

Kerry Geiler-Samerotte

SUMMARY		My lab quantifies the impact of mutations on cell physiology and growth across fine environmental gradients. Our goal is to understand and predict when the impacts of a mutation will change across contexts.
ACADEMIC POSITION	2019 –	Assistant Professor, <u>Center for Mechanisms of Evolution</u> , School of Life Sciences, Arizona State University
EDUCATION	2011 2004	Ph.D. Organismal and Evolutionary Biology, Harvard University B.S. Biology, Cornell University
RESEARCH	2015 – 2018	Postdoctoral Scholar, Department of Biology, Stanford University <i>Developed high throughput methods to quantify the impact of small-effect mutations and how these impacts change across conditions</i> Advisor: Dmitri Petrov
	2011 – 2015	Postdoctoral Scholar, Center for Genomics & Systems Biology, NYU <i>Quantified how interactions among small-effect genetic variants contribute to single cell phenotypes</i> Advisor: Mark Siegal
	2006 – 2011	Ph.D. Organismic & Evolutionary Biology, Harvard University <i>Quantified the fitness cost and proteomic response to protein misfolding</i> Dissertation advisors: D. Allan Drummond & Daniel L. Hartl
	2005 – 2006	Research Tech, Dept. of Ecology, Evolution, and Marine Biology, UCSB <i>Annotated opsin gene duplications in the Daphnia genome</i> Advisor: Todd Oakley
	2004 – 2005	Post-baccalaureate research trainee, National Human Genome Institute <i>Searched for haplotypes that predispose individuals to neural tube defects</i> Advisor: Larry Brody
	2000 – 2004	B.S. in Biology, <i>magna cum laude</i> , Cornell University <i>Studied barriers to gene exchange in European corn borer moths</i> Thesis advisor: Rick Harrison
GRANTS	2012 – 2014 2006 – 2007	Ruth L. Kirschstein National Research Service Award (F32), NIH Genetics and Genomics Training Grant, NIH
AWARDS	2013 2011 2009 2007 2003 2000 2000	DeLill Nasser Award from Genetics Society of America Walter Fitch Prize, Society of Molecular Biology and Evolution Best Student Poster, Society of Molecular Biology and Evolution Derek Bok Teaching Award: Harvard University Undergraduate Travel Award, Society for the Study of Evolution Cornell Presidential Research Scholarship Intel Science Talent Search, 7 th Place

- PUBLICATIONS** 2018 **Geiler-Samerotte**, Sartori, & Siegal. Decanalizing the canalization literature. *Seminars in Cell and Developmental Biology* In press
- 2016 **Geiler-Samerotte** & Siegal. Questioning Buffering. *Cell Systems* 3:407
- 2016 **Geiler-Samerotte**, Zhu, Goulet, Hall & Siegal
Selection transforms the landscape of genetic variation interacting with Hsp90. *PLOS Biology* 14(10): e2000465
– **Publication highlighted with a primer article in PLOS Biology**
– Talk: <https://www.youtube.com/watch?v=pCQ3IRcY6uo>
- 2016 Venkataram, Dunn, Li, Agarwala, Chang, Ebel, **Geiler-Samerotte**, Herrisant, Blundell, Levy, Fisher, Sherlock & Petrov. Development of a comprehensive genotype-to-fitness map of adaptation-driving mutations in yeast. *Cell* Sep 8; 166(6):1585–1596.e22
- 2013 **Geiler-Samerotte**, Hashimoto, Dion, Airoidi & Drummond
Quantifying condition-dependent intracellular protein levels enables high-precision fitness estimates. *PLoS ONE* 8, e75320
- 2013 **Geiler-Samerotte**, Bauer, Li, Ziv, Gresham & Siegal. The details in the distributions: How and why to study variability. *Curr. Opin. Biotechnol.* 24, 752–759
- 2012 Pangilinan *et al.* (author # 9/20 is **Geiler-Samerotte**). Evaluation of common genetic variants in 82 candidate genes as risk factors for neural tube defects. *BMC Medical Genetics* 13(1): 62
- 2011 **Geiler-Samerotte**, Dion, Budnik, Wang, Hartl & Drummond
Misfolded proteins impose a dosage-dependent fitness cost and trigger a cytosolic unfolded protein response in yeast.
Proc. Natl. Acad. Sci. U.S.A. 108, 680–685
– **Walter Fitch prize awarded at SMBE**
- 2011 Colbourne *et al.* (author #22/50 is **Geiler-Samerotte**). The ecoresponsive genome of *Daphnia pulex*. *Science* 331(6017): 555–61.
- 2010 **Geiler** & Harrison. A $\Delta 11$ desaturase gene genealogy reveals two divergent allelic classes within the European corn borer (*Ostrinia nubilalis*). *BMC Evolutionary Biology* 10:112
- 2008 Pangilinan, **Geiler**, Dolle, Troendle, Swanson, Molloy, Sutton, Conley, Kirke, Scott, Mills & Brody. Construction of a high resolution linkage disequilibrium map to evaluate neural tube defect risk in an Irish population. *Am Journal of Medical Genetics A* 146A (20) 2617–2625
- IN PREP** **Geiler-Samerotte**, Paaby, Li, Taylor, Ramjeawan, Lazaris, Ziv & Siegal. Quantifying context-dependent effects of mutation reveals the mechanistic basis of pleiotropy (*in prep*)
- Geiler-Samerotte***, Kinsler* & Petrov. Subtle environmental perturbations reveal which phenotypes matter during adaptation (*in prep*)

INVITED TALKS	2018	Max Planck Institute of Developmental Biology, Tübingen, Germany	
	2018	Max Planck Institutes group leader selection, Berlin, Germany	
	2018	Georgia State University, Atlanta, GA	
	2018	University of Florida, Gainesville, FL	
	2018	Rochester University, Rochester, NY	
	2017	Arizona State University, Tempe, AZ	
	2017	Columbia University, NY, NY	
	2017	Northwestern University, Evanston, IL	
	2016	Baylor University, Waco, TX	
CONFERENCE TALKS	2018	Population, Evolutionary and Quantitative Genetics, Madison, WI	
	2018	Molecular Evolution and the Cell, Salt lake City, UT	
	2016	Society of Molecular Biology and Evolution, Austin, Texas	
	2017	Gordon seminar on Molecular Mechanisms in Evolution, Easton, MA	
	2016	The Allied Genetics Conference (GSA), Orlando, FL	
	2015	Society of Molecular Biology and Evolution, Vienna, Austria	
	2015	Gordon conference on Molecular Mechanisms in Evolution, Easton, MA	
	2015	Bay Area Population Genomics Meeting XII, Palo Alto, CA	
	2014	Yeast Genetics Meeting (GSA), Seattle, WA	
	2014	Society of Molecular Biology and Evolution, Puerto Rico	
	2013	Mathematical Tools for Evolutionary Systems Biology, Banff, Canada	
2011	Fitch Prize: Society of Molecular Biology & Evolution, Kyoto, Japan		
TEACHING	<i>Mentoring students in the laboratory:</i>		
	2017 – present	Tuya Yokoyama, research technician, Stanford University	
	2016 – present	Grant Kinsler, graduate student, Stanford University	
	2016 – present	Iris Wang, Grace Lam, Margot Bellon, Alycia Cary, Esther Kao, Naomi Esher-Jeckel, Anuva Banwasi, Katrina Liu, high school biology team, Stanford University	
	2015 – 2017	Anisa Noorasa, graduate student, Stanford University	
	2014 – 2016	Chelsea Ramjeawan, high school student, New York University	
	2013	Harris Lazaris, graduate student, New York University	
	2012 – 2015	Austin Taylor, undergraduate student, New York University	
	2010 – 2011	Stephanie Wang, undergraduate student, Harvard University	
	2009	Rachana Haliur, undergraduate summer intern, Harvard University	
	2007 – 2009	Ashley Fry, undergraduate student, Harvard University	
	2006	Christian F Cortez, Dante Munoz-Castaneda, CAMP interns, UCSB	
	<i>Leading section as a teaching assistant as Harvard University:</i>		
	2011	<i>Evolutionary Biology</i> , taught by Hopi Hoekstra	
	2010	<i>Microbial Evolution</i> , taught by Chris Marx	
	2007	<i>Experimental Research in the Life Sciences</i> , taught by Alain Viel - Received a teaching award based on student evaluations	
	2007	<i>Genetics, Genomics and Evolution</i> , taught by Dan Hartl	
	SERVICE	<i>Educating the public about science:</i>	
		2016 – present	Founded an after school ‘molecular biology & evolution laboratory training program’ for high school girls; 8 students enrolled - Molecular Biology Training Program Website
		2015 – present	High school science fair judge
2010		Public science blog contributor: example blog post	
2010		Public science seminar on protein folding Public science seminar on epigenetics: video of this talk	

2009 Public science seminar on GMOs
2009 – 2011 **Co-organized a weekly public seminar series on science in the news**
- 3 public seminars listed above were given as part of this series

Society memberships:

2012 – present Genetics Society of America (GSA)
2006 – present Society for Molecular Biology and Evolution (SMBE)

Reviewer: Molecular Ecology; BMC Evolutionary Biology; PNAS; Proceedings of the Royal Society B; Molecular Biology and Evolution; PLOS Biology; Evolution; PLOS Computational Biology; PCI Evolutionary Biology; IJSMB

REFERENCES

Dr. Mark Siegal
Associate Professor of Biology
Director, Undergraduate Studies
Center for Genomics & Systems Biology
New York University
mark.siegal@nyu.edu
(212) 998-7908

Dr. Dmitri Petrov
Michelle and Kevin Douglas Professor of Biology
Associate Chair of the Biology Department
Department of Biology
Stanford University
dpetrov@stanford.edu
(650) 736-1169

Dr. Daniel L. Hartl
Higgins Professor of Biology
Department of Organismic and Evolutionary Biology
Harvard University
dhartl@oeb.harvard.edu
(617) 496-5540

Dr. D. Allan Drummond
Assistant Professor
Department of Biochemistry and Molecular Biology
University of Chicago
dadrummond@uchicago.edu
(773) 834-2017