Kirsten Isabel Verster, Ph.D.

COLLEGE Lecturer
Civic, Liberal, and Global Education
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Education

Ph.D. Integrative Biology, University of California, Berkeley, 2016-2022
Advisor: Dr. Noah K. Whiteman

B.S. Zoology, *summa cum laude*, University of Florida, 2010-2014
Advisor: Dr. Keith Willmott

B.A. Spanish Literature, *cum laude*, University of Florida, 2010-2014

Appointments

2024- Stanford University
Lecturer, Stanford Introductory Studies
Civic, Liberal, and Global Education

2022-2024 Stanford University
Postdoctoral Researcher, Department of Biology
Advisor: Dr. Elizabeth Hadly

Research Areas

Evolutionary genetics and genomics / adaptation / horizontal gene transfer / phylogenetics / molecular biology / ancient DNA / eDNA

Publications

2024 Aguilar, J. M., Gloss, A. D., Suzuki, H. C., **Verster, K. I.**, Singhal, M. Hoff, J., Grebenok, R., Nabity, P. D., Behmer, S. T., Whiteman, N. K. "Insights into the evolution of herbivory from a leaf-mining, drosophilid fly" *Ecosphere*, https://doi.org/10.1101/2022.12.07.519390

2023 Pelaez, J., Gloss, A., Goldman-Huertas, B., Kim, B., Lapoint, R., Pimentel-Solorio, G., **Verster, K.I.**, Aguilar, J. M., Dittrich, A. N., Singhal, M., Suzuki, H., Matsunaga, T., Armstrong, E., Charboneau, J., Groen, S., Hembry, D., Ochoa, C., O'Connor, T., Prost, S., Zaaijer, S., Nabity, P., Wang, J., Rodas, E., Liang, I., Whiteman, N. K. "Evolution of chemosensory and detoxification gene families across herbivorous Drosophilidae" *G3*, https://doi.org/10.1093/g3journal/jkad133

2023* **Verster, K.I.***, Gyongyi, C.*, Lipinszki, Z., Tarnopol, R. L., Magyar, L., Karageorgi, M., Kurucz, E., Ando, I., Whiteman, N. K. "Evolution of insect innate immunity through domestication of bacterial toxins" *Proceedings of the National Academy of Sciences* doi.org/10.1073/pnas.2218334120

2022 Pelaez, J., Gloss, A., Ray, J., Charboneau, J., Chaturvedi, S., Haji, D., Charboneau, J. L. M., **Verster, K. I.**, Whiteman, N. K. "Evolution and genomic basis of the plant-penetrating ovipositor: a key morphological trait in herbivorous Drosophilidae" *Proceedings of the Royal Society B* https://doi.org/10.1098/rspb.2022.1938

2021 **Verster, Kirsten I.***, Tarnopol, R. L.*, Akalu, S. M., and Noah K. Whiteman. "Horizontal transfer of microbial toxin genes to gall midge genomes" *Genome Biology and Evolution* https://doi.org/10.1093/gbe/evab202

2021 Matsunaga, T. Reisenman, C. E., Goldman-Huertas, B. Brand, P., Miao, K., Suzuki, H. C., **Verster, K. I.**, Ramirez, S. R., Whiteman, N. K. "Evolution of olfactory receptors tuned to mustard oils in herbivorous Drosophilidae" *Molecular Biology and Evolution* https://doi.org/10.1093/molbev/msab362

2019* **Verster, Kirsten I.**, Jennifer H. Wisecaver, Marianthi Karageorgi, Rebecca P. Duncan, Andrew D. Gloss, Ellie E. Armstrong, Donald K. Price, Aruna R. Menon, Zainab M. Ali, and Noah K. Whiteman. "Horizontal transfer of bacterial cytolethal distending toxin B genes to insects" *Molecular Biology and Evolution* (Advance Access publication) https://doi.org/10.1093/molbev/msz146

2019* Karageorgi, M., Groen, S.C., Sumbul, F., Pelaez, J.N., **Verster, K.I.**, Aguilar, J.M., Hastings, A.P., Bernstein, S.L., Matsunaga, T., Astourian, M. Guerra, G., Rico, F., Dobler, S., Agrawal, A. A., Whiteman, N. K. "Genome editing retraces the evolution of toxin resistance in the monarch butterfly" *Nature* https://doi.org/10.1038/s41586-019-1610-8

* *Asterisks indicated selected publications.*

Submitted

Pre-prints

Tarnopol, R., Tamsil, J., Cinege, G., Ha, J., **Verster, K. I.**, Abraham, E., Magyar, L., Kim, B. Y., Bernstein, S. L., Lipinszki, Z., Ando, I., Whiteman, N. K. "Retracing the horizontal transfer of a novel innate immune factor in *Drosophila*". bioRxiv

Grants, Awards, and Fellowships

Fellowships

2022-2024 National Science Foundation Postdoctoral Research Fellowship in Biology

2022-2024 PRISM Baker Fellowship (Stanford)

2022-2024 Center for Computational, Evolutionary, and Human Genomics (Stanford)

2021-2022 Philomathia Graduate Fellowship in Envrionmental Sciences (UC Berkeley)

2021-2022 Yale Ciencia Academy Fellow

2020 Graduate Remote Instruction Fellowship (UC Berkeley)

2015-2020 National Science Foundation Graduate Research Fellowship

2015 University Fellowship (University of Arizona)

2015 SUNY Graduate Diversity Fellowship (Cornell University) *Declined*

2015 DOVE Fellowship (University of Minnesota) *Declined*

2013 NSF REU Fellowship, University of Puerto Rico - El Verde Field Station

2012 NSF REU Fellowship, Systematics of Neotropical Butterflies, University of Florida

2012 NSF REU Fellowship, ED2QUEST, University of Michigan

Grants and Awards

2024 Irene L. Brown Fund for Nature-Related Research (Stanford)

2022 Graduate Division Conference Travel Grant (UC Berkeley)

2021 Genetics Society of American Presidential Membership Award

2020 Integrative Biology Summer Award (UC Berkeley)

2020 Graduate Student Research Allocation Committee Research Funds (UC Berkeley)

2020 Outstanding Graduate Student Instructor, Integrative Biology Dept (UC Berkeley)

2019 Society for Molecular Biology and Evolution Best Poster.

2019 Integrative Biology Summer Research Award. (UC Berkeley)

2019 Golden Gate Science Into Action Fund at Golden Gate National Recreation Area. (GGNP)

2019 Graduate Division Conference Travel Grant (UC Berkeley)

2018 Graduate Student Research Allocation Committee Travel Funds (UC Berkeley)

2018 Mettler Toledo Rainin Story Competition

2018 Graduate Student Research Allocation Committee Research Funds (UC Berkeley)

2016 Sigma Xi – Berkeley Chapter

2016 Animal Behavior Society

2016 Graduate Dean's Summer Research Grant

2010-2014 University of Florida Dean's List

Teaching and Mentorship

Awards and Recognitions

2021 Extraordinary Teaching in Extraordinary Times Award. *Granted for flexibility, accessibility and pedagogy during COVID-19 pandemic*

2021 Nominated by ASUC Mental Health Commission as Graduate Student Instructor Advocate for Undergraduate Mental Health

2019 Outstanding GSI Award

Courses and Workshops Taught

2024 Data Visualization and Publishing *With co-IOR, submitted proposal and received funding from the Office of Graduate Education for this course for Winter '24 quarter. Led by team of Latinx Postdocs.* (Stanford)

2022 Data Management for Publishing: Accessibility and Reproducibility. *Led workshop on the R package ggplot2. Jasper Ridge Biological Preserve* (Stanford)

2019, 2021 Introduction to Field Genomics Short Course. *Facilitated sponsorship with Geneious, designed various labs for student engagement and understanding of genome sequencing and genomic analysis* (UC Berkeley)

2020 IB134L. Practical Genomics. *Independently created 10 individual, 3-hour-long coding labs that highlight concepts in, and enable analysis of, genetic and genomic data* (UC Berkeley)

2020 MCB104: Genetics, Genomics and Cell Biology (UC Berkeley)

2019 IB164: Human Genetics and Genomics (UC Berkeley)

2016 MCB104: Genetics, Genomics and Cell Biology (UC Berkeley)

Mentorship and Pedagogy Programs

2023	SACNAS PRFB Broadening Participation Workshop
2022-2023	Certificate in Critical Conscious and Anti-Oppressive Praxis
2021	Cientifico Latino Graduate School Application Mentor
2020	ACES American Cultures Engaged Scholarship
2020	SURF SMART
2019	Teaching and Mentoring BURET Workshop
2017-2019	Bridges to Baccalaureate
2014-2018	PlantingScience: Master Plant Science Team

Students Mentored

[2024] Alina Zhang (BSURP) / [2024] Ashley Wong (BSURP) / [2024] Andrew Wang (MUIR) / [2024] Emily Cellalos (CCOP)/ [2024] Sarah Borja (CCOP) / [2023-2024] Vianda Nguyen / [2023-2024] Alyssa Fong / [2022-2024] Vrinda Suresh / [2023] Chris Groth (BioRETS) / [2023] Cheuk Kong "Paleo" (SURGE) / [2022-2023] Tanvi Dutta Gupta / [2021-2022] Jossie Tamsil / [2019-2022] Saron Akalu (B2B) / [2021] Ted Chor (Biotech Partners) / [2020] Ashley Bendl (SURF SMART) / [2019-2020] Christina Meyer / [2019-2020] Kelly D'Ambrogia / [2019] Maria Mendoza / [2018-2019] Easha Sagar / [2017-2018] Aruna Menon / [2016-2018] Zainab Ali / [2018] William Farley (B2B) / [2017] Christopher Ochoa (B2B) / [2016] Eunice Kim

Outreach and DEI Activities

Presentations

DEI

2021	Invited talk: Computational Biology Retreat. Berkeley, CA. "Field Genomics: on Nanopore and 'democratizing science'. Ben Karin, Mark Jenkinson, Vanessa Handley, and Kirsten Verster.
2021	Computational Biology Retreat. Zoom. "Integrated Practices in Recognizing, Participating In, and Promoting DEI Efforts". Jessica Aguilar, Diler Haji, Julianne Pelaez and Kirsten Verster.

Outreach

2022	Popping the Science Bubble (Berkeley Public Library). "Sharing is caring: how gene exchange from viruses to insects leads to protection from predators". Zoom
2022	Dia de la Ciencia – Un Vistazo al Laboratorio. (Spanish-language video presentation and panel speaker to the Latine Bay Area Community). Cal Academy and Mexican SF Consulate. Zoom
2021	Bemidji State University Community College Transfer Class. "The people behind the graphs: my participation in the 'monarch butterfly' project". Presented by Jessica Aguilar and Kirsten Verster. Zoom
2020	Dia de la Ciencia – Carreras en Ciencia. (Spanish-language presentation to the Latino Bay Area community). Cal Academy and Mexican SF Consulate. Zoom
2020	Expanding Your Horizons. Entomology Workshop. Berkeley, CA
2014-2015	Arizona Insect Festival. Tucson, AZ
2014	Florida Museum of Natural History Earth Day. Gainesville, FL
2013	Florida Museum of Natural History ButterflyFest: "Butterflies around Gainesville". Gainesville, FL.

2013 Florida Museum of Natural History Starry Nights. Gainesville, FL

2012 Florida State Fair: “Evolution and Research at the Miller Lab”.Tampa, FL

2012 P. K. Yonge Middle School. Ecology, Evolution and Research at the Miller Lab. Gainesville, FL

2012 U.F. Entomology BugFest. Ecology, Evolution and Research at the Miller Lab. Gainesville, FL

2012 Lubee Bat Conservancy Festival. Gainesville, FL

Other Activities

2023-2024 Pikascience Co-host (Spotify). *Co-host of popular PikaScience podcast (1000 listeners per episode), which uses the video game series Pokemon as a learning tool to understand real-world biological principles*

2014-2015 Mad Scientist at Mad Science. Tucson, AZ. *Transform laboratory science into interactive learning experiences for children throughout Pima County, AZ*

2014 Spanish Language Editor. *Translated short scientific articles for the PCP-PIRE bilingual newsletter, as well as museum exhibits at the FLMNH and Biomuseo of Panama*

2012-2013 Outreach Coordinator for the Miller Lab. *Coordinated outreach events throughout Alachua County, FL*

2007-2010 Camp Counselor at Miami Metrozoo. *Maintained care and order of children ages 3-5 during summers. Led children in enrichment activities and exploration of zoo exhibits*

Research Presentations

Talks

2024 Arthropod Genomics Symposium - Insect Genome Biology and Evolution. "A toxic triangle: how insects co-opted phage genes for defense against deadly wasp". (Invited)

2024 University of San Francisco Biology Seminar. San Francisco, CA. "A toxic triangle: how insects co-opted phage genes for defense against deadly wasps". (Invited)

2023 Stanford/UCSC Species Interaction Workshop. Santa Cruz, CA. "A toxic triangle: how insects co-opted phage genes for defense against deadly wasps".

2022 Genetics Society of America Drosophila Research Conference. San Diego, CA. “Sharing is caring: how gene exchange from viruses to insects leads to protection from predators”.

2021 Genetics, Genomics and Development Division of Dept. of Molecular and Cell Biology Retreat. Zoom. “Going viral: the causes and consequence of insect co-option of a bacterial gene”. (Invited)

2020 Cal Academy Genomic Social Hour. Zoom. “Gone viral: horizontal transfer of DNA from bacteria to insects”. (Invited)

2020 Undergraduate CRISPR Journal Club. Zoom. “Using CRISPR to create knockouts in a non-model fly”. (Invited)

2020 Rotary Club of Key Biscayne. Key Biscayne, FL. “Gone viral: horizontal transfer of DNA from bacteria to insects”. (Invited)

2019 Bay Area Population Genomics. Berkeley, CA. “Gone viral: the horizontal transfer of a gene encoding a mitosis-arresting toxin in insects.”

2018 The Berkeley Lecture (Tour-study summer camp for undergraduates from Tianjin and Fuzhou Universities in China). Berkeley, CA. PhD Program Mentor. “Innovation and technology in genetics”. (Invited)

2012 ED-QUE2ST REU Symposium. Ann Arbor, Michigan. “Effect of regional phenotypic variation on

learning in wasps."

Posters

2024 Northern California Geobiology Symposium. "Feeling salty: evolution of a halophilic fly in the San Francisco Bay Salt Flats".

2019 Society for Molecular Biology and Evolution. Manchester, UK. "Gone viral: the horizontal transfer of a gene encoding a mitosis-arresting toxin in insects. [Won best poster from 400+ submissions].

2018 Endless Forms: applying techniques in non-model organisms. Berkeley, CA. "Gone viral: the horizontal transfer of a gene encoding a mitosis-arresting toxin in insects".

2018 Genetic Society of America, Philadelphia, PA. "Horizontal transfer of a DNase-encoding gene in Drosophila".

2017 Computational and Genomic Biology Retreat. Petaluma, CA. "Horizontal transfer of a DNase-encoding gene in Drosophila".

2016 Gordon Research Conference in Plant-Herbivore Interactions. Ventura, CA. "Phylogenetic relationships and host-preference of leaf-mining Scaptomyza in Northern California".

2016 Bay Area Population Genomics, Stanford, CA. "Dissecting the genomic basis of behavior in a leaf-mining Drosophila".

2014 Lepidoptera Society Conference, Park City, Utah. "Defining species limits in a confusing genus of colorful, abundant Neotropical butterflies."

2014 URAP Symposium. Gainesville, FL. "Defining species limits in a confusing genus of colorful, abundant Neotropical butterflies."

2013 El Verde REU Symposium. San Juan, PR. "Effect of stream proximity on Tetragnatha web inclination."

Media

2022 Un Vistazo al Laboratorio: Kirsten Isabel Verster, Bióloga Evolutiva, UC Berkeley. Dia de la Ciencia.

2019 Graphic Designer for "Historical DNA is bound to repeat itself". Berkeley Science Review.

2018 Breaking Barriers: The Bridges to the Baccalaureate Program. Berkeley Science Review.

2016 Noah K. Whiteman: A Naturalist's Winding Journey to Becoming a Biologist. Berkeley Science Review.

Media Coverage of Work

Flies co-opt bacterial toxins for use in defense against parasitoids by Kerry M. Oliver

Core concept: gene transfers from bacteria and viruses may be shaping complex organisms by Viviane Callier

Field Genomics course brings cutting-edge research techniques to UC Berkeley freshmen by Krystin Ventura

Miscellaneous DEI Service

2023 Stanford Latino Postdoc Association, Lead Board Representative (Stanford University)

2021 DEI Small Grants Group Reviewer (UC Berkeley)

2021 Mentor for UC NSF LSAMP/CAMP Presentation Coaching session

2020 IvyPlus+ (University of Puerto Rico) Graduate Student Representative

2019 Integrative Biology Admissions Committee (UC Berkeley)

2016 Facilitator of Integrative Biology Sexual Violence and Sexual Harassment In-Person Training Session (UC Berkeley)

Extracurriculars

Artist in Residence of Vacaville, CA - On Stage Vacaville

Lead Vocalist in Salsa Band Salsabrosos

Writer of Salsa History Blog and Educational Module "Salsa and Storytelling"

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