

Andrea Hodgins-Davis, PhD

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Current position: Postdoctoral Associate, Wittkopp Lab May 2014-Present

Wittkopp Laboratory, Dept of Ecology and Evolutionary Biology, University of Michigan

- NIH NRSA Postdoctoral Fellowship 2016-2018:
“Environment-specific effects of new mutations on gene expression”

Graduate work, Yale University, 2007-2014

Townsend Laboratory, Department of Ecology and Evolutionary Biology

PhD defense Dec 2013, degree conferred May 2014.

“The evolution of gene expression plasticity in *Saccharomyces*: transcriptional reaction norms to copper”

Professional research experience 2003-2007

- Research Assistant, Gerlach Laboratory, Marine Biological Laboratory, Woods Hole, MA 2004-2007
- Acoustician & Research Technician, Dr. Patrick Miller, Marineland Killer Whale Mimicry Training Program, Antibes, France, 2003

B.A. Wellesley College, Biological Sciences with Honors, 2000-2004

Thesis: “*An analysis of the vocal repertoire of the captive killer whale population at Marineland of Antibes, France*”

Publications

11. Dubeau, Hodgins-Davis, Metzger, Yang, Tryban, Walker, Lybrook, Wittkopp. In review. Effects of gene expression noise on fitness in a constant environment. bioRxiv 294603; doi: <https://doi.org/10.1101/294603>

10. Dubeau, Yuan, Metzger, Hodgins-Davis, Wittkopp. 2017. Effects of mutation and selection on plasticity of TDH3 promoter activity in *Saccharomyces cerevisiae*. **PNAS**. 114(52): E11218–E11227.

9. Hodgins-Davis, Rice, Townsend. 2015. Gene expression evolves under a House-of-Cards model of stabilizing selection. **Mol Biol Evol**. 32 (8): 2111-2129. [Cover image]

8. Hodgins-Davis, Adomas, Warringer, Townsend. 2012. Abundant gene-by-environment interactions in gene expression reaction norms to copper within *Saccharomyces cerevisiae*. **Genome Biol Evol**. 4 (11):1061-1079.

7. Westerman, Hodgins-Davis, Dinwiddie, Monteiro. 2012. Biased learning affects mate choice in a butterfly. **PNAS**. 109(27): 10948–10953.

6. Hodgins-Davis, Townsend. 2009. Evolving gene expression: from G to E to G x E. **TREE**. 24(12):649-658.

5. Gerlach, Hodgins-Davis, Avolio, Schunter. 2008. Kin recognition in zebrafish: a 24 hour window for olfactory imprinting. **Proc Roy Soc B.** 275(1647): 2165-2170.
4. Gerlach, Hodgins-Davis, MacDonald, Hannah. 2007. Benefits of kin association: related and familiar zebrafish larvae (*Danio rerio*) show improved growth. **Behav Ecol Sociobiol.** 61(11): 1765-1770.
3. Weiss, Bennie, Hodgins-Davis et al. 2007. Characterization of new SSR-EST markers in cod, *Gadus morhua*. **Mol Ecol Notes.** 7(5):866-867.
2. Hodgins-Davis, Roberts, Cowan, et al. 2007. Characterization of SSRs from the American lobster, *Homarus americanus*. **Mol Ecol Notes.** 7(2):330-332.
1. Brown, Hodgins-Davis, Miller. 2006. Classification of vocalizations of killer whales using dynamic time warping. **JASA.** 119(3):EL34-40.

Selected Conference Presentations

Hodgins-Davis, Duveau, Metzger, Wittkopp. 2017. Selected talk. "The contribution of new mutations to gene expression variation in *S. cerevisiae*." Midwest Population Genetics Conference, MSU, East Lansing, MI, Aug 4-5, 2017.

Hodgins-Davis, Duveau, Metzger, Wittkopp. 2017. Poster. "Effects of promoter architecture on gene expression variation due to new mutation." SMBE Austin, TX. July 2-6, 2017. Attendance supported by a Young Investigator Award.

Hodgins-Davis, Duveau, Metzger, Wittkopp. 2016. Poster. "Effects of promoter architecture on gene expression variation due to new mutation." EMBO Experimental Approaches to Evolution and Ecology Using Yeast and Other Model Systems 2016, Heidelberg, Germany.

Hodgins-Davis, Duveau, Metzger, Wittkopp. 2015. Poster. "Environment-specific effects of new mutations on gene expression." Gordon Conference on Molecular Mechanisms in Evolution 2015. Stonehill College, Easton, MA.

Hodgins-Davis, Duveau, Metzger, Wittkopp. 2015. Short research talk as invited participant. "Environment-specific effects of new mutations on gene expression." microMORPH 2015 working group, Harvard Arboretum, Cambridge, MA.

Hodgins-Davis, Rice, Townsend. 2014. Poster. "Mutation accumulation produces greater gene expression variability in more extreme environments." Ecological Genomics Symposium 2014, Kansas City, MO.

Hodgins-Davis, Rice, Townsend. 2014. Poster. "Mutation accumulation produces greater gene expression variability in more extreme environments." SMBE meeting 2014, Puerto Rico.

Hodgins-Davis, Rice, Townsend. 2013. Short research talk. "Gene regulation evolves under weak stabilizing selection in rich environments." SMBE meeting 2013, Chicago, IL.

Hodgins-Davis, Adomas, Warringer, Rice, Townsend. 2012. Short research talk. "Gene expression plasticity & evolution in the model yeast *Saccharomyces cerevisiae*." MSA meeting 2012, New Haven, CT.

Hodgins-Davis, Adomas, Warringer, Rice, Townsend. 2012. Short research talk. "Gene expression reaction norms & evolution in *Saccharomyces cerevisiae*." First Joint Congress on Evolutionary Biology, Ottawa, Canada.

Hodgins-Davis. 2011. Invited research talk after poster submission: "Abundant variation in transcriptional reaction norms to copper within *Saccharomyces cerevisiae*" 9th Annual Ecological Genomics Symposium, Kansas City, MI.

Hodgins-Davis, Adomas, Townsend. 2010. Short research talk: "The G, the E and the GxE: Transcriptional reaction norms to copper among *S. cerevisiae* isolates." FUNGUSPALOOZA! Symposium, Harvard University.

Hodgins-Davis, Gerlach. 2006. Research talk. "Olfactory imprinting and kin recognition in zebrafish." 4th Annual Woods Hole Behavior Symposium.

Honors and Awards

2017 Young Investigator Travel Award, SMBE

2015 NIH NRSA Postdoctoral Fellowship

2014 AGA Travel Grant for travel to Ecological Genomics 2014 meeting

2012 NSF Travel Grant for travel to Ecological Genomics 2012 meeting

2008 NSF Graduate Research Fellowship Program Honorable Mention

2007 NSF Graduate Research Fellowship Program Honorable Mention

2004 Lingos Prize in Life Sciences for Independent Biological Research

2004 Wellesley College Biological Sciences Departmental Honors

2003 Schiff Fellowship from Jerome A Schiff Charitable Trust

Professional Societies

Genetics Society of America

Society for Molecular Biology and Evolution

Society for the Study of Evolution

Service Activities

- Chair of organizing committee for Early Career Scientist Symposium on the topic of "[Phenotypic Plasticity](#)" at University of Michigan, March 10-12, 2017
- External reviewer for NSF Division of Environmental Biology, Sept 2016
- External reviewer for Chilean National Science and Technology Commission FONDECYT competition Dec 2016
- Reviewer for PLoS Genetics, Molecular Biology and Evolution, Genome Biology and Evolution, Nucleic Acids Research, Frontiers in Genetics, PLoS One
- Yale Graduate Writing Center Fellow, 2012-2013

Science Outreach Activities

- Detroit Zoo Science Communication Fellow, “Portal to the Public” Spring 2015 through present
- University of Michigan FEMMES Capstone activity volunteer doing science outreach for girls, one full Saturday per semester beginning Fall 2014 through present
- Evolution Outreach Group at Yale, team founding member, 2011-2014
- Science Mentor for New Haven Science Fair, 2007–2008

Teaching experience

- EEB reading group on Inclusive Teaching, Spring 2016
- University of Michigan EEB404: Evolution, Genetics, and Development, co-instructor of record with fellow postdoc Jennifer Lachoweic, Fall 2015
- Preparing Future Faculty seminar hosted by the University of Michigan Center for Learning and Teaching including intensive 6 week study of teaching practices and philosophies
- Yale Biol103/Biol104 Teaching Scholar for Introductory Developmental Bio and Ecology and Evolution modules, Spring 2013
- Yale EEB240/440: Animal Behavior Teaching Fellow for Prof Suzanne Alonzo, Fall 2008 & 2012 writing intensive course
- Yale EEB150: Genomics, Evolution, and Human Biology Teaching Fellow for Prof Howard Ochman, Spring 2012 writing intensive course
- Yale EEB123: Lab for Principles of Evolution, Ecology and Behavior Teaching Fellow for Prof Marta Wells, Fall 2010
- Yale EEB122: Principles of Evolution, Ecology and Behavior Teaching Fellow for Prof Stephen Stearns, Spring 2009, writing intensive course

Science Mentoring Experience

- Direct supervisor and mentor in Wittkopp Laboratory to:
 - Master’s student Jade Diaz (2015-2017) and
 - PhD rotation student Katie Wozniak (Sept 2016 – Dec 2016)
- UROP mentor in Wittkopp Laboratory, Sept 2014 – May 2015
 - Daayun Chung, undergraduate student
- Direct supervisor and mentor in Townsend Laboratory, 2009-2013
 - Kade Pettie, wintersession research assistant January 2013
 - Derek Park, Yale undergraduate, Fall 2009-Spring 2011
 - Zelun Wang, high school science fair student Fall 2009-Spring 2010
- Direct supervisor and mentor in Gerlach Laboratory, 2004-2007
 - supervised 12 volunteer full-time interns with high school, undergraduate, and post-graduate preparation including daily collaboration and training in laboratory procedures, data analysis and writing