Amanda Erin Wilson, Ph.D.

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Research Experience

Postdoctoral Research Scientist — June 2024 - Present
Dr. Laura Landweber's Research Group
Department of Biochemistry and Molecular Biophysics
Columbia University, New York, NY
Modeling rearrangement of ciliate genomes

Research Assistant — 2018 - 2024
Dr. David A. Liberles' Research Group
Department of Biology
Temple University, Philadelphia, PA
Modeling evolutionary processes of duplicated genes

Research Assistant — 2017
Dr. Robert Minckley's Research Group
Department of Biology
University of Rochester, Rochester, NY
Evolution and ecology of bees and their floral hosts

Education

Ph.D. in Biology — Awarded May 2024
Temple University, Philadelphia, PA
Dissertation: SELECTIVE FORCES SHAPING DUPLICATE GENE EVOLUTION: INSIGHTS FROM STOCHASTIC MODELING AND PATTERNS OF RETENTION
Advisor: Professor David Liberles
Committee: Professor Sergei Pond, Professor Rachel Spigler, Professor Anne-Ruxandra Carvunis

GPA: 3.95

B.S. in Biological Sciences — Awarded May 2018
University of Rochester, Rochester, NY
Evolutionary Biology and Ecology Track
Clusters (minors): "Public Health" and "The Performing Musician"

Publications

Soewongsono AC, Diao J, Stark T, Wilson AE, Holland B, Liberles DA, O'Reilly MM. (2023) Matrix-analytic methods for the evolution of species trees, gene trees, and their reconciliation. arXiv [q-bio.PE]. (Under Review) https://doi.org/10.48550/arXiv.2309.06447

Assis R, Conant G, Holland B, Liberles DA, O'Reilly MM, Wilson AE. (2023) Models for the Retention of Duplicate Genes and Their Biological Underpinnings. *F1000Research,* 12: 1400. https://doi.org/10.12688/f1000research.141786.1

Wilson AE, Liberles DA. (2023) Expectations of Duplicate Gene Retention Under the Gene Duplicability Hypothesis. *BMC Ecology and Evolution*. *BMC Ecology and Evolution,* 23: 76. https://doi.org/10.1186/s12862-023-02174-2

Wilson AE, Liberles DA. (2023) Dosage Balance as a time-dependent selective barrier to

subfunctionalization of expression states. *BMC Ecology and Evolution,* 23: 14. https://doi.org/10.1186/s12862-023-02116-y

Henry CN, Piper K, Wilson AE, Miraszek JL, Probst CS, Rong Y, Liberles DA. (2022) WGDTree: A Phylogenetic Software Tool to Examine Conditional Probabilities of Retention Following Whole Genome Duplication Events. *BMC Bioinformatics,* 23: 505. https://doi.org/10.1186/s12859-022-05042-w

Anthony-Regnitz CM, Wilson AE, Sweazea KL, Braun EJ. (2020) Fewer Exposed Lysine Residues May Explain Relative Resistance of Chicken Serum Albumin to In Vitro Protein Glycation in Comparison to Bovine Serum Albumin. *Journal of Molecular Evolution,* 88: 653-661. https://doi.org/10.1007/s00239-020-09964-y

Wilson AE, Kosater WM, Liberles DA. (2020) Evolutionary Processes and Biophysical Mechanisms: Revisiting Why Evolved Proteins Are Marginally Stable. *Journal of Molecular Evolution,* 88:415-417. https://doi.org/10.1007/s00239-020-09948-y

Conference Talks

Wilson AE, Liberles DA. "*Expectations of Duplicate Gene Retention Under the Gene Duplicability Hypothesis*". March 2023
The JME Advances Meeting 2023, Washington, D.C., USA

Wilson AE, Liberles DA. *"Dosage Balance as a time-dependent selective barrier to subfunctionalization of expression states".* Aug 2022
GLAM-Evogen 2022, Buffalo, NY, USA

Wilson AE. *"Modeling Whole Genome Duplication".* Aug 2021
GLAM-Evogen 2021,Virtual Conference

Wilson AE. *"Modeling probabilities of retention of gene copies after consecutive whole genome duplication events".* Apr 2021
T3 (TelAviv, Toronto, Temple) 2021, Virtual Conference

Wilson AE. *"Modeling Probabilities of Retention of Duplicated Genes".* Apr 2021
iGem 2021, Philadelphia, PA, USA - Virtual Conference

Wilson AE. *"Modeling Probabilities of Retention of Gene Copies after Consecutive Whole Genome Duplication Events".* Jul 2020
GLAM-Evogen 2020, Rochester, NY, USA - Virtual Conference

Wilson AE. *"Modeling Probabilities of Retention of Gene Copies after Consecutive Whole Genome Duplication Events".* Nov 2019
Phylomania 2019, Hobart, TAS, Australia

Conference Posters

Wilson AE, Liberles DA. *"Dosage Balance as a time-dependent selective barrier to subfunctionalization of expression states".* Aug 2022
GLAM-Evogen 2022, Buffalo, NY, USA

Wilson AE, Liberles DA. *"Modeling Probabilities of Retention of Gene Copies after Consecutive Whole Genome Duplication Events".* Jul 2021
SMBE 2021, Virtual Conference

Wilson AE, Miraszek J, Liberles DA. *"Whole Genome Duplication Events drive diversification of the myostatin pathway in Salmonidae".* Sep 2019
Evolution in Philadelphia Conference (EPiC) 2019, Philadelphia, PA, USA

Teaching Experience

Department of Biology at Temple University:

Intro to Organismal Biology (BIOL1111), Laboratory Teaching Assistant — Spring 2020
Intro to Cell and Molecular Biology (BIOL2112), Laboratory Teaching Assistant — Fall 2019
General Biology II (BIOL1012), Laboratory Teaching Assistant — Spring 2019
General Biology I (BIOL1011), Laboratory Teaching Assistant — Fall 2018

Department of Biology at University of Rochester:

Animal Behavior (BIO260), Teaching Assistant — Fall 2017
Introductory Biology Lab II (BIO117P), Teaching Assistant — Summer 2017

Department of Chemistry at University of Rochester:

Organic Chemistry II: Lab (CHM208), Teaching Assistant — Spring 2017
Organic Chemistry I: Lab (CHM207), Teaching Assistant — Fall 2016

Scientific Involvement

Journal of Molecular Evolution: Social Media Coordinator — 2022 - 2023
Compose and post summaries of new publications on social media
Write blog posts on Nature Ecology and Evolution Community page

Center for Computational Genetics and Genomics (CCGG): Journal Club — 2018 - 2024
Attend weekly Journal Club meetings; Present a recent publication each semester

Temple University: Bioinformatics Studio — 2019-2024
Attend regular meetings to engage in collaborative learning of bioinformatics pipelines

Scientific Journal Peer Review

G3; Journal of Molecular Evolution; PLOS Computational Biology; Molecular Biology and Evolution; BMC Ecology and Evolution

Professional Society Membership

Society for Molecular Biology and Evolution (SMBE)

Academic Honors

Awarded Doctoral Dissertation Completion Grant, Temple University — Spring 2024
Scholarship, Prince Street Merit, University of Rochester — 2014 - 2018
National Honors Society — 2010 - 2014

Leadership and Community Service

University of Rochester Community Symphony Orchestra — 2015 - 2018
Cellist

Eye to Eye - Rochester Chapter — 2015 - 2018
Mentor middle school students with learning disabilities
Leadership Roles: Secretary and Publicity Chair