

# Ho, Wei-Chin

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## Education

- 2011 – 2017    **Ph.D. in Ecology & Evolutionary Biology**  
University of Michigan, Ann Arbor, MI, USA.  
Dissertation: The genotype-phenotype map: origins, properties, and evolutionary consequences (Advisor: Dr. Jianzhi Zhang)
- 2008 – 2010    **M.S. in Zoology**  
National Taiwan University, Taiwan.  
Thesis: Inferring speciation history of *Drosophila* by massive parallel sequencing (Advisor: Dr. Chau-Ti Ting)
- 2004 – 2008    **B.S. in Life Science (Minor in Chemistry)**  
National Taiwan University, Taiwan.

## Professional Experiences

- 2023 –        **Assistant Professor**  
Department of Biology, The University of Texas at Tyler, TX, USA.
- 2017 – 2023    **Postdoctoral Research Associate**  
Biodesign Center for Mechanisms of Evolution, Arizona State University, AZ, USA. (Advisor: Dr. Michael Lynch)
- 2010 – 2011    **Research Assistant**  
Department of Life Science, National Taiwan University, Taiwan. (Advisor: Dr. Chau-Ti Ting)

## Publications(\*co-first authors; @corresponding authors; ^mentored undergrads)

### **In-prep:**

- Wei-Chin Ho\*<sup>@</sup>, Lily King\*<sup>^</sup>, Ryan Stikeleather & Michael Lynch. Evolution of novel metabolic capabilities by non-selection forces in a rich environment.
- Wei-Chin Ho<sup>@</sup>, Jadon Gonzales<sup>^</sup> & Michael Lynch<sup>@</sup>. Antibiotic treatment affects the distribution of fitness effects of spontaneous mutations.
- Stephan Baehr, Wei-Chin Ho, Sam Perez, Alyssa Cenzano, Katelyn Hancock, Lea Patrick, Adalyn Brown, Samuel F. Miller & Michael Lynch. Consideration of a liquid mutation accumulation experiment to measure mutation rates by successive serial dilution.

### **Published:**

13. Megan G. Behringer<sup>@</sup>, Wei-Chin Ho<sup>@</sup>, Samuel F. Miller, Sarah B. Worthan, Zeer Cen, Ryan Stikeleather & Michael Lynch (2024) **Trade-offs, trade-ups, and high mutational parallelism underlie microbial adaptation during extreme cycles of feast and famine.** *Current Biology* 34(7): 1403-1413.

12. Wen Wei\*<sup>@</sup>, Wei-Chin Ho\*, Megan G. Behringer, Samuel F. Miller, George Bcharah & Michael Lynch<sup>@</sup> (2022) **Rapid evolution of the mutation rate and spectrum in response to environmental and population-genetic challenges.** *Nat. Comm.* 13: 4752.
11. Leandra Brettner, Wei-Chin Ho, Kara Schmidlin, Sam Apodaca, Rachel Eder & Kerry Geiler-Samerotte<sup>@</sup> (2022) **Challenges and potential solutions for studying the genetic and phenotypic architecture of adaptation in microbes.** *Curr. Opin. Genet. Dev.* 75: 101951.
10. Megan G. Behringer\*<sup>@</sup>, Wei-Chin Ho\*<sup>@</sup>, John Meraz, Samuel F. Miller, Gwyneth Boyer, Carl Stone, Meredith Andersen & Michael Lynch (2022) **Complex ecotype dynamics evolve in response to fluctuating resources.** *mBio* 13(3): e03467-21.
9. Wei-Chin Ho<sup>@</sup>, Megan G. Behringer, Samuel F. Miller, Jadon Gonzales<sup>^</sup>, Amber Nguyen<sup>^</sup>, Meriem Allahwerdy<sup>^</sup>, Gwyneth Boyer & Michael Lynch<sup>@</sup> (2021) **Evolutionary dynamics of asexual hypermutators adapting to a novel environment.** *Genome Biol. Evol.* 13(12): evab257.
8. Wei-Chin Ho\*, Diyan Li\*, Qing Zhu & Jianzhi Zhang<sup>@</sup> (2020) **Phenotypic plasticity as a long-term memory easing readaptation to ancestral environments.** *Sci. Adv.* 6(21): eaba3388.
7. Michael Lynch<sup>@</sup> & Wei-Chin Ho (2020) **The limits to estimating population-genetic parameters with temporal data.** *Genome Biol. Evol.* 12(4): 443-455.
6. Wei-Chin Ho & Jianzhi Zhang<sup>@</sup> (2019) **Genetic gene expression changes during environmental adaptations tend to reverse plastic changes even after the correction for statistical nonindependence.** *Mol. Biol. Evol.* 36(3):604-612.
5. Wei-Chin Ho & Jianzhi Zhang<sup>@</sup> (2018) **Evolutionary adaptations to new environments generally reverse plastic phenotypic changes.** *Nat. Comm.* 9: 350.
4. Wei-Chin Ho, Yoshikazu Ohya & Jianzhi Zhang<sup>@</sup> (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 & Jianzhi Zhang<sup>@</sup> (2017) **Deciphering the genic basis of yeast fitness variation by simultaneous forward and reverse genetics.** *Mol. Biol. Evol.* 34(10): 2486-2502.
2. Wei-Chin Ho & Jianzhi Zhang<sup>@</sup> (2016) **Adaptive genetic robustness of *Escherichia coli* metabolic fluxes.** *Mol. Biol. Evol.* 33(5): 1164-1176.
1. Wei-Chin Ho & Jianzhi Zhang<sup>@</sup> (2014) **The genotype-phenotype map of yeast complex traits: basic parameters and the role of natural selection.** *Mol. Biol. Evol.* 31(6): 1568-1580.

### Patent

Stephan Baehr, Wei-Chin Ho, & Michael Lynch. Liquid Mutation Accumulation Experiment to Measure Mutation Rates. U.S. Provisional Application No. 63/514,952; filed 07/21/2023, Patent Pending.

### **Talks**

- Texas Branch of the American Society for Microbiology Meeting, Stephenville, TX, USA, Oct 2023
- University of Texas at Arlington, TX, USA, Oct 2023.
- University of Arkansas at Little Rock, AR, USA, Apr 2023.
- Xavier University of Louisiana, LA, USA, Apr 2023.
- University of Texas at Tyler, TX, USA, Feb 2023.
- St. Mary's University, TX, USA, Feb 2023.
- University of Nebraska Omaha, NE, USA, Feb 2023
- Saint Louis University, MO, USA, Jan 2023.
- Purdue University Fort Wayne, IN, USA, Jan 2023.
- Denison University, OH, USA, Dec 2022.
- Evolution Meeting, Cleveland, OH, USA, Jun 2022.
- Arizona Postdoctoral Research Conference, Phoenix, AZ, USA, Sep 2021.
- Annual Meeting of SMCB, Gold Coast, Australia, Jul 2016.
- Annual Meeting of SMCB, Vienna, Austria, Jul 2015.
- Annual Meeting of SMCB, San Juan, Puerto Rico, Jun 2014.
- University of Michigan, Ann Arbor, MI, USA, Jan 2013.
- Annual Meeting of SMCB, Lyon, France, Jul 2010.

### **Poster Presentation**

- Populational, Evolutionary, & Quantitative Genetics at The Allied Genetics Conference, DC, USA, Mar 2024.
- Society for Molecular Biology and Evolution Satellite Meeting on Mechanisms of Cellular Evolution, Tempe, AZ, Nov 2023.
- Populational, Evolutionary, & Quantitative Genetics Conference, Pacific Grove, CA, USA, 2022.
- Society for Molecular Biology and Evolution Annual Conference Online, 2021.
- Populational, Evolutionary, & Quantitative Genetics at The Allied Genetics Conference Online, 2020.
- Gordon Research Conference on Molecular Mechanisms in Evolution, Easton, MA, USA, 2019.
- Society for Molecular Biology and Evolution Annual Conference, Yokohama, Japan, 2018.
- Society for Molecular Biology and Evolution Annual Conference, Austin, TX, USA, 2017.
- Society for Molecular Biology and Evolution Annual Conference, Chicago, IL, USA, 2013.
- Society for Molecular Biology and Evolution Annual Conference, Dublin, Ireland, 2012.
- Asian-Pacific *Drosophila* Research Conference, Taipei, Taiwan, 2011.

- Symposium on College of Life Science in National Taiwan University, Taipei, Taiwan, 2010.
- Symposium on College of Life Science in National Taiwan University, Taipei, Taiwan, 2009.

### **Teaching Experiences**

#### **As a Main Instructor in University of Texas at Tyler:**

- Genetics (BIOL 3332), Sp'24.
- Genetics Laboratory (BIOL 3133), F'23, Sp'24.

#### **As a Graduate Student Instructor in University of Michigan, Ann Arbor:**

- Genetics (BIOLOGY 305), W'17, W'15, W'13, W'12.
- Supervised Teaching (EEB/MCDB 801), W'17.
- Evolution (EEB 390), F'13.
- Introductory Biology: Ecology and Evolution (BIOLOGY 171), F'11.

#### **As a Teaching Assistant in National Taiwan University:**

- Population Genetics (EEB 5045), F'10, F'09, F'08.
- Genetics (LS 3007), Sp'10.
- General Biology (LS 1006), F'09.
- General Biology Laboratory (LS 1017), F'08.

### **Mentoring Experiences**

#### **University of Texas at Tyler:**

Undergraduate Researcher: Pricila Garcia (2024- ), Ivan Mendez (2024- ), Brent Orji (2024- ), Julian Ramirez (2024- ), Natalie Zarate Sanchez (2024- ), Avnoor Verma (2024- ).

#### **Arizona State University (\*BS with honor thesis; #accelerated MS):**

Undergraduate Researcher: Meriem Allahwerdy (2019), Tristan Chen (2019), Jadon Gonzales\*<sup>#</sup> (2018-2023), Logan Graham\*<sup>#</sup> (2020-), Lily King\* (2019-2022), Ameya Kulkarni\* (2022-2024), Amber Nguyen (2018-2019), Arin Shaw (2022), Dannish Tung (2020-2021).

### **Awards and Fellowships**

- Young Investigator Travel Award, Annual Meeting of the Society for Molecular Biology and Evolution, 2018-2015.
- Rackham One-Term Dissertation Fellowship, Rackham Graduate School, University of Michigan, 2016.
- Graduate Travel Award, Annual Meeting of the Society for Molecular Biology and Evolution, 2014, 2010.
- Chia-Lun Lo Fellowship, Rackham Graduate School, University of Michigan, 2013
- Scholarship of Government Sponsorship for Overseas Study in Systematic Biology (Taiwan), 2011 (Declined).

- Dean's Award, College of Life Science, National Taiwan University, 2010.
- Outstanding Students Conference Travel Grant, Foundation for the Advancement of Outstanding Scholarship (Taiwan), 2010.
- Reward of Excellence, Symposium on College of Life Science, National Taiwan University, 2010.

### **Professional Associations**

American Society for Microbiology (2022-)

Genetics Society of America (2020-)

Society for Molecular Biology and Evolution (2010-)

Society for the Study of Evolution (2020-)

### **Academic Services**

- *Ad-hoc* Reviewer for journals:  
*BMC Genomics, Ecol. Evol., eLife, Evol. Dev., Genetics, Genome Biol. Evol., JoVE, Mol. Biol. Evol., Nat. Eco. Evol., Proc. Natl. Acad. Sci. U.S.A., PLoS Genetics, PLoS One, The Innovation.*
- Curriculum Committee, Department of Biology, University of Texas at Tyler (F'2023 - Sp' 2024).
- Co-director for organizing SMBE satellite meeting on Mechanisms of Cellular Evolution, Arizona State University (Nov 2023).
- Poster Judge, Texas Branch of the American Society for Microbiology Meeting (Oct 2023).
- Organizer for Diversity, Equity, and Inclusion (DEI) Reading Group, Center for Mechanisms of Evolution, Arizona State University (2020-2021).
- Volunteer for ASU Open Door at the Biodesign Institute (2018-2020).
- Committee Representative for the 13th Annual University of Michigan Early Career Scientists Symposium: Ecology and Evolutionary Biology of Phenotypic Plasticity at University of Michigan, Ann Arbor (2017).
- Co-organizer for the special lunch seminar- EEB's Faculty "Leslie" Panel: A "behind the scenes" look at life from multiple positions in academia at University of Michigan, Ann Arbor (2016).
- Voluntary helpers for Software Carpentry Workshops at University of Michigan, Ann Arbor (Oct'16, Dec'16).
- Seminar Committee Representative for Graduate Researchers in Ecology and Evolutionary Biology at University of Michigan, Ann Arbor (F'16-W'17, F'13-W'14).
- Camp Director for the Life Science Camp (Five-day symposium for 80 high school students) at National Taiwan University (2007).
- Director of Academic and Culture Section for the Student Association of the Department of Life Science at National Taiwan University (F'06-Sp'07).
- Deputy Editor for *The Cell*, published (in Chinese) by Student Association of the Department of Life Science at National Taiwan University (Sp'06).

**Professional Development**

- Rackham-CRLT Seminar on Preparing Future Faculty at University of Michigan, Ann Arbor (2016).
- LS&A ELI/CRLT Graduate Student Instructor Training Course at University of Michigan, Ann Arbor (2011).

**Programming Skills** C/C++, MATLAB, Perl, Python, R.