KACIE RING

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Education

University of California, Santa Barbara Fall 2020-Present

Ecology, Evolution, and Marine Sciences PhD

Advisor: Cherie Briggs

San Francisco State University Fall 2018-Spring 2020

Microbiology M.S. GPA 4.0

Master's Thesis: "*Host blood meal identity modifies vector gene expression and competency*"

Advisor: Andrea Swei

Committee: Seemay Chou and Ravinder Sehgal

University of California, Santa Cruz Fall 2013-Spring 2017

Ecology and Evolutionary Biology B.S. GPA 3.55

Dean's List, Undergraduate Researcher

Senior Thesis: "*The Effect of Marine Subsidies on Insectivorous Lizard Abundance in Baja California*"

Advisor: Donald Croll

Research Experience

University of California, Santa Barbara, C. Briggs P.I.

Ph.D. student, September 2020-Present

- *Developing a bactericidal assay to determine the antimicrobial activity of lizard serum on common bacteria and tick-borne pathogens*
- *Created an integral projection model predicting salamander morbidity after Batrachochytrium salamandrivorans exposure at different temperatures*

San Francisco State University, A. Swei P.I.

Master's Student, August 2018- August 2020

- *Studied the effect of host blood meal on Ixodes pacificus gene expression and susceptibility to Borrelia burgdorferi*

- *Lead field excursions and conducted molecular analyses to determine tick diversity, tick host community, and prevalence of tick-borne pathogens across a habitat fragmentation gradient Northern California*
- *Determined the LC-50 of permethrin on Ixodes spp. and transcriptomics involved in developing pesticide resistance*

Plant Sciences lab, Stanford University, J. Dinneny P.I.

Research Technician, January 2018- August 2018

- *Studied the signaling mechanisms plants use to sense water and nutrient availability*
- *Assisted two Postdocs with their research on introducing synthetic genetic pathways into plants and identifying key regulators of osmo-signaling in single-celled organisms*

Conservation Action Lab, UCSC, D. Croll P.I.

Undergraduate Researcher, December 2016-June 2017

- *Determined toxoplasma gondii prevalence in humans and cats on islands in Baja California, Mexico*
- *Organized data to prioritize endangered marine species for conservation*
- *Conducted abundance and diversity estimates of lizards on island in Baja California, Mexico*

Teaching and Professional Experience

Undergraduate Journal Club, University of California, Santa Barbara

Lead and facilitated an undergraduate journal club, Fall & Winter 2022

- *Undergraduate's practice reading and presenting scientific papers*
- *Provided professional development and coding workshops*

Teaching assistant at UCSB

- *Parasitology, Winter 2020, Instructor: Dr. Armand Kuris*
- *Biometry, Spring 2021 & Winter 2022, Instructor: Dr. Cherie Briggs*
- *Ecology of Infectious Diseases, Fall 202,1 Instructor: Dr. John Latto*

Doris Duke Conservation Scholars Program

Coordinator and teaching assistant, May-August 2017

- *Mentored students that represent a diverse spectrum of cultures and backgrounds*
- *Managed logistics, budgeting, accounting*

Undergraduate Teaching Assistant- Ecology and Conservation in Practice

Ecology and Evolutionary Biology, UCSC, Don Croll and Gage Dayton, Spring 2017

- *Planned logistics for the course*

- *Assisted undergraduate students in research methods and data collection*

Presentations and Publications

Ring, K., L. Couper, A. Saprio, F. Yarza, F. Yang, K. Clay, C. Mateusiak, S. Chou, & A. Swei. Host blood meal modifies vector gene expression and competency. Accepted in revisions from *Molecular Ecology*

K. Ring (2021) poster presenter at Ecological Society of America Annual Conference, "*Host blood meal alters vector gene expression and competency*"

K. Ring (2021) invited speaker at virtual CDC mosquito and vector control seminar series "*Host blood meal alters vector gene expression and competency*"

K. Ring (2020) presenter at Mosquito and Vector Control Conference, San Diego, Ca "*Determination of LC-50 of permethrin acaricide in Ixodes spp.*"

K. Ring (2020) presenter at Pacific Southwest Center of Excellence in Vector-borne Diseases Annual Meeting. Riverside , Ca "*Toxcicity of permethrin acaricide and influences on vector competency in Ixodes pacificus.*"

K. Ring (2019) oral presentation at Chan Zuckerburg Biohub, San Francisco,Ca. "*Vector transcriptomics and pathogen acquisition*"

K. Ring(2019) guest lecturer at UC Davis. "*Emergence of vector-borne diseases: Lyme disease*"

K.Ring (2019) guest lecturer at UC Berkeley Disease Ecology Seminar series, Berkeley,Ca "*Vector transcriptomics and pathogen acquisition.*"

Awards and Acknowledgements

Best Poster award Ecological Society of America, Disease section (2021)

"Host blood meal modifies vector gene expression and competency"

Honorable mention NSF GRFP

Examining biotic alterations in tick vector competency

Center for Disease Control Center of Excellence Vector-Borne Diseases Training Grant (2019)

Training grant to determine the LC-50 of Ixodes spp. and elucidate resistance gene regulation during exposure- in collaboration with San Mateo Vector Control

Simes Award

Research fund to collect field samples at Hastings Natural Reserve to study the effect of host blood meal on Ixodes pacificus immunity and pathogen acquisition

Instructionally Related Research Award

Funding for lab supplies to aid in host blood meal research project

Skills

***Field collection methods**: Small mammal trapping and handling, tick collection, lizard noosing, field site design and setup*

***Animal Care:** C3H and Peromyscus mouse research, small mammal handling, blood collection, transmission experiments, tissue collection, anesthetization, inoculation, and euthaniasia.*

***Laboratory Techniques:** DNA and RNA extractions, PCR, Gel electrophoresis, DNA/RNA quantification, qPCR, cDNA synthesis, RT-qPCR, media preparation, culture preparation, plant transformation, pathogen inoculation, competent cells preparation, Bioassays, Bioanalyzer, and RNA Library Preparation*

***Additional Skills:** Statistical methods, mathematical modelling, development of bioinformatics pipeline, R Studio, and python*

References

Dr. Cheryl Briggs -PhD Principal Investigator

Professor in the Ecology, Evolution and Marine Biology, Biomolecular Science and Engineering, and Chemical and Biological Engineering Programs, University of California, Santa Barbara

briggs@ucsb.edu

Dr. Andy MacDonald- PhD committee member

Assistant research Professor at Earth Research Institute and Bren School of Environmental Science and Management, University of California, Santa Barbara

Dr. Hillary Young- PhD committee member

Associate Professor in Ecology, Evolution and Marine Biology, University of California, Santa Barbara

hillary.young@lifesci.ucsb.edu

Dr. Andrea Swei- PhD committee member & MS Thesis Advisor

Associate Professor Department of Biology, San Francisco State University

aswei@sfsu.edu

Dr. Seemay Chou- MS Thesis Committee

Assistant Professor, Department of Biochemistry and Biophysics, University of California, San Francisco

seemay.chou@ucsf.edu

Dr. Jose Dinneny- Past Employer

Associate Professor of Biological Sciences, Stanford University
dinneny@stanford.edu
Dr. Donald Croll- Undergraduate Advisor
Professor Ecology and Evolutionary Biology UCSC
dcroll@ucsc.edu
Dr. Erika Zavaleta- Past Employer
Professor Ecology and Evolutionary Biology UCSC
zavaleta@ucsc.edu