E. Maggie Sogin

Curriculum Virae

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Dr. (Emilia) Maggie Sogin
University of California, Merced

Assistant Professor
Molecular and Cell Biology

EDUCATION & PROFESSIONAL EXPERIENCE

Since 01/2021 — ***Assistant Professor,*** Department of Molecular and Cellular Biology, University of California at Merced, Merced, California, USA

01/2020 to 11/2020 — ***Project Leader,*** Department of Symbiosis, Max Planck Institute for Marine Microbiology, Bremen, DE

- Leadership role in Department including student mentorship and lead on major departmental project

05/2019 to 11/2020 — ***MarMic Faculty***, Max Planck Research School for Marine Microbiology, Bremen, DE

- Mentorship of Bachelors, Masters and PhD students
- Developing and teaching graduate course materials, workshops, guest lectures

01/2016 to 12/2019 — ***Post-doctoral Scientist,*** Department of Symbiosis, Max Planck Institute for Marine Microbiology, Bremen, DE

- Analytical methods for marine metabolomics
- Coastal sediment biogeochemistry
- Mass spectrometry imaging of symbiotic associations
- Metagenomic and metatranscriptomics of marine rhizospheres
- Integrative exploratory analysis in 'omics research

04/2015 to 12/2015 — ***Post-doctoral Associate***, Hawaii Institute of Marine Biology, Kaneohe, HI

- Preparation of tag sequencing libraries for Illumina sequencing

04/2015 — **PhD, University of Hawaii, Manoa, HI**

Department of Zoology & Hawaii Institute of Marine Biology
Advisor: Dr. Ruth D. Gates
Thesis title: A metabolomic investigation in reef building corals: development and utility of metabolite profiling tools

08/2014 to 04/2015 — ***Research Assistant,*** Center for Microbial Oceanography, Research and Education, University of Hawaii, Manoa, HI

- Preparation of tag sequencing libraries for Illumina sequencing
- Integration of metabolomics and tag sequencing data

2011 to 2014 — ***Hawaii EPSCoR Graduate Fellow,*** Hawaii Institute of Marine Biology, Kaneohe, HI

- Developed metabolomic tools for reef-building corals
- Performed field and laboratory experiments

2009 to — ***Teaching Assistant,*** University of Hawaii, Manoa, HI

- Responsible for teaching undergraduate laboratories

2011

05/2009 ***ScB, Honors*, Brown University, Providence, RI**

Marine Biology, Department of Ecology and Evolutionary Biology
Advisors: Mark Bertness, Anne Cohen (Woods Hole Oceanographic Institute)
Thesis title: The impacts of ocean acidification on the development of the larval she of the New England Bay Scallop (*Argopecten irradians*)

2008 **Three Seas Program, Northeastern University, Boston, MA**

- Trained in field and laboratory techniques for marine ecologists
- AAUS Scientific certification

PUBLICATIONS

Coauthors: ** Undergraduate student ; * Graduate student
google scholar

12. **Sogin EM**, Kleiner M, Borowski C, Gruber-Vodicka H, Dubilier N (2021) Life in the dark: phylogenetic and physiological diversity of chemosynthetic symbioses. **Annual Review of Microbiology**, in press.

11. Bennet GM, Heath-Heckman E, and **Sogin EM** (2021) Finding needles in haystacks and inferring their function: challenges and successes in beneficial symbiosis research. **mSystems**. 10.1128/mSystems.00243-21
**commentary*

10. **Sogin EM**, Leisch N, Dubilier N, Liebeke M (2020) Chemosynthetic symbioses. **Current Biology**. https://doi.org/10.1016/j.cub.2020.07.050
**Invited primer into the field*

9. **Sogin EM,** Puskas E**, Dubilier N, Liebeke M. (2019) Marine metabolomics: a method for the non-targeted measurement of metabolites in seawater by gas-chromatography mass spectrometry**. mSystems.** https://doi.org/10.1128/mSystems.00638-19*
**Article was selected as the Editors' Pick*
Role: I developed a new method for describing metabolite composition in seawater samples using GC-MS techniques that until now were unavailable for seawater samples.

8. Geier B*, **Sogin EM**, Janda M*, Kompauer M, Michellod D*, Dubilier N, Liebeke M. (2019) Spatial metabolomics of in situ, host-microbe interactions. **Nature Microbiology**, https://doi.org/10.1101/555045
Role: I developed the bioinformatic pipeline needed to combine mass spectrometry imaging data with fluorescence in situ microscopy data that is the foundation of metaFISH.

7. Wilkins LGE, Leray M, Yuen B, Peixoto R, Pereira TJ, Bink HM, Coil DA, Duffy JE, Herre EA, Lessios H, Lucey N, Mejia LC, O'Dea A, Rasher DB, Sharp K, **Sogin EM**, Thacker RW, Vega Thurber R, Wcislo WT, Wilbanks EG, Eisen JA. (2019) Host-associated microbiomes and their roles in marine ecosystem functions. ***PloS Biology*. *doi*:** 10.1371/journal.pbio.3000533

6. **Sogin EM,** Putnam HM, Nelson CE, Anderson P, Gates RD (2017). Interspecific congruency of the coral holobiont metabolome with symbiotic bacteria, archaea and *Symbiodinium c*ommunities. ***Environmental Microbiology Reports****. doi:* 10.1111/1758-2229.12541
   This work involved integrating microbial community data with metabolomics results using a correlative analytical approach.

5. **Sogin EM**, Putnam HM, Anderson P, Gates RD (2016). Metabolomic signatures of increases in temperature and ocean acidification from the reef-building coral, *Pocillopora damicornis*. ***Metabolomics****.* doi:10.007/11306-016-0987-8
   This work involved integrating metabolomics data with physiological metrics of coral health.

4. Claar CD, Fabina NS, Putnam HM, Cunning R, **Sogin EM**, Baum JK, and Gates RD (2015). Embracing complexity in coral-algal symbiosis. **Algal Symbioses**. (Book Chapter)

3. **Sogin EM**, Anderson P, Williams P, Chen CS, Gates RD (2014). Application of ^{1}H-NMR metabolomic profiling for reef-building corals. ***PLoS One****:* doi: 10.1371/journal.pone.0111274

2. Yost DM, Wang LH, Fan TY, Chen CS, Lee RW, **Sogin EM** and Gates RD (2013). Diversity in skeletal architecture influences biological heterogeneity and *Symbiodinium* habitat in corals. ***Zoology*** 116(5): 262-269

1. Allen JJ, Mäthger LM, Barbosa A, Buresch KC, **Sogin E,** et. al. (2010) Cuttlefish dynamic camouflage: responses to substrate choice and integration of multiple visual cues. ***Proceedings of the Royal Society: Biological Sciences*** 1684:1031-1039

-Pre-prints in review-

Sogin EM, Michellod D*, Gruber-Vodicka H, Bourceau P*, Geier B, Meier D*, Seidel M, Ahmerkamp S, Schorn S, D'Angelo G, Procaccini G, Dubilier N, Liebeke M. (2021) Sugars dominate the marine rhizosphere. ***bioRxiv***, https://doi.org/10.1101/797522
Link to outreach article describing our study system

CURRENT AND PENDING SUPPORT

Current

Eisen J (PI), Stachowicz J (CO-PI), **Sogin EM (Co-PI)**. (2020–2022) *Zostera marina* as a model systems for marine symbioses, Gordon and Betty Moore Foundation. *$300,000, Awarded*

Pending

Nishiguchi, M (PI), Bennett G (Co-PI), Frank C (Co-PI), **Sogin EM (Co-PI)**, Heath-Heckman E (Co-PI) (2021-2026) BII: INSITE: Institute for Symbiotic Interactions, Training and Education. National Science Foundation. *$12,500,000*, *Pending*

FELLOWSHIPS & AWARDS

Jan 2019	*AWARD:* Sign up! Career building workshop for excellent post-docs part of the MPG; Berlin, Germany
July 2018	*AWARD:* Tom Brock Award for Most Innovative Research by an Early Career Scientist, International Society for Microbial Ecology Symposium, Leipzig, DE press release
2014	*AWARD:* University of Hawaii Dai Ho Chun Fellowship ($1500)
2011-2014	*RESEARCH FELLOWSHIP:* University of Hawaii EPSCoR ECOGEM doctoral fellowship ($77,000)
2013	*AWARD:* Best poster prize for PhD student during the annual Hawaii EPSCoR Meeting
2012	*RESEARCH FELLOWSHIP:* National Park Service, George Melendez Wright Climate Change Fellowship ($19,962)
2011	*AWARD:* Mai Tegner Award, Best paper in applied ecology, Western society of Naturalists, Vancouver, WA
2011	*RESEARCH FELLOWSHIP:* NSF East Asian and Pacific Island Summer Institute Fellow ($8,100)

STUDENT MENTORSHIP

09/2018 - *current*
Caroline Zeidler, Masters and PhD Student
Thesis: *Bioplastic-eating animals: PHA-degrading enzymes in a chemosymbiotic worm*

03/2019
Miriam Sternel, Bachelors Student
Thesis: *Exocellular metabolomics of three spring blooms in the North Sea*
Currently a Masters student at the University of Oldenburg

2017
David Benito, MarMic Student
Lab rotation, Mass spectrometry imaging of gutless oligochaetes
Currently a PhD student at the Max Planck Institute for Marine Microbiology

2017
Matthew Schechter, MarMic Student
Lab rotation, Integrating metagenomics and metabolomics data from a deep-sea mussel
Currently a PhD student at the University of Chicago

2015
Jennifer Pendleton, High School Student
St Joseph's Academy for girls, St. Louis MO
Virtual mentorship

2014
Rene Francolini, Undergraduate Student
Carnegie Mellon University
Currently a researcher at Woods Hole Oceanographic Institute

2013
Laura Michenfelder, High School Student
St Joseph's Academy for girls, St. Louis MO
Virtual mentorship

2013 **Kelly Anderson**, Marine Science Coordinator
Coordinator for American Samoa Community College
**I mentored Kelly in laboratory techniques so she could share them with her students in American Samoa*

2012 **Daniel K. Jennings-Kam,** Undergraduate student
Native Hawaiian student at University of Hawaii at Hilo

TEACHING EXPERIENCE

Spring 2021 **Bio120: General Microbiology**
University of California at Merced
Delivered course for general microbiology, instructor of record

2020 **Symbiosis Practical Laboratory: Metabolomics**
Max Planck Institute for Marine Microbiology
Masters students
Co-developed & taught course material for a practical laboratory for MarMic masters students

2018-2020 **Making plots with ggplot2**
Max Planck Institute for Marine Microbiology
Masters and PhD student workshop
Developed and taught course material for making publication quality figures in R

2014 **Omics Data workshop**
Hawaii Institute for Marine Biology
Masters and PhD student workshop (3-days)
Co-developed and taught course material for multivariate data analysis in R

2014 **Principles of Genetics Laboratory**
University of Hawaii at Manoa
Undergraduate laboratory course
Lead laboratory course for Biology majors in Genetics

2010 **Zoology for Non-majors, writing intensive**
University of Hawaii at Manoa
Undergraduate laboratory course for non-majors
Head teaching assistant for non-major course; responsible for organizing and teaching other graduate assistants course material; responsible for teaching writing intensive section

2009-2010 **Zoology for Non-majors**
University of Hawaii at Manoa
Undergraduate laboratory course for non-majors
Teaching assistant for non-major course

2009 **Principles of Ecology**
Brown University
Undergraduate upper division course in ecology
Teaching assistant, lead discussion sections

COMMUNITY SERVICE & OUTREACH ACTIVITIES

2021 Associate Editor for mSystems
2020 Co-editor for upcoming Special Frontiers Issue In Marine Science: Applying metabolomics to questions in marine ecology and ecophysiology
2020 Co-convener for upcoming Early Career Scientist session at International Society for Microbial Ecology (ISME-18), Cape Town, South Africa
2020 Co-chair for upcoming symposium session at International Coral Reef Symposium (ICRS-14), Bremen, Germany
Theme 3- How do metabolic processes underpin the health and function of reef ecosystems?
2014**,** 2012 Volunteer, Testers Symposium, Honolulu, HI
2013 Public presentation, "Together forever, I can never escape you!", Nerd Night Honolulu, HI
2012 Volunteer, Center for Ocean of Science Education and Excellence (Ocean Exposition), Honolulu, HI
2012 Volunteer, Regional Science Fair Judge, Honolulu, HI
2010- 2011 Graduate Student Representative, University of Hawaii at Manoa, Zoology Department, Honolulu, HI

Invited Peer review for following journals:
ISME, Scientific Reports, Marine Chemistry, Coral Reefs, Comparative biochemistry and physiology, Metabolomics
AD Hoc reviewer for NSF: OCE-BIO (2017)

RECENT INVITED TALKS

2020 *Metabolites shape host-microbial interactions in the sea*. Invited speaker at UC Merced, California.
2019 *Seagrasses secrete sugars to their rhizospheres making them the sweet spots in the sea*. Invited speaker for the Isthmobiome Workshop, Bocas del Toro, Panama
2019 *Exploring the metabolite interface of host-microbe interactions in the sea.*
Guest lecture for master's course Current trends in Ecology and Evolution at Universiteit van Amsterdam.
2018 *From a gutless worm to sweetening of the seas.* Invited seminar for the Department of Fundamental Microbiology, Université de Lausanne

SELECT PRESENTATIONS

† Oral Presentation; ‡Poster Presentation

† **Sogin EM**, Meier D, Gruber-Vodicka H, Seidel M, Michellod D, Hach PF, Dittmar T, Dubilier N, Liebeke M (2018). Sweetening the sea: sugars excreted by seagrass stimulate a marine rhizosphere. *17th International Symposium on Microbial Ecology*. Leipzig, Germany.
**Awarded Tom Brock Award for most innovative research by an early career scientist*

ǂ **Sogin EM**, Wippler J, Michellod D, Geier B, Dubilier N, Liebeke M (2017) Leveraging metabolomics to explore nutrient acquisition in a gutless marine worm. *GRC: Animal-Microbe Symbiosis*. Mount Snow, VT, USA

† **Sogin EM,** Putnam HM, Nelson CE, Anderson P, Gates RD (2016). Interspecific congruency of the coral holobiont metabolome with symbiotic bacteria, archaea and *Symbiodinium* communities. 13th *International Coral Reef Symposium*, Honolulu, HI, USA

† **Sogin EM,** Putnam H and Gates RD (2014) Variation in coral metabolite production after exposure to global climate change stressors is species specific. *Ocean Sciences Meeting*, Honolulu, HI, USA

ǂ **Sogin EM**, Anderson P, Williams P, Horgen FD and Gates RD (2013) Betaine expression links to coral performance. *EPSCoR State Wide Meeting*, Knoxville, TN, USA

† **Sogin EM** and RD Gates (2013) Linking coral holobiont communities to metabolite production. *Moorea Coral Reef Long Term Ecological Research All Investigators Meeting*, Santa Barbra, CA

† **Sogin EM,** Anderson PA**,** Chen T, Wang LH, Fan TY, Chen CSC, Horgen D, Gates RD (2012) Using metabolomics to investigate coral-*Symbiodinium* unions. 12th *International Coral Reef Symposium*, Cairns, Australia

WORKSHOPS

2019	Signup! Career Steps for Excellent Female Post-docs part of the Max Planck Society, Germany
12/2019	Invited Participant in Marine Animal-Microbiome workshop funded by The Gordon and Betty Moore Foundation, Bocas Del Toro, Panama
08/2019	Leadership workshop, Max Planck Institute, Bremen, Germany
12/2018	Invited Participant in Marine Animal-Microbiome workshop funded by The Gordon and Betty Moore Foundation, Bocas Del Toro, Panama
02/2014	Light and Photosynthesis, Universidad Nacional Autónoma de México, Puerto Morelos, Mexico (competitive selection)
06/2013	MBI-NIMBioS-CAMBAM summer graduate workshop on connecting biological data with mathematical models. Knoxville, TN, USA (competitive selection)