Ho, Wei-Chin

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Education

2011 - 2017 **Ph.D., Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, USA.**
- Dissertation title: The genotype-phenotype map: origins, properties, and evolutionary consequences (Advisor: Dr. Jianzhi Zhang)

2008 - 2010 **M.S., Institute of Zoology, National Taiwan University, Taiwan.**
- Thesis title: Inferring speciation history of *Drosophila* by massive parallel sequencing (Advisor: Dr. Chau-Ti Ting)

2004 - 2008 **B.S., Department of Life Science (minor in chemistry), National Taiwan University, Taiwan.**

Professional Experiences

2017 - **Postdoctoral Research Associate, Center for Mechanisms of Evolution, The Biodesign Institute, Arizona State University, USA.** (Advisor: Dr. Michael Lynch)

2010 - 2011 **Research Assistant, Department of Life Science, National Taiwan University, Taiwan.** (Advisor: Dr. Chau-Ti Ting)

Research Interests

- Factors affecting evolutionary outcomes and their evolution, including (but not limited to) mutation rates, mutational effects, robustness, and plasticity.
- Relative contribution of chance and necessity in evolution.
- Predictability of evolutionary outcomes *via* systems biology approaches.

Publications

6. Wei-Chin Ho and Jianzhi Zhang (2019) **Genetic gene expression changes during environmental adaptations tend to reverse plastic changes even after the correction for statistical nonindependence.** *Mol. Biol. Evol. in press*

5. Wei-Chin Ho and Jianzhi Zhang (2018) **Evolutionary adaptations to new environments generally reverse plastic phenotypic changes**. *Nat. Comm.* 9: 350.

4. Wei-Chin Ho, Yoshikazu Ohya, and Jianzhi Zhang (2017) **Testing the neutral hypothesis of phenotypic evolution.** *Proc. Natl. Acad. Sci. U.S.A.* 114(46): 12219-12224.

3. Calum J. Maclean*, Brian P.H. Metzger*, Jian-Rong Yang*, Wei-Chin Ho, Bryan Moyers, and Jianzhi Zhang (2017) **Deciphering the genic basis of yeast fitness variation by simultaneous forward and reverse genetics**. *Mol. Biol. Evol*. 34(10): 2486-2502. (*co-first authors)

2. Wei-Chin Ho and Jianzhi Zhang (2016) **Adaptive genetic robustness of *Escherichia coli* metabolic fluxes.** *Mol. Biol. Evol.* 33(5): 1164-1176.

1. Wei-Chin Ho and Jianzhi Zhang (2014) **The genotype-phenotype map of yeast complex traits: basic parameters and the role of natural selection.** *Mol. Biol. Evol.* 31(6): 1568-1580.

Public Talks and Conference Oral Presentation

- "**Phenotypic changes in organismal adaptation to new environments: plasticity distorts while evolution restores**"
  Annual Meeting of SMBE, Gold Coast, Australia, July 2016
- "**Adaptive origin of the genetic robustness of metabolic fluxes**"
  Annual Meeting of SMBE, Vienna, Austria, July 2015
- "**Prevalent adaptive evolution of morphological traits in the budding yeast *Saccharomyces cerevisiae***"
  Annual Meeting of SMBE, San Juan, Puerto Rico, June 2014
- "**Natural selection for robustness shapes the genetic architecture of yeast complex traits**"
  University of Michigan, Ann Arbor, Jan 2013
- "**Expression divergence between two behavioral races of *Drosophila melanogaster* revealed by whole transcriptome analyses**"
  Annual Meeting of SMBE, Lyon, France, July 2010

Conference Poster Presentation

- "**Experimental evolution of *Escherichia coli* mutators in a complex environment**"
  Annual Meeting of SMBE, Yokohama, Japan, July 2018
- "**Does genetic correlation constrain or facilitate long-term phenotypic evolution?**"
  Annual Meeting of SMBE, Austin, USA, July 2017
- "**Testing the neutral hypothesis of phenotypic evolution using 220 morphological traits in yeast**"
  Annual Meeting of SMBE, Chicago, USA, July 2013
- "**Genome-wide genetic architecture of morphological traits in yeast**"
  Annual Meeting of SMBE, Dublin, Ireland, June 2012
- "**Differential gene expression between two behavioral races of *Drosophila melanogaster***"
  Asian-Pacific *Drosophila* Research Conference, Taipei, Taiwan, May 2011
- "**Searching candidate loci responsible for behavior differentiation between two *Drosophila melanogaster* races by genomic approaches**"
  Symposium on College of Life Science, National Taiwan University, Taipei, Taiwan, June 2010
- "**Incomplete lineage sorting in *Drosophila simulans* clade**"
  Symposium on College of Life Science, National Taiwan University, Taipei, Taiwan, June 2009

Teaching and Mentoring Experiences

- Graduate Student Mentor, Supervised Teaching (EEB/MCDB 801), University of Michigan, Winter 2017
- Graduate Student Instructor, Genetics (BIOLOGY 305), University of Michigan, Winter 2017, Winter 2015, Winter 2013, Winter 2012
- Graduate Student Instructor, Evolution, University of Michigan (EEB 390), Fall 2013

- Graduate Student Instructor, Introductory Biology: Ecology and Evolution (BIOLOGY 171), University of Michigan, Fall 2011
- Teaching Assistant, Population Genetics (EEB 5045), National Taiwan University, Fall 2010-2008
- Teaching Assistant, Genetics (LS 3007), National Taiwan University, Spring 2010
- Teaching Assistant, General Biology (LS 1006), National Taiwan University, Fall 2009
- Teaching Assistant, General Biology Laboratory (LS 1017), National Taiwan University, Fall 2008

Awards and Fellowships

- Rackham One-Term Dissertation Fellowship, Rackham Graduate School, University of Michigan, 2016
- Young Investigator Travel Award, Annual Meeting of the Society for Molecular Biology and Evolution, 2018-2015
- Graduate Travel Award, Annual Meeting of the Society for Molecular Biology and Evolution, 2014, 2010
- Chia-Lun Lo Fellowship ($10,000), Rackham Graduate School, University of Michigan, 2013
- Dean's Award, College of Life Science, National Taiwan University, 2010
- Outstanding Students Conference Travel Grant, Foundation for the Advancement of Outstanding Scholarship, 2010
- Reward of Excellence, Symposium on College of Life Science, National Taiwan University, 2010

Computational Skills

- Programming languages: C/C++, Perl, Python.
- Statistical computing: R, MATLAB.
- Evolutionary analysis tools: PAML, MrBayes, Phylip, MEGA.

Academic Services

- *Ad-hoc* Journal Reviewer for *BMC Genomics*, *Genome Biol. Evol.*, *Mol. Biol. Evol.*, *PLoS Genetics*.
- Voluntary helpers in Software Carpentry Workshops at University of Michigan (Oct-17 2016, Dec-14 2016).
- Committee Representative, 13th Annual University of Michigan Early Career Scientists Symposium: Ecology and Evolutionary Biology of Phenotypic Plasticity, University of Michigan, Ann Arbor, Fall 2016 - Winter 2017
- Seminar Committee Representative, Graduate Researchers in Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, Fall 2016 - Winter 2017, Fall 2013 - Winter 2014