

Adam C. Nelson

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Current Research

Animal behavior	Adaptive significance of social and sexual behaviors and their molecular and genetic mechanisms.
Ecological Immunology	Evolution of variability in the immune response and the interplay between immunity and behavior.

Education

2005-present	PhD candidate. University of Utah. Advisor: Wayne K. Potts
2001	BA Environmental Studies. University of Montana, Missoula.

Grants, Scholarships, Awards

2008, 2010	University of Utah travel assistance award. \$800/award to attend scientific meetings.
2009-present	National Science Foundation: Doctoral Dissertation Improvement Grant. \$15,000 (Co-PI Wayne Potts).
2009	National Science Foundation: EAPSI. Emma Whitelaw Laboratory, Queensland Institute of Medical Research. ~\$10,000.
2008-present	National Institutes of Health: Genetics Training Grant . \$21,000 annual stipend plus \$1,000/year for research supplies.
2004	University of Utah Undergraduate Research Opportunities assistantship. \$6,000.
2001	Round River Conservation Studies. Edward Abbey Scholarship. Travel award to study conservation biology in Namibia. \$4,000.

Publications

- Owen, J.P., **A.C. Nelson**, D.H. Clayton. *In press*. Ecological Immunology of Bird Ectoparasite systems. *Trends in Parasitology*. Epub ahead of print.
- Kubinak JL, **Nelson AC**, Ruff JS, Potts WK. *In press*. Tradeoffs defining optimal MHC heterozygosity. *In Ecological Immunology* (Demas GE, & Nelson RJ eds.). New York, NY: Oxford University Press.
- Ruff JS*, **Nelson AC***, Kubinak JL, Potts WK. *In press*. The Major histocompatibility complex during social communication. *In Ancient Origin of Self-Recognition Systems in Nature* (C. Lopez-Larrea, ed.). Austin, TX: Landes Bioscience. (*equal contribution)
- Kauffman MJ, Sanjayan M, Lowenstein J, **Nelson AC**, Jeo RM, and Crooks KR. 2007. Remote camera-trap methods and analyses reveal impacts of rangeland management on Namibian carnivore communities. *Oryx* 41:70-78.
- Slev PR, **Nelson AC**, and Potts WK. 2006. Sensory neurons with MHC-like peptide binding properties: disease consequences. *Current Opinion in Immunology* 18:608-16.

Publications in preparation (manuscript upon request)

- **Nelson AC**. Laboratory evolution experiments and fitness consequences of sexual selection:

predictions and evidence.

Contributed Presentations

- 2010 Evolution meeting (Portland, OR): Rapid adaptation to sociality involves upregulation of MUPs: testing the mechanisms.
- 2009 Queensland Institute of Medical Research, Epigenetics Group (Qld, AU). Testing the adaptive significance of *Mup* epigenetic regulation.
- 2009, 2010 University of Utah Genetics Training Grant Annual Retreat (Snowbird, UT). Rapid adaptation to sociality involves upregulation of *Mups*: is it epigenetic?
- 2007-2010 University of Utah FUSION seminar. Voluntary research-in-progress talks to members of department (one per year).
- 2008 Central European Meeting on Mouse Epigenetics (Nove Hradky, CZ). Experimental sexual selection in mice: from phenotype to genotype.
- 2006 Animal Behavior Society meeting (Snowbird, UT). Sexual selection increases the fitness of sons in mice.

Research Experience

- 2005-present Doctoral Research. University of Utah, Salt Lake City, UT. Determining the behavioral and genetic basis for increased male mouse (*Mus musculus*) reproductive success when bred under semi-natural social conditions.
- 2008-present Genetics Training Grant. Participate in monthly research-in-progress seminars and in the University of Utah Genetics Interest Group monthly seminar series.
- 2009 NSF fellowship at the Queensland Institute of Medical Research Epigenetics Laboratory (Emma Whitelaw). Accomplished a specific aim of dissertation research and participated in ongoing research in the lab.
- 2003-2004 Research Technician/ Field Assistant. Robert L. Minckley Lab: University of Utah, Salt Lake City, UT & University of Rochester, New York. Contributed to ongoing study of biodiversity and community structure of bees in the Chihuahuan desert.
- 2001-2002 Field Assistant. Round River Conservation Studies: Atlin, British Columbia. Contributed to "A conservation area design for the territory of the Taku River Tlingit First Nation." <http://www.roundriver.org/TAKUCADrpt.pdf>

Supervisory experience

- 2005-present Trained 11 undergraduate assistants who directly contributed to dissertation research project for at least a semester; five contributed for at least a year. Each student has learned about the principles and practices of basic molecular genetics and animal behavior. They have contributed to the project by helping maintain the animal colony, using molecular techniques to address genetic hypotheses, using protein assays to understand the expression of MUPs in urine, and entering and analyzing data. Four of the students have presented posters at local scientific conferences.

Teaching Experience (University of Utah)

- 2008 Teaching Assistant. Evolution and the Diversity of Life (BIOL 6420).
- 2006, 2007 Teaching Assistant. Behavioral Neurobiology (BIOL 3330).
- 2007 Teaching Assistant. Molecular Evolution (BIOL 5410).
- 2006 Teaching Assistant. Mammalogy. (BIOL 5370).

Graduate Coursework (University of Utah)

- Advanced Genetics & Genomics (MBIOL 6420)
- Evolutionary Genetics & Genomics (HGEN 6092)
- Mathematical Modeling in Biology (BIOL 5910)
- Biostatistics (ONCSC 6150)
- Intro to Bioinformatics Programming (HGEN 6090)
- Immunology (PATH 7330)
- Host-Pathogen Interactions (PATH 7310)
- Topics Chemical Senses: olfaction/neuroscience (PHYSL 7920)
- Seminar in Ecology and Evolution (BIOL 7406)

Community Service

- Docent, Utah Museum of Natural History

Technical experience

- *Molecular-genetic techniques:* quantitative reverse-transcriptase PCR and primer design, electrophoresis and isoelectrophoresis, spectrophotometry, cloning, bisulfite sequencing, sequence alignment, phylogenetic reconstruction, protein analysis.
- *Data management and statistical and mathematical analysis:* SQL, JMP (SPSS), R, Perl, Maple, Cervus.

References

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