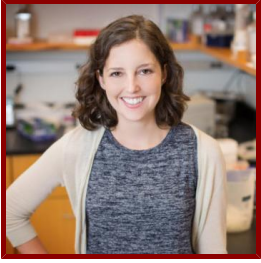


Stanford



Molly Schumer

Assistant Professor of Biology

Bio

BIO

Molly Schumer is an Assistant Professor in Biology. She is interested in the genetic and evolutionary consequences of hybridization. After receiving her PhD at Princeton, she did her postdoctoral work at Columbia and was a Junior Fellow in the Harvard Society of Fellows and Hanna H. Gray Fellow at Harvard Medical School. Current research in the lab focuses on understanding genetic interactions that occur in hybrids and how these impact genome evolution.

ACADEMIC APPOINTMENTS

- Assistant Professor, Biology
- Member, Bio-X

HONORS AND AWARDS

- Doctoral Dissertation Improvement Grant, National Science Foundation (2014-2016)
- Milton Award, Harvard University (2017)
- Fellow, L'Oréal USA for Women in Science (2017)
- Theodosius Dobzhansky Prize, Society for the Study of Evolution (2017)
- Rosalind Franklin Young Investigator Award, Genetics Society of America (2019)

LINKS

- Lab Website: <https://schumerlab.com>

Teaching

COURSES

2021-22

- Evolution: BIO 85 (Win)
- bioBUDS: Building Up Developing Scientists: BIO 114A (Aut)
- bioBUDS: Building Up Developing Scientists: BIO 114C (Spr)
- bioBUDS: Research Program: BIO 114B (Win)

2020-21

- Evolution: BIO 85 (Win)
- bioBUDS (Building Up Developing Scientists): Science In & Beyond the Lab: BIO 114 (Win, Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Lisa Couper

Postdoctoral Faculty Sponsor

Stephanie Aguillon, Quinn Langdon, Daniel Powell, Ken Thompson

Doctoral Dissertation Advisor (AC)

Ben Moran, Cheyenne Payne

Doctoral (Program)

Ben Moran, Cheyenne Payne

Publications

PUBLICATIONS

- **Two new hybrid populations expand the swordtail hybridization model system.** *Evolution; international journal of organic evolution*
Powell, D. L., Moran, B., Kim, B., Banerjee, S. M., Aguillon, S. M., Fascinetto-Zago, P., Langdon, Q., Schumer, M.
2021
- **The genomic consequences of hybridization.** *eLife*
Moran, B. M., Payne, C., Langdon, Q., Powell, D. L., Brandvain, Y., Schumer, M.
2021; 10
- **The Genetic Architecture of Variation in the Sexually Selected Sword Ornament and Its Evolution in Hybrid Populations.** *Current biology : CB*
Powell, D. L., Payne, C., Banerjee, S. M., Keegan, M., Bashkirova, E., Cui, R., Andolfatto, P., Rosenthal, G. G., Schumer, M.
2021
- **Immune genomic response associated with preference behavior: an examination in a freshwater fish**
Price, S., Schumer, M., Young, R. L., Wang, S., Cummings, M.
AMER ASSOC IMMUNOLOGISTS.2020
- **Natural hybridization reveals incompatible alleles that cause melanoma in swordtail fish.** *Science (New York, N.Y.)*
Powell, D. L., García-Olazábal, M. n., Keegan, M. n., Reilly, P. n., Du, K. n., Díaz-Loyo, A. P., Banerjee, S. n., Blakkan, D. n., Reich, D. n., Andolfatto, P. n., Rosenthal, G. G., Schartl, M. n., Schumer, et al
2020; 368 (6492): 731–36
- **Versatile simulations of admixture and accurate local ancestry inference with mixnmatch and ancestryinfer.** *Molecular ecology resources*
Schumer, M. n., Powell, D. L., Corbett-Detig, R. n.
2020
- **Draft Genome Assembly and Annotation of the Gila Topminnow *Poeciliopsis occidentalis*** *FRONTIERS IN ECOLOGY AND EVOLUTION*
Mateos, M., Kang, D., Klopp, C., Parrinello, H., Garcia-Olazabal, M., Schumer, M., Jue, N. K., Guiguen, Y., Schartl, M.
2019; 7
- **Natural selection interacts with recombination to shape the evolution of hybrid genomes** *SCIENCE*
Schumer, M., Xu, C., Powell, D. L., Durvasula, A., Skov, L., Holland, C., Blazier, J. C., Sankaraman, S., Andolfatto, P., Rosenthal, G. G., Przeworski, M.
2018; 360 (6389): 656–59
- **How the manakin got its crown: A novel trait that is unlikely to cause speciation** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Rosenthal, G. G., Schumer, M., Andolfatto, P.
2018; 115 (18): E4144–E4145
- **What do we mean when we talk about hybrid speciation?** *HEREDITY*
Schumer, M., Rosenthal, G. G., Andolfatto, P.

2018; 120 (4): 379–82

- **Assortative mating and persistent reproductive isolation in hybrids** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Schumer, M., Powell, D. L., Delclos, P. J., Squire, M., Cui, R., Andolfatto, P., Rosenthal, G. G.
2017; 114 (41): 10936–41
- **Repeated losses of PRDM9-directed recombination despite the conservation of PRDM9 across vertebrates** *ELIFE*
Baker, Z., Schumer, M., Haba, Y., Bashkirova, L., Holland, C., Rosenthal, G. G., Przeworski, M.
2017; 6
- **Early social learning triggers neurogenomic expression changes in a swordtail fish** *PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
Cui, R., Delclos, P. J., Schumer, M., Rosenthal, G. G.
2017; 284 (1854)
- **Determining epistatic selection in admixed populations** *MOLECULAR ECOLOGY*
Schumer, M., Brandvain, Y.
2016; 25 (11): 2577–91
- **Ancient hybridization and genomic stabilization in a swordtail fish** *MOLECULAR ECOLOGY*
Schumer, M., Cui, R., Powell, D. L., Rosenthal, G. G., Andolfatto, P.
2016; 25 (11): 2661–79
- **Admix'em: a flexible framework for forward-time simulations of hybrid populations with selection and mate choice** *BIOINFORMATICS*
Cui, R., Schumer, M., Rosenthal, G. G.
2016; 32 (7): 1103–5
- **simMSG: an experimental design tool for high-throughput genotyping of hybrids** *MOLECULAR ECOLOGY RESOURCES*
Schumer, M., Cui, R., Rosenthal, G. G., Andolfatto, P.
2016; 16 (1): 183–92
- **Genetics of Intraspecific Variation in Avoidance Behavior Induced by a Thermal Stimulus in *Caenorhabditis elegans*** *GENETICS*
Ghosh, R., Bloom, J. S., Mohammadi, A., Schumer, M. E., Andolfatto, P., Ryu, W., Kruglyak, L.
2015; 200 (4): 1327–+
- **Reproductive Isolation of Hybrid Populations Driven by Genetic Incompatibilities** *PLOS GENETICS*
Schumer, M., Cui, R., Rosenthal, G. G., Andolfatto, P.
2015; 11 (3): e1005041
- **Environmental heterogeneity generates opposite gene-by-environment interactions for two fitness-related traits within a population** *EVOLUTION*
Culumber, Z. W., Schumer, M., Monks, S., Tobler, M.
2015; 69 (2): 541–50
- **High-resolution Mapping Reveals Hundreds of Genetic Incompatibilities in Hybridizing Fish Species** *ELIFE*
Schumer, M., Cui, R., Powell, D., Dresner, R., Rosenthal, G. G., Andolfatto, P.
2014; 3
- **HOW COMMON IS HOMOPLOID HYBRID SPECIATION?** *EVOLUTION*
Schumer, M., Rosenthal, G. G., Andolfatto, P.
2014; 68 (6): 1553–60
- **PHYLOGENOMICS REVEALS EXTENSIVE RETICULATE EVOLUTION IN XIPHOPHORUS FISHES** *EVOLUTION*
Cui, R., Schumer, M., Kruesi, K., Walter, R., Andolfatto, P., Rosenthal, G. G.
2013; 67 (8): 2166–79
- **Infestation by a Common Parasite is Correlated with Ant Symbiont Identity in a Plant-Ant Mutualism** *BIOTROPICA*
Schumer, M., Birger, R., Tantipathananandh, C., Aurisano, J., Maggioni, M., Mwangi, P.
2013; 45 (3): 276–79
- **Genetic accommodation and behavioural evolution: insights from genomic studies** *ANIMAL BEHAVIOUR*
Renn, S. P., Schumer, M. E.

2013; 85 (5): 1012–22

● **AN EVALUATION OF THE HYBRID SPECIATION HYPOTHESIS FOR XIPHOPHORUS CLEMENCIAE BASED ON WHOLE GENOME SEQUENCES** *EVOLUTION*

Schumer, M., Cui, R., Boussau, B., Walter, R., Rosenthal, G., Andolfatto, P.
2013; 67 (4): 1155–68

● **Parallel Molecular Evolution in an Herbivore Community** *SCIENCE*

Zhen, Y., Aardema, M. L., Medina, E. M., Schumer, M., Andolfatto, P.
2012; 337 (6102): 1634–37

● **Comparative gene expression profiles for highly similar aggressive phenotypes in male and female cichlid fishes (*Julidochromis*)** *JOURNAL OF EXPERIMENTAL BIOLOGY*

Schumer, M., Krishnakant, K., Renn, S. P.
2011; 214 (19): 3269–78

● **A serine cluster mediates BMAL1-dependent CLOCK phosphorylation and degradation** *CELL CYCLE*

Spengler, M. L., Kuropatwinski, K. K., Schumer, M., Antoch, M. P.
2009; 8 (24): 4138–46