstra, T Uller, B Ujvari, T Madsen, and R Shine. 2011. Climate change, multiple paternity and offspring survival in lizards. *Evolution* 65: 3323-3326.
25. **Schwartz, TS**, C Perrin, E Wapstra, T Uller, and M Olsson. 2011. Complex selection associated with Hox genes in a natural population of lizards. *Journal of Evolutionary Biology* 24:2520-2524.
24. Olsson, M, A Pauliny, E Wapstra, T Uller, **T Schwartz** and D Blomqvist. 2011. Sexual differences in telomere selection in the wild. *Molecular Ecology* 20: 2085-2099
23. Shaddick, K, C Burrige, D Jerry, **T Schwartz**, K Truong, D Gilligan, and L Beheregaray. 2011. A hybrid zone and bi-directional introgression between the catadromous species: Australian bass and estuary perch. *Journal of Fish Biology*. **79**: 1214-1235.
22. Olsson, M, A Pauliny, E Wapstra, T Uller, **T Schwartz** and D Blomqvist. 2011. Sex Differences in Sand Lizard Telomere Inheritance: Paternal Epigenetic Effects Increases Telomere Heritability and Offspring Survival. *PLoS ONE* 6: e17473.
21. Olsson, M, E Wapstra, **T Schwartz**, T Madsen, B Ujvari, T Uller and R Shine. 2011. In hot pursuit: fluctuating mating system and sexual selection in sand lizards. *Evolution*. 65(2): 574-53
20. **Schwartz, TS***, H Tae*, Y Yang, K Mockaitis, JL Van Hemert, SR Proulx, J-H Choi, and AM Bronikowski. 2010. A garter snake transcriptome: pyrosequencing, *de novo* assembly, and sex-specific differences. *BMC Genomics*. 11: 694-715.
“Highly Accessed”.
19. Atwell, C, G Holwell, **TS Schwartz**, K Umbers, A Stow, M Herberstein and L Beheregaray. 2009. Microsatellite markers for the praying mantid *Ciulfina rentzi* (Liturgusidae). *Molecular Ecology Resources*. 9(6): 1480-82.
18. Olsson, M, **T Schwartz**, T Uller and M Healey. 2009. Effects of sperm storage and male colour on probability of paternity in a polychromatic lizard. *Animal Behaviour* 77:419-424.
17. Corrigan, S, C Huvneers, **TS Schwartz**, RG Harcourt and LB Beheregaray. 2008. Genetic and reproductive evidence for two species of ornate wobbegong shark on the Australian East Coast. *Journal of Fish Biology* 73: 1662-1675.
16. **Schwartz, TS**, S Murray and F Seebacher. 2008. Novel reptilian uncoupling proteins: molecular evolution and gene expression during cold acclimation. *Proceedings of the Royal Society B: Biological Sciences* 275: 979-985.
15. **Schwartz, TS** and LB Beheregaray. 2008. Using genotype simulations and Bayesian analyses to identify individuals of hybrid origin in Australian bass: lessons for fisheries management. *Journal of Fish Biology* 72: 435-450.
14. **Schwartz, T** and M Olsson. 2008. Microsatellite markers developed for a Swedish population of sand lizard (*Lacerta agilis*). *Conservation Genetics* 9:715-717. Erratum 9:719-721.
13. **Schwartz, TS** and SA Karl. 2008. Population genetic assignment of confiscated gopher tortoises. *Journal of Wildlife Management* 72: 254-259.
12. Olsson, M, E Wapstra, M Healey, **T Schwartz** and T Uller. 2008. Selection on space use in a polymorphic lizard. *Evolutionary Ecology Research* 10:621-627.
11. **Schwartz, TS**, DA Warner, LB Beheregaray and M Olsson. 2007. Microsatellite loci for Australian agamid lizards. *Molecular Ecology Notes* 7: 528-531.
10. Olsson, M, **T Schwartz**, T Uller and M Healey. 2007. Sons are made from old stores: sperm storage effects on sex ratio in a lizard. *Biology Letters* 3: 491-493.
9. Olsson, M, M Healey, E Wapstra, **T Schwartz**, N Lebas and T Uller. 2007. Mating system variation and morph fluctuations in a polymorphic lizard. *Molecular Ecology* 16: 5307-5315.
8. Seebacher, F, **TS Schwartz** and MB Thompson. 2006. Transition from ectothermy to endothermy: the development of metabolic capacity in a bird (*Gallus gallus*). *Proceedings of the Royal Society B-Biological Sciences* 273: 565-570.

7. **Schwartz, TS**, and SA Karl. 2005. Population and conservation genetics of the gopher tortoise (*Gopherus polyphemus*). *Conservation Genetics* 6: 917-928.
6. **Schwartz, TS**, F Jenkins and LB Beheregaray. 2005. Microsatellite DNA markers developed for the Australian bass (*Macquaria novemaculeata*) and their cross-amplification in estuary perch (*Macquaria colonorum*). *Molecular Ecology Notes* 5: 519-520.
5. Roberts, MA, **TS Schwartz** and SA Karl. 2004. Global population genetic structure and male-mediated gene flow in the green sea turtle (*Chelonia mydas*): analysis of microsatellite loci. *Genetics* 166: 1857-1870.
4. Beheregaray, LB, **TS Schwartz**, LM Moller, D Call, NL Chao and A Caccone. 2004a. A set of microsatellite DNA markers for the one-lined pencilfish *Nannostomus unifasciatus*, an Amazonian flooded forest fish. *Molecular Ecology Notes* 4: 333-335.
3. Beheregaray, LB, LM Moller, **TS Schwartz**, NL Chao and A Caccone. 2004b. Microsatellite markers for the cardinal tetra *Paracheirodon axelrodi*, a commercially important fish from central Amazonia. *Molecular Ecology Notes* 4: 330-332.
2. Seminoff, JA, SA Karl, **T Schwartz** and A Resendiz. 2003. Hybridization of the green turtle (*Chelonia mydas*) and hawksbill turtle (*Eretmochelys imbricata*) in the Pacific Ocean: Indication of an absence of gender bias in the directionality of crosses. *Bulletin of Marine Science* 73: 643-652.
1. **Schwartz, TS**, M Osentoski, T Lamb and SA Karl. 2003. Microsatellite loci for the North American tortoises (genus *Gopherus*) and their applicability to other turtle species. *Molecular Ecology Notes* 3: 283-286.

NON-PEER REVIEWED

- Allison, DA, **TS Schwartz**. 2014. F1000Prime Recommendation of Herman et al. How stable ,should epigenetic modifications be? Insights from adaptive plasticity and bethedging. *Evolution* 2014 68:632-43. DOI: 10.3410/f.718188760.793499826.
- Beheregaray, LB, and **TS Schwartz**, 2011. Chapter 6: Taxonomic assessment of Australian bass and estuary perch, pp. 57-60 in *Fisheries Victoria Research Report Series: Freshwater fish resources in the Snowy River, Victoria*. Edited by W. Fulton and K. Hall. Fisheries Victoria, Department of Primary Industries, Victoria, Australia.
- Schwartz, TS** and T Bert. 2003. Preliminary assessment of the genetic structure of vermilion snapper (*Rhomboplites aurorubens*). Special Report to the Florida Fish and Wildlife Conservation Commission. FMRI Report Number IHR2003-007.
- Schwartz, TS**, M Tringali, T Bert, R Nostrom, JE Reynolds, III. 2002. Assessment of a novel approach to obtain genetic specimens from free-ranging manatees. Mote Marine Laboratory Technical Report to Florida Fish and Wildlife Conservation Commission.

PROFESSIONAL ACTIVITIES

- F1000**. Associate Faculty Member of 'Faculty of 1000'.
<http://f1000.com/prime/thefaculty/member/499999771097545272>
- Sigma Xi**: President of the University of Alabama at Birmingham Chapter.
- Referee**: Aging Cell, Biological Journal Linnaean Society; BMC Ecology, Conservation Genetics; Evolution, Evolutionary Ecology, Frontiers in Zoology, Functional Ecology, Heredity, Molecular Ecology, Molecular Ecology Resources, Obesity, PeerJ, Proceedings of the Royal Society of London, Transactions of American Fisheries Science

Society Member: American Physiological Society, Molecular Biology and Evolution, Society for Integrative and Comparative Biology, Sigma Xi.

GRANTS, FELLOWSHIPS, SCHOLARSHIPS, AWARDS AND HONORS

POST-DOCTORAL

- 2013-2015** James S. McDonnell Foundation, Postdoctoral Fellowship Award in Complexity Science. Evolution of molecular networks and complex traits. \$200,000.
2013 Creativity is a Decision Prize, NORC of UAB and Mars Incorporated.

DOCTORATE DEGREE

- 2012** Iowa State University Doctorate Research Excellence Award.
2011 Best young investigators presentation in the Evolutionary Ecological Genomics Symposium at the 13th Congress for the European Society for Evolutionary Biology.
2010-2012 National Science Foundation Doctoral Dissertation Improvement Grant (NSF-DDIG); Unraveling the genetic basis for complex life-history traits in natural populations of garter snakes. (\$14,981)
2010-2011 National Science Foundation, GK-12 Fellowship; Promoting a GREEN workforce.
2009 Iowa Academy of Sciences; Sex-specific gene expression involved in stress response (\$5000).
2009 Iowa State University, Liberal Arts & Sciences Computation Advisory Committee; BCBLab Mobile Computing Project (\$30,906)
2008 Sigma Xi, Grant-in-Aid of Research; Reptile Telomerase (\$1000)
2008 Iowa State University, EEOB Student Research Award; Reptile Telomerase (\$450)
2007 National Science Foundation, Integrative Graduate Education and Research Training Program (NSF-IGERT) in Computational Molecular Biology; 2 year Graduate Fellowship
2007 F. Wendell Miller Scholarship; Graduate Fellowship; Declined.

MASTERS DEGREE

- 2003, 2000** University of South Florida Travel Award to present graduate research at a national meeting.
2002, 2001, 1999 Arcadia National Wildlife Inc Grant. Research on gopher tortoise population genetics.
2001 Eloise Gerry Fellowship, Sigma Delta Epsilon Graduate Women in Science. Research on gopher tortoise genetics.
2000 Chelonian Research Foundation Grant. Linnaeus Fund. Research on gopher tortoise population genetics.
2000 Summer Graduate Tharpe Research Fellowship from University of South Florida.

UNDERGRADUATE DEGREE

- 1998** Undergraduate Research Assistantship at Iowa State University; Population Genetics
1998 Program for Women in Science and Engineering Summer Internship; Genetic sexing of birds.
1997 George M. Ricketts Zoology and Genetics Scholarship.
1994 State of Iowa Scholar Scholarship.
1994 Iowa State University Academic Recognition Scholarship.
1994 Lee County Soil and Water Conservation District Scholarship.
-

RESEARCH EXPERIENCE AND EMPLOYMENT

- 2013-2015, Postdoctoral Research**, under the mentorship of Dr. David Allison, University of Alabama at Birmingham, Birmingham, AL, U.S.A.
- 2007- 2012, PhD Research in the Evolutionary Genetics of Stress and Life History Traits**, under the directions of Drs. Anne Bronikowski and JoAnne Powell-Coffman, Iowa State University, Ames, Iowa, U.S.A.
- 2005-2007 Lab Manager / Research Assistant in Molecular Ecology and Sexual Selection**, under the direction of Professor M Olsson, School of Biological Sciences, University of Wollongong, Wollongong, Australia.
- 2004 Research Assistant in Environmental Physiology**, under the direction of Dr. Frank Seebacher at School of Biological Sciences, University of Sydney, Sydney, Australia.
- 2003-2004 Research Assistant in Molecular Ecology and Fisheries Conservation Genetics**, under the direction of Dr. L Beheregaray at Department of Biological Sciences, Macquarie University, Sydney, Australia.
- 2002-2003 Research Staff in Population Genetics and Fisheries Management**, under direction of Drs. Theresa Bert and Michael Tringali, Florida Marine Research Institute (FMRI), Florida Fish and Wildlife Conservation Commission (FFWCC), St. Petersburg; and Dr. John Reynolds, Mote Marine Research Laboratory, Sarasota, Florida, U.S.A.
- 2002 Research Assistant in Microbiology and Water Quality**, under the direction of Dr. Joan Rose, Department of Marine Science, University of South Florida, St. Petersburg. U.S.A.
- 2000, 2002 Research Field Assistant for SCUBA Collection of Marine Samples**, under direction of Drs. Emily Severance and Stephen Karl of University of South Florida, Tampa, U.S.A.
- 2000, 2002 Research Field Assistant for Collection of Amphioxus**. Under the direction of Dr. Georgia Panopoul, University of South Florida, Tampa, U.S.A.
- 1999-2003 Master's research in Molecular Ecology/Population Genetics/Conservation Genetics on gopher tortoises**, under the direction of Dr. Stephen A. Karl, Department of Biology, University of South Florida, Tampa, U.S.A.
- 1998-1999 Undergraduate Research Assistantship in Molecular Ecology and Conservation Genetics**, under the direction of Dr. Bonnie S. Bowen, Department of Zoology and Genetics, Iowa State University, Iowa, U.S.A.
- 1998 Undergraduate Research Assistantship in Molecular Ecology** under the direction of Dr. Carol M. Vleck, Department of Zoology and Genetics, Iowa State University, Iowa, U.S.A. Program for Women in Science and Engineering Undergraduate Internship
-

TEACHING AND ADMINISTRATIVE EXPERIENCE AND EMPLOYMENT

- 2010 NSF-GK12 Fellowship**. Iowa State University and Meredith Middle School (7th & 8th grade).
- 2000-2010 Supervision and Training of Undergraduates, Honors and PhD students.**
- Dr. Anne Bronikowski's Laboratory, Iowa State University, Ecology, Evolution and Organismal Biology Department, Ames, Iowa, U.S.A.
 - Professor Mats Olsson Laboratory, School of Biological Sciences, University of Wollongong, Wollongong, Australia.
 - Dr. Luciano Beheregaray Laboratory, Department of Biology, Macquarie University, Sydney, Australia.
 - Dr. Stephen Karl's laboratory. University of South Florida, Biology Department, Tampa, Florida, U.S.A.

- 2004 Genetics Laboratory Tutor.** Under the direction of Dr. Luciano Beheregaray, Department of Biology, Macquarie University, Sydney, Australia.
- 2003 Administrative Assistant.** First Year Biology Office, University of Sydney, Sydney, Australia.
- 2002-2003 Cellular Biology Lecture Assistant.** Under the direction of Drs. Rick Pollenz and Mary Kimble, Biology Department, University of South Florida, Tampa, Florida, U.S.A.
- 2002 Microbiology Laboratory Teaching Assistant.** Under direction of Dr. Jonny Elrady, Biology Department, University of South Florida, Tampa, Florida, U.S.A.
- 2002 Biology II Lecture and Laboratory Assistant– experiments with Social Biology of Ants.** Under the direction of Dr. Debby Cassill, Environmental Science and Policy Department, University of South Florida, Florida, U.S.A.
- 1999-2001 Cellular Biology Laboratory Head Preparatory Teaching Assistant/Teaching Assistant.** Under the direction of Drs. Andrew Cannons, Mary Kimble, and Rick Pollenz, Biology Department, University of South Florida, Tampa, Florida U.S.A.

MENTOREES

- Undergraduates:** Shikha Parsai (Iowa State Uni) Jill Madden (Iowa State Uni); Megan Manes (Iowa State Uni); Fiona Wilde (MacQuarie Uni); Mindy Smith (Uni S. Florida)
- Honors Students:** Troy Koglin (Uni of Wollongong)
- Research Staff:** Phil Pearson (Univ. of Alabama at Birmingham)
- PhD and MS Students:** Jorgen Sagvik (Uni of Wollongong; Uni of Gothenburg)
- High School Teachers:** Courtney Hewitt (Newton High School)
- Interns:** Zebulun W. Arendsee (ISU Computational Biology Summer Institute)
-

INVITED SEMINARS

- 2013-09 Auburn University.** Integrating molecular stress response with life history traits across multiple levels of biological complexity
- 2013-09 Sigma Xi (University of Alabama at Birmingham Chapter).** Genetic and Environmental Effects on Trade-offs between Reproduction and Lifespan
- 2013-07 Mountain Lake Biological Station (University of Virginia).** Plasticity and evolution of stress response networks in divergent life-history phenotypes.
- 2011-11 Duke University, Biology Department, Evo-Devo Genomic Seminar.** Identifying diverging nodes in molecular stress response networks.
-

PRESENTATIONS (PERSONALLY PRESENTED)

- 2014 American Physiological Society: Comparative Approaches to Grand Challenges in Challenges in Physiology.** Rapid molecular evolution across amniotes of the IIS/TOR network.
- 2014 Society for Molecular Biology and Evolution, San Juan, Puerto Rico.**
Poster Presentation 1: Genetic networks underlying the evolution of cold hardiness. Gerken A, TS Schwartz, C Williams, DB Allison, C. Xiangqin, D Hahn, TJ Morgan

- Poster Presentation 2: Duplicated mitochondrial control regions enable transcriptional plasticity of the rRNA/mRNA ratio in response to stress. Schwartz, TS, ZW Arendsee, AM Bronikowski.
- 2014 Daphnia Genome Conference**, Birmingham, United Kingdom. Poster Presentation: Preliminary assessment of fluctuating temperature on epigenetic modification and life history traits in *Daphnia*. Schwartz TS, Allison DA, Gohlke J.
- 2014 Society for Integrative and Comparative Biology**, Austin, Texas. Oral Presentation: Gene expression and genetic variation in genes involved in heat stress response in garter snake life-history ecotypes. Schwartz TS, McGaugh, S, Nettleton D, Bronikowski, AM. Poster Presentation: Preliminary assessment of fluctuating temperature on epigenetic modification and life history traits in *Daphnia*. Schwartz TS, Allison DA, Gohlke J.
- 2013 Obesity Society Meeting**, Atlanta Georgia. Poster Presentation: Both temperature and genetic ancestry regulate mitochondrial function differently in populations divergent in energy-expenditure traits. Schwartz TS, Andress ZA, Gangloff GJ, Bronikowski AM.
- 2013 Ecological and Evolutionary Genomics Gordon Conference**, Biddeford, ME. Poster Presentation: Functional divergence across levels of biological complexity: integrating physiology, RNA-seq, and sequence-capture to elucidate molecular pathways diverging between fast- and slow-lived snake populations. Schwartz, TS, Bronikowski AM.
- 2013 Society for Integrative and Comparative Biology**. San Francisco, CA. Oral Presentation: Plasticity and evolution of stress response networks in divergent life-history phenotypes. Schwartz, TS, Bronikowski AM.
- 2011 13th Congress of the European Society for Evolutionary Biology: Evolutionary Ecological Genomics Symposium**. Tuebingen, Germany. Oral Presentation: Divergent transcriptomic and physiological responses to heat stress in garter snake life-history ecotypes. Schwartz, TS, Bronikowski AM
*Awarded best young investigator's presentation for symposium.
- 2011 New Mexico Bioinformatics Symposium: Focus on Population-level Genetic Diversity**. Santa Fe, New Mexico, USA. Poster Presentation: Comparing sequence and transcriptional variation in insulin-like signaling genes among natural populations of snakes that vary in reproduction/growth and stress response/longevity. Schwartz, T, Bronikowski AM.
- 2010 8th Annual Ecological Genomics Symposium**– Kansas City, KS, USA. Poster Presentations: Functional evolution and stress response of the reptile mitochondrial transcriptome: insights from RNA-seq. Schwartz, TS, Arendsee, ZE. Bronikowski AM.
- 2010 American Physiological Society** –Denver, CO, USA. Poster Presentation: Evolved responses to heat stress in snake life-history ecotypes. Schwartz, TS, Bronikowski, AM.
- 2009 7th Annual Ecological Genomics Symposium**– Kansas City, KS, USA. Poster Presentation: The evolution of gene regulation involved in metabolic stress and aging. Schwartz, TS. Bronikowski, AM.
- 2009 Gordon Conference: Evolutionary and Ecological Functional Genomics** – Tilton School, NH, USA. Poster Presentation: The evolution of gene regulation involved in metabolic stress and aging. Schwartz, TS. Bronikowski, AM.
- 2009 Society for Molecular Biology and Evolution**-Iowa City, IA, USA. Poster Presentation: The evolution of gene regulation involved in metabolic stress and aging. Schwartz, TS. Bronikowski, AM.
- 2009 Complexities of Biology: Processes of Aging** - Salk Institute, La Jolla, CA, USA. Poster Presentation: Snakes: a comparative model system for the evolution of aging. Schwartz, TS. Bronikowski, AM.
- 2008 Society for the Study of Evolution** - Minneapolis, Minnesota, USA. Oral Presentation: Evolution of uncoupling proteins and their role in cold acclimation in reptiles. Schwartz, T., Murray, S., Seebacher, F.
- 2008 NSF-IGERT Project Meeting** – Washing D.C., USA. Poster Presentation: Evolutionary comparisons elucidate gene networks in cell-fate determination of photoreceptors in the eye. Schwartz, T, Serb, J., Greenlee-West, H.M.

- 2008 New Mexico Bioinformatics Symposium: Focus on Next Generation Sequencing** – Santa Fe, New Mexico, USA. Poster Presentation: Evolutionary comparisons elucidate gene networks in cell-fate determination of photoreceptors in the eye. Schwartz, T, Serb, J., Greenlee-West, H.M.
- 2006 Australian Society of Herpetologists** - Healesville, Victoria, Australia. Oral Presentation: Sexual Selection over Time. Schwartz T.
- 2005 Australasian Evolution Society** - Freemantle, Western Australia, Australia. Poster Presentation: Genetic diversity in a parthenogenetic grasshopper. Kearney M, Blacket M, Schwartz T.
- 2004 Australian Genetics Society** - Melbourne, South Australia, Australia. Poster Presentation: What Can Genetics Elucidate about the Wobbegong Shark? Schwartz TS, Hoverner C, Beheregaray L, Stow A, Harcourt R.
- 2003 Joint Meeting of Ichthyologists and Herpetologists** - Manaus, Amazonas, Brazil. Oral Presentation: Colonization and Dispersal of *Gopherus polyphemus* during the Pleistocene. Schwartz TS, Karl SA.
- 2003 Australian Society of Herpetologists** - Darwin, Northern Territory, Australia. Oral Presentation: Using Genetics to Infer the Past and to Predict the Future of Gopher Tortoises. Schwartz TS, Karl SA.
- 2002 Florida Ecology & Evolution Symposium** - Archbald Research Station, Florida, USA. Oral presentation: Population genetics of the gopher tortoise (*Gopherus polyphemus*) in Florida: implications for conservation. Schwartz TS, Karl SA.
- 2002 Joint Meeting of Ichthyologists and Herpetologists** - Kansas City, Missouri, USA. Oral Presentation: Population genetics of the gopher tortoise (*Gopherus polyphemus*) in Florida: implications for conservation. Schwartz TS. Karl
- 2001 Society of Integrative and Comparative Biology** - Chicago, Illinois, USA. Oral Presentation: Population genetics of the gopher tortoise (*Gopherus polyphemus*) in Florida. Schwartz TS, Karl SA.
- 2000 Suncoast Biomolecular Science Conference**- Tampa, Florida, USA. Poster presentation: Genetic population structure of the gopher tortoise (*Gopherus polyphemus*) in Florida using microsatellites. Schwartz TS, Karl SA.
- 2000 Society for the Study of Evolution** - Indianapolis, Indiana, USA. Poster presentation: Genetic population structure of the gopher tortoise (*Gopherus polyphemus*) in Florida using microsatellites. Schwartz TS, Karl SA.
- 1999 Iowa Academy of Science** - Ames, Iowa, USA. Oral presentation: Using the CHD gene to sex monomorphic bird species. Schwartz TS, Bowen BS, Vleck C.
- 1998 Program for Women in Science and Engineering Poster Presentation** - Ames, Iowa, USA. Poster presentation: Using the CHD genes to sex monomorphic bird species. Schwartz TS, Bowen BS, Vleck
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Updated: October 2014