

# CASSANDRA LANE ETTINGER

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## **EDUCATION & TRAINING**

UNIVERSITY OF CALIFORNIA, RIVERSIDE

2020 – present

- Postdoctoral scholar, Dept. of Microbiology & Plant Pathology
- Advisor: Dr. Jason Stajich

UNIVERSITY OF CALIFORNIA, DAVIS

2013 – 2020

- Ph.D., Integrative Genetics & Genomics
- Dissertation: Taxonomic diversity of the bacterial and fungal communities associated with the seagrass, *Zostera marina*
- Advisor: Dr. Jonathan Eisen

UNIVERSITY OF CALIFORNIA, BERKELEY

2009 – 2013

- B.A., Molecular & Cell Biology – Genetics, Genomics & Development Emphasis
- Honors thesis: Genetic variation in abiotic tolerance and symbiotic quality among wild rhizobium bacteria
- Advisor: Dr. Ellen Simms

UNIVERSITY OF YORK, UNITED KINGDOM

2012

- Visiting Scholar, Biology & Archaeology Departments
- Research project: Investigation of the role of dopamine in *Drosophila* vision and its relation to Parkinson's disease
- Advisor: Dr. Christopher Elliot

## **PUBLICATIONS IN PREPARATION**

LaForgia ML, Kang H\* & **Ettinger CL**. In prep. Competitive outcomes between native and invasive plants are linked to shifts in the bacterial rhizosphere microbiome.

\*undergraduate author

**Ettinger CL**, Vann LE & Eisen JA. Submitted. Global diversity and biogeography of the *Zostera marina* mycobiome. Available on bioRxiv; DOI: [10.1101/2020.10.29.361022](https://doi.org/10.1101/2020.10.29.361022)

Selbmann S, Coleine C, de Hoog S, Donati C, Druzhinina I, **Ettinger CL**, Gladfelter AS, Gorbushina AA, Grigoriev IV, Grube M, Gunde-Cimerman N, Muggia L, Northen T, Pennacchio C, Pöcsi I, Prigione V, Riquelme M, Segata N, Schumacher J, Shelest E, Sterflinger K, Tesei D, U'Ren J, Varese GC, Vázquez- Campos X, Vicente VA, Souza EM, Walker AL & Stajich JE. Submitted. Project Title: Shed light in The daRk lineagES of the Fungal Tree Of Life - STRES. *Life*. Project details: <http://www.stresblackfungi.org/>

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## PEER-REVIEWED PUBLICATIONS

**Ettinger CL** & Eisen JA. 2020. Fungi, bacteria and oomycota opportunistically isolated from the seagrass, *Zostera marina*. *PLoS One*. DOI: [10.1371/journal.pone.0236135](https://doi.org/10.1371/journal.pone.0236135)

**Ettinger CL** & Eisen JA. 2019. Characterization of the mycobiome of the seagrass, *Zostera marina*, reveals putative associations with marine chytrids. *Frontiers in Microbiology*. DOI: [10.3389/fmicb.2019.02476](https://doi.org/10.3389/fmicb.2019.02476)

Amend A, Burgaud G, Cunliffe M, Edgcomb VP, **Ettinger CL**, Gutiérrez MH, Heitman J, Hom E, Ianiri G, Jones A, Kagami M, Picard K, Quandt A, Raghukumar S, Riquelme M, Stajich JE, Vargas-Muñoz J, Walker AK, Yarden O & Gladfelter AS. 2019. Fungi in the marine environment: open questions and unsolved problems. *mBio*. DOI: [10.1128/mBio.01189-18](https://doi.org/10.1128/mBio.01189-18)

Wilkins LGE\*, **Ettinger CL**\*, Jospin G & Eisen JA. 2019. Metagenome-assembled genomes provide new insight into the microbial diversity of two thermal pools in Kamchatka, Russia. *Scientific Reports*. DOI: [10.1038/s41598-019-39576-6](https://doi.org/10.1038/s41598-019-39576-6) \*co-first authors

**Ettinger CL**, Wilkins LGE, Dahlhausen KE, Ghose SL, Oberbauer D\*, Eisen JA & Coil DA. 2018. Even superheroes need help sometimes: Three incredible tales of microbial symbiosis. *Frontiers for Young Minds*. DOI: [10.3389/frym.2018.00050](https://doi.org/10.3389/frym.2018.00050) \*undergraduate author

Brown EA, Dickinson PJ, Mansour T, Sturges B, Aguilar M, Young A, Korff C, Lind J, **Ettinger CL**, Varon S, Pollard R, Brown T, Raudespp T & Bannasch DL. 2017. *FGF4* retrogene on CFA 12 is responsible for chondrodystrophy and intervertebral disc disease in dogs. *PNAS*. DOI: [10.1073/pnas.1709082114](https://doi.org/10.1073/pnas.1709082114)

**Ettinger CL**, Williams SL, Abbott JM, Stachowicz JJ & Eisen JA. 2017. Microbiome succession during ammonification in eelgrass bed sediments. *PeerJ*. DOI: [10.7717/peerj.3674](https://doi.org/10.7717/peerj.3674)

Coil DA, **Ettinger CL** & Eisen JA. 2017. Gut Check: The evolution of an educational board game. *PLoS Biology* 15(4):e2001984. DOI: [10.1371/journal.pbio.2001984](https://doi.org/10.1371/journal.pbio.2001984)

**Ettinger CL**, Voerman SE, Lang JM, Stachowicz JJ & Eisen JA. 2017. Microbial communities in sediment from *Zostera marina* patches, but not the *Z. marina* leaf or

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root microbiomes, vary in relation to distance from patch edge. *PeerJ*. DOI: [10.7717/peerj.3246](https://doi.org/10.7717/peerj.3246)

Shehata HR, **Ettinger CL**, Eisen JA, & Raizada MN. 2016. Genes Required for the Anti-fungal Activity of a Bacterial Endophyte Isolated from a Corn Landrace Grown Continuously by Subsistence Farmers Since 1000 BC. *Frontiers in Microbiology*. DOI: [10.3389/fmicb.2016.01548](https://doi.org/10.3389/fmicb.2016.01548)

Mousa WK, Shearer, C, Limay-Rios, V, **Ettinger CL**, Eisen JA & Raizada MN. 2016. Root-hair endophyte stacking in finger millet creates a physicochemical barrier to trap the fungal pathogen *Fusarium graminearum*. *Nature Microbiology*. DOI: [10.1038/nmicrobiol.2016.167](https://doi.org/10.1038/nmicrobiol.2016.167)

## DATA PUBLICATIONS

**Ettinger CL**, Mousa WM, Raizada MN, Eisen JA. 2015. Draft genome sequence of *Enterobacter* sp. strain UCD-UG\_FMILLET (phylum *Proteobacteria*). *Genome Announcements*. DOI: [10.1128/genomeA.01461-14](https://doi.org/10.1128/genomeA.01461-14)

**Ettinger CL**, Shehata HR, Johnston-Monje D, Raizada MN, Eisen JA. 2015. Draft genome sequence of *Burkholderia gladioli* strain UCD-UG\_CHAPALOTE (phylum *Proteobacteria*). *Genome Announcements*. DOI: [10.1128/genomeA.01462-14](https://doi.org/10.1128/genomeA.01462-14)

## GRANTS & FELLOWSHIPS

CENTER FOR POPULATION BIOLOGY (CPB) TRAVEL AWARD (\$800)	2020
MICROBIOME GRADUATE RESEARCH AWARD (\$1000)	2019
CPB RESEARCH AWARDS (\$5650)	2016 – 2019
CPB COLLABORATIVE PROJECT RESEARCH AWARD (\$4000)	2018
<ul style="list-style-type: none"><li>Project: <i>Unlocking the terrestrial realm: Are microbial symbioses the key to land crab terrestrial invasions?</i></li><li>Co-PI: Victoria Morgan, PhD Candidate, Population Biology, UC Davis</li></ul>	
SIGMA XI GRANT-IN-AID OF RESEARCH (\$1000)	2018
H. A. LEWIN FAMILY FELLOWSHIP (\$2000)	2018
JEFFERY AND MARSHA GIBELING FELLOWSHIP (\$1100)	2018
CPB COLLABORATIVE PROJECT RESEARCH AWARD (\$4500)	2017
<ul style="list-style-type: none"><li>Project: <i>Understanding belowground plant-microbe feedback loops during competition between native and invasive plant species in a grassland ecosystem</i></li><li>Co-PI: Marina LaForgia, PhD Candidate, Ecology, UC Davis</li></ul>	
NATURAL RESERVE SYSTEM RESEARCH GRANT (\$2000)	2016
SANTA BARBARA SCHOLARSHIP FOUNDATION (\$23,814)	2009 – 2017

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- Tuition and stipend for four years at UC Berkeley and for four years at UC Davis  
MARINE BIOLOGICAL LABORATORY (MBL) SCHOLARSHIP (\$6975) 2015
- Tuition and room/board for the Microbial Diversity summer course at the MBL  
UNIVERSITY OF CALIFORNIA BLOCK GRANT 2014
- Tuition and stipend for two quarters at UC Davis

## **TEACHING EXPERIENCE**

### TEACHING ASSISTANT

- Introduction to Biology: Biodiversity and the Tree of Life (BIS2C), UC Davis – Spring 2015, Spring 2016, Summer 2016, Fall 2016, Winter 2017, Fall 2017, Fall 2018, Winter 2019, Fall 2019
- Complimentary class to BIS2C for underserved minority students (BIS98), UC Davis – Fall 2016
- Microbial Phylogenomics (EVE161), UC Davis – Winter 2018, Winter 2020

### ORGANIZER

- Marine Microbial Ecology Seminar (PBG 298 / ECL 290), UC Davis – Winter 2019
- Environmental Surveys of Viruses Seminar (PBG 298), UC Davis – Spring 2020

## **ACADEMIC SERVICE & AFFILIATIONS**

UC Davis Data Science Initiative Graduate Affiliate	2017 – 2020
UC Davis Center for Population Biology Graduate Affiliate	2014 – 2020
Coastal & Marine Science Institute Grad Committee Co-chair	2015 – 2019
Integrative Genetics & Genomics Admissions Officer	2016 – 2018

## **ACHIEVEMENTS & HONORS**

NSF GRFP Honorable Mention	2014
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## **PROFESSIONAL MEMBERSHIPS**

Association for Women in Science, American Society for Microbiology, National Center for Science Education, American Association for the Advancement of Science, The Oceanography Society, Society for the Study of Evolution, Mycological Society of America, Ecological Society of America

## **REVIEWER**

Environmental Microbiology, mSystems, PLOS One, PeerJ, FEMS Microbiology Ecology, Marine Ecology Progress Series, Scientific Reports, Frontiers Ecology And Evolution

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## **ORAL PRESENTATIONS**

**Ettinger CL** & Eisen JA. 2020. "The seagrass mycobiome: what happened to fungal associations as plants moved back into the marine environment?" contributed talk at the Ecological Society of America Annual Meeting, August 3–6, online.

**Ettinger CL** & Eisen JA. 2019. "The seagrass mycobiome: what happened to fungal associations as plants moved back into the marine environment?" invited talk at the California Academy of Sciences, April 11, in San Francisco, California.

**Ettinger CL** & Eisen JA. 2018. "The seagrass mycobiome: what happened to fungal associations as plants moved back into the marine environment?" invited talk at the 12<sup>th</sup> annual UC Davis Research Retreat on Host Microbe Interactions, October 19, in Tahoe City, CA

**Ettinger CL**, Porter SS & Simms EL. 2013. "Genetic variation in abiotic tolerance and symbiotic quality among wild rhizobium bacteria" a ten-minute talk at the UC Berkeley Molecular and Cell Biology Honors Research Symposium, April 24, in Berkeley, California.

## **POSTER PRESENTATIONS**

**Ettinger CL** & Eisen JA. 2020. "Global characterization of the fungal community associated with the seagrass, *Zostera marina*" a graphical abstract presented at the Mycological Society of America Annual Meeting, July 22, online.

**Ettinger CL** & Eisen JA. 2018. "Characterization of the mycobiome of the seagrass, *Zostera marina*, across space and time" a poster presented at the Lake Arrowhead Microbial Genomics Conference, September 17, in Lake Arrowhead, California.

**Ettinger CL**, Lang JM, Voerman SE, Stachowicz JJ & Eisen JA. 2015. "The Seagrass Microbiome Project: Edge Effects and Seagrass Microbiome Diversity" a poster presented at the 115<sup>th</sup> General Meeting of the Amer. Soc. for Microbiology, June 1, in New Orleans, Louisiana.

**Ettinger CL**, Lang JM, Voerman SE, Stachowicz JJ & Eisen JA. 2015. "Edge Effects and Seagrass Microbiome Diversity" a poster presented at the Integrative Genetics and Genomics Graduate Group Colloquium, May 18, in Davis, California.

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**Ettinger CL**, Lang JM, Voerman SE, Stachowicz JJ & Eisen JA. 2014. "Edge Effects and Seagrass Microbiome Diversity" a poster presented at the 20<sup>th</sup> Annual International Meeting on Microbial Genomics, September 15, in Lake Arrowhead, California.

**Ettinger CL**, Lang JM, Voerman SE, Eisen JA & Stachowicz JJ. 2014. "Edge Effects and Seagrass Microbiome Diversity" a poster presented at the Integrative Genetics and Genomics Graduate Group Colloquium, June 2, in Davis, California. Won "People's Choice".

## **PROFESSIONAL DEVELOPMENT & WORKSHOPS**

NAIST INTERNATIONAL STUDENT WORKSHOP in Nara, Japan	November 2018
MARINE FUNGI WORKSHOP at the MBL	May 2018
ANVIO WORKSHOP at the Joint Genome Institute	September 2017
SCIENCE COMMUNICATION WORKSHOP at UC Davis	April 2017
EARLY CAREER OCEAN SUMMIT in Waikoloa, HI	January 2017
BAYESIAN STATISTICAL PHYLOGENETICS USING REVBayes at UC Davis	July 2016
MICROBIAL DIVERSITY COURSE at the MBL	July – August 2015
EXPLORATIONS IN DATA ANALYSES FOR METAGENOMIC ADVANCES IN MICROBIAL ECOLOGY (EDAMAME) COURSE at MSU	August 2014
SOFTWARE CARPENTRY WORKSHOP at UC Davis	June 2014

## **VOLUNTEER & OUTREACH EXPERIENCE**

NATIONAL SUMMER UNDERGRADUATE RESEARCH PROJECT (NSURP) 2020

- *Mentor*: Supervised BIPOC undergraduate students on remote summer research opportunities; Organized internal seminar series on literature review topics

EXPANDING YOUR HORIZONS 2013 – 2019

- *Workshop Leader*: Introduced 6<sup>th</sup> – 9<sup>th</sup> grade girls to STEM careers at UC Berkeley EYH; Led a yearly bioinformatics workshop "Genome Detectives"

LETTERS TO A PRE-SCIENTIST 2017 – 2018

- *Volunteer*: Exchanged letters with a pen pal about science careers

DAVIS SCIENCE COLLECTIVE 2014 – 2016

- *Volunteer*: Promoted science through the Davis Public Library; Helped 5<sup>th</sup> graders with science fair project ideas and experiential designs

## **ADVISEES**

*Undergraduate Students:*

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- Leah Spalding (July 2020 – September 2020) \*via NSURP
- Donito Burgess (June 2020 – September 2020) \*via NSURP
- Jordan Bryan (June 2020 – September 2020) \*via NSURP
- Neil Brahmabhatt (January 2018 – June 2020)
- Jolie Lobrutto (September 2018 – June 2019) \*co-advised with Lena Capece
- Katelin Jones (June 2018 – September 2018)
- Tess McDaniel (June 2018 – September 2018)
- Hannah Kang (September 2017 – June 2018) \*co-advised with Marina LaForgia
- Katie Somers (September 2017 – June 2018)

## *High Schools Students:*

- Henna Hundal, Young Scholars Program (June 2014 – August 2014)

## **SKILLS & INTERESTS**

COMPUTER SKILLS: Coding and data analysis in Python and R. Basic knowledge of UNIX and HTML/CSS. Proficient in 16S, ITS and 18S amplicon analysis. Experience with microbial metagenome assembly, annotation and binning.

INTERESTS: photography, theatre, reading, baking, knitting, mountain biking, paddle boarding, rock climbing, backpacking, skiing, graphic design, science communication