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Education

2026 – Present	University of California, Berkeley , Postdoctoral Fellow Department of Molecular and Cell Biology. Advisor: Phillip Cleves
2022 – 2025	Carnegie Institution for Science , Postdoctoral Fellow Department of Embryology. Advisors: Phillip Cleves and Nathan Kirk
2016 – 2022	Oregon State University , Ph.D. in Integrative Biology Department of Integrative Biology. Advisor: Virginia Weis
2009 – 2013	University of California, Santa Cruz , B.S. in Marine Biology

Publications

1. **Maruyama S**, Henderson CF, Swinhoe N, Kowalewski GP, Meier EK, Engelke TR, Cleves PA. (2026) Co-option of lysosomal machinery shapes the evolution of the intracellular photosymbiosis supporting coral reefs. *Cell*. doi: 10.1016/j.cell.2026.06.015
2. Renicke C, Swinhoe N, Henderson C, Meier E, Ling L, Keat G, **Maruyama S**, Rangarajan-Paul M, Pringle JR, Cleves PA. (2025) Development of genetic tools for the sea anemone *Aiptasia*, a model system of coral biology. *Genetics*. doi: 10.1093/genetics/iyaf194
3. Sawiccy V, Tjandra NW, **Maruyama S**, Ruggeri M, Vo C, Harmon LA, Poole AZ, Weis VM. (2025) Regulatory role of NADPH oxidases in symbiosis and dysbiosis in the sea anemone *Aiptasia*. *Frontiers in Marine Science*. doi: 10.3389/fmars.2025.1596098
4. Sawiccy V, Cai JB, **Maruyama S**, Silva de Leonardi N, Weis VM, Kirk NL. (2023) Plug and play: A versatile CURE Curriculum for Scientific Process Skills in Upper Division Life Science Labs. *EdArXiv*. doi: 10.35542/osf.io/6be43
5. **Maruyama S**, Unsworth JR, Sawiccy VA, Students of Spring 2021 Z362, Weis VM. (2022) Algae from *Aiptasia egesta* are robust representations of Symbiodiniaceae in the free-living state. *PeerJ*. doi: 10.7717/peerj.13796
6. **Maruyama S**, Mandelare-Ruiz PE, McCauley M, Peng W, Cho BG, Wang J, Mechref Y, Loesgen S, and Weis VM. (2022) Heat stress of algal partner hinders colonization success and alters the algal cell surface glycome in a cnidarian-algal symbiosis. *Microbiology Spectrum*. doi: 10.1128/spectrum.01567-22
7. **Maruyama S**, Weis VM. (2020) Limitations of using cultured algae to study cnidarian-algal symbioses and suggestions for future studies. *Journal of Phycology*. doi: 10.1111/jpy.13102

Teaching Experience

2023	Z 361	Invertebrate Biology Lab	Visiting scholar
2022	BI 223	Principles of Biology Lab	Teaching Assistant

2020-2022	BI 34x	Advanced Human Anatomy and Physiology Lab	Instructor
2021	Z 361	Invertebrate Biology Lab	Teaching Assistant
2020	BI 223	Principles of Biology Lab	Course Design
2017-2020	BI 24x	Intro to Human Anatomy and Physiology Lab	Instructor
2019	Z 425	Embryology and Development Lab	Teaching Assistant
2019	BI 358	Symbioses and the Environment	Instructor
2016-2017	BI 21x	Principles of Biology Lab	Teaching Assistant

Undergraduate Mentoring

2021	Julia Unsworth	Lab Technician
2020-2021	Elizabeth Wirsching	Lab Volunteer
2018-2020	Dylan Gregory	Honors College Thesis and Lab Volunteer
2018-2020	Alanis Morales	STEM Leaders Scholar and Summer Undergraduate Research Experience Scholar
2017-2020	Morgan Conmy	Lab Volunteer
2018	Sean Trobaugh	Summer Undergraduate Research Experience Scholar
2017-2018	Lauren Minshall	Lab Volunteer
2017-2018	Shelley Gale	Undergraduate Internship
2016-2017	Sarra Hawash	STEM Leaders Scholar

Funding

\$138,000	2022 NSF Postdoctoral Research Fellowship in Biology
\$597,545	<i>Contributing author:</i> NSF IOS Grant 2124119
\$2,250	2021 Oregon Lottery Scholarship
\$500	2020 OSU College of Science Student Travel Award
\$1,000	2020 OSU Graduate School Student Travel Award
\$400	2020 OSU Department of Integrative Biology, Zoology Research Fund
\$300	2019 OSU Department of Integrative Biology, Zoology Research Fund
\$400	2018 OSU Department of Integrative Biology, Zoology Research Fund
\$2,000	2017 Phycological Society of America Grants-in-Aid of Research
\$1,000	2017 Society for Integrative and Comparative Biology Grants-in-Aid of Research

Oral Presentations

1. Kirk NL, Bedgood SA, Bourquien J, Rosen E, Winthorne L, Vick A, **Maruyama S**, Harjoe, C, Kayes LJ, Phillips M. (2024) A CURE to limited research opportunities for all: Partnering with students in your classroom to have authentic course-based undergraduate research experiences (CUREs). Keynote talk presented by Kirk NL. *Biennial Conference on University Education in Natural Resources. Virtual Meeting.*

2. **Maruyama S**, Swinhoe N, Kowalewski G, Cleves PA (2024) A symbiosome proteome from the sea anemone *Exaiptasia diaphana* reveals key features of cnidarian-algal symbiosis. 12-minute oral presentation at *Cnidofest 2024*. Bethlehem, PA.
3. **Maruyama S** (2022) The importance of experimental context: the limitations of using cultured algae to study cnidarian-algal symbiosis. 15-minute invited talk for Oregon State University Department of Integrative Biology's "Enlightened Talks". Corvallis, OR.
4. **Maruyama S**, Weis VM (2021) Characterizing symbiosis-specific proteins in Aiptasia symbiosis using aptamer Cell-SELEX. 12-minute oral presentation at the *14th International Coral Reef Symposium*. Virtual Meeting.
5. **Maruyama S**, Weis VM (2021) Characterizing symbiosis-specific proteins in a cnidarian-dinoflagellate symbiosis using aptamer Cell-SELEX. 15-minute oral presentation at the *2021 Society for Integrative Biology and Comparative Biology Annual Meeting*. Virtual Meeting. https://youtu.be/6Gf8_8RTRRw
6. **Maruyama S** (2020) Cnidarian-algal symbiosis. 30-minute *invited guest lecture for Maine Maritime Academy's Marine Botany class*. Remote guest lecture.
7. **Maruyama S**, Mandelare PE, Loesgen S, Weis VM (2018) The role of the symbiont glycome in colonization of cnidarian host, Aiptasia, by heat stressed *Symbiodinium minutum*. 15-minute oral presentation at the *9th International Symbiosis Society Congress*. Corvallis, OR.
8. **Maruyama S**, Weis VM (2018) The role of symbiont glycans and host immunity in the recolonization of the model cnidarian Aiptasia with heat-stressed *Symbiodinium*. 15-minute oral presentation at the *2018 Society for Integrative Biology and Comparative Biology Annual Meeting*. San Francisco, CA.
9. Weis VM, **Maruyama S**, Parkinson JE, Tivey T, Koch J (2017) Symbiotic sea anemones: model organisms for studying impacts of climate change. *Invited Seminar: Walla Walla University Rosario Beach Marine Laboratory*. Anacortes, Washington.
10. **Maruyama S** (2017) Using a cancer detection method to study coral-algae symbiosis. 5-minute oral presentation at the *30th Biology Graduate Student Symposium*. Corvallis, OR.

Poster Presentations

- **Maruyama S**, Henderson C, Swinhoe N, Kowalewski G, Meier EK, Cleves PA (2025) A symbiosome proteome from the sea anemone *Exaiptasia diaphana* reveals key features of cnidarian-algal symbiosis. **Awarded best poster** for both the *Gordon Research Seminar* and *Gordon Research Conference for Animal-Microbe Symbioses*. Portland, ME.

Scientific and Training Workshops

- Dept of Integrative Biology Mentorship Training Workshop. Five hour-long workshop sessions. October 9 – December 4, 2019
- Aiptasia-Dinoflagellate Symbiosis Workshop at Corvallis, OR. July 21-22, 2018

Professional Service

2024

Science Advances

Manuscript review

2024	Environmental Microbiology	Manuscript review
2024	National Science Foundation	Review panel
2024	ISMEJ	Manuscript review
2024	Coral Reefs	Manuscript review
2023	Marine Biology	Manuscript review
2023	Microbiology Spectrum	Manuscript review
2023	Frontiers in Marine Science	Manuscript review
2022	STAR Protocols	Manuscript review
2021	Frontiers in Marine Science	Manuscript review
2020	The Phycoverse Podcast Interview	Interviewed for a 16 minute podcast about cnidarian-algal symbioses (https://www.buzzsprout.com/1274138/6018754)
2020	ISMEJ	Manuscript review
2018	International Symbiosis Society	Program design for 9 th ISS Congress
2017-2018	International Symbiosis Society	Social Media Committee Member - managed Society Twitter and Instagram pages

University and Department Service

OSU Ethnic Minorities United in STEM

- Member 2020 – 2022
- Secretary 2019 – 2020

OSU Department of Integrative Biology – Graduate Student Association

- Fundraising Committee – Head 2017 – 2022
- Equity, Justice, and Inclusion Committee – Member 2019 – 2020
 - Designed and executed a departmental climate survey on EJI issues
- Outreach Committee – Media Coordinator 2016 – 2019
- Outreach Committee – Open House Leader 2017 – 2019

OSU Department of Integrative Biology – Faculty Outreach Committee

- Social Media Coordinator 2016 – 2018

Outreach

BioEyes Lab Tour

July 2023

- Gave three 15-minute lab tours to local high school students

Kyushu University Visiting Students

March 2020

- Gave a 15-minute lab tour to visiting undergraduate students from Kyushu University

Discovery Days

May 2019 and October 2019

- Designed and hosted a table for K-6 students to present sea anemones and demonstrate animal and algal fluorescence. The event hosted over 800 students.

OSU Integrative Biology Open House

May 2017 and May 2018

- Co-lead a department-wide event that hosted over 300 attendees from the local Corvallis community where attendees were able to visit various labs. Involved coordination with graduate students, promotion of the event to local K-12 schools and the community, and setting up a silent auction to raise funds for the Graduate Student Association.

Discovering the Scientist Within March 2018

- Presented 2 x 1 hour activities titled “How do anemones feed?” to middle school girls

OSU Department of Integrative Biology – Social Media 2016 – 2019

- **Instagram.com/OSUIB** – Created and actively maintain departmental Instagram
- **@OSUIB Twitter** – Actively maintain departmental Twitter

“Chasing Coral” Film screening October 2017

- Presented Weis Lab research with live animal demonstrations to attendees

OSU SPARK event: A Call to Life – Variations on a Theme of Extinction April 2017

- Presented Weis Lab research with a poster and live animal demonstration

Discovery Days May 2017

- Presented an ocean acidification activity to children K-6

OSU Integrative Biology Open House May 2017

- Presented Weis Lab projects to visitors of all ages
- Promoted and photographed the event

National Ocean Science Bowl Volunteer February and April 2017

- Officially photographed the event as well as assisted in event set-up

Research Employment

2014	UC Davis – Fish Conservation and Culture Lab	Laboratory Assistant I
	• Husbandry of endangered Delta smelt and assisted in various experiments	
2013	Abwiz Bio Inc.	Research Associate I
	• Development of monoclonal antibodies through phage display	

Miscellaneous Research Experience

University of California, Santa Cruz

Potts Lab Volunteer September 2012 – April 2013

- Maintenance of North Pacific krill, *Euphausia pacifica*, in ocean acidification experiments
- Use of microscopy and ImageJ software to measure krill growth
- Conducted coulometry to measure dissolved inorganic carbon in water samples

University of Queensland, Australia

University of California Education Abroad Program August 2011– November 2011

- Independent research project at Stradbroke Island on the feeding patterns of the soldier crab *Mictyris longicarpus*
- Independent research project at Heron Island on the effect of the sea cucumber,

Holothuria atra, on the biodiversity of benthic algae and abundance of the Symbiodiniaceae

Scripps Institution of Oceanography - University of California San Diego

Gerwick Lab Volunteer

June 2011 – August 2011,
September 2008 – August 2009

- Husbandry of Zebrafish colony and California halibut specimens
- Assisted in PCR, inoculation of pathogens in Zebrafish, maintenance of mammalian cell culture, and California halibut field collections

Patents

- Maruyama T, **Maruyama S**, and Okumura S. Preparation of Gene-Specific Templates for the Use in Single Primer Amplification. US 20140162321

Skills

Molecular/Cell Biology

- Proteomics
- CRISPR-cas9 mutagenesis
- shRNA mediated gene knockdown
- Confocal microscopy
- Immunohistochemistry
- Sequencing library prep
- Aptamer Cell-SELEX
- phage display
- Emulsion PCR
- RT-qPCR
- transfection (electroporation, microinjection, plasmid recombination)
- flow cytometry and cell sorting
- ELISA
- Western Blot
- algal cell culture
- spectrophotometry

Computational

- R
- ImageJ
- Python
- Unix
- Adobe Photoshop
- Adobe Illustrator
- Data-dependent acquisition based proteomics analysis
- Illumina sequencing analysis