

NASTASSIA VIRGINIA PATIN

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RESEARCH INTERESTS

Environmental microbiology, microbial chemical ecology, bioinformatics, host-associated microbiomes, genomics and metagenomics, symbiosis, microbial competition, evolution

EDUCATION AND PROFESSIONAL EXPERIENCE

Georgia Institute of Technology Postdoctoral researcher, Frank Stewart (advisor)	2017 - present
Scripps Institution of Oceanography, University of California, San Diego Ph.D. in Marine Biology, Paul Jensen (advisor)	2011 – 2016
San Francisco State University M.S. in Marine Biology, Frances Wilkerson/Matthew Ashby (co-advisors)	2009 – 2011
Stanford University B.S. in Biological Sciences, minor in French.	2004 –2008

PUBLICATIONS

- Patin NV**, Garfield C, Chebli G, Kubanek J, Stewart FJ. Microbial and chemical features of a toxic dinoflagellate bloom. *Submitted to Applied and Environmental Microbiology*.
- Thamdrup B, Bertagnolli AD, Padilla C, **Patin NV**, Garcia Robledo E, Bristow L, Stewart FJ. 2018. Anaerobic methane oxidation is an important sink for methane in the ocean's largest oxygen minimum zone. *In press at Limnology and Oceanography*.
- Patin NV**, Locklear S, Stewart FJ, Lopanik NB. 2018. Symbiont frequency predicts microbiome composition in a model bacterial-bryozoan symbiosis. *Aquatic Microbial Ecology* 83: 1-13. <https://doi.org/10.3354/ame01901>
- Tuttle RN, Demko A, **Patin NV**, Kapon C, Dorrestein PC, Jensen PR. 2018. The detection of specialized metabolites and their producers in ocean sediments. *Applied and Environmental Microbiology*. <https://doi.org/10.1128/AEM.02830-18>

- Pratte ZA, **Patin NV**, McWhirt M, Caughman A, Stewart FJ. 2018. Association with a sea anemone alters the skin microbiome of clownfish. *Coral Reefs*. <https://doi.org/10.1007/s00338-018-01750-z>
- Patin NV**, Floros D, Dorrestein PC, Hughes C, Jensen PR. 2018. The role of inter-species interactions in *Salinispora* specialized metabolite production. *Microbiology*. 164(7): 946-955.
- Patin NV**, Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. 2018. Microbiome dynamics in a large artificial seawater aquarium. *Applied and Environmental Microbiology*. 84(10): e00179-18.
- Patin NV**, Schorn MA, Aguinaldo K, Lincecum T, Moore BS, Jensen PR. 2016. Effects of actinomycete secondary metabolites on sediment microbial communities. *Applied and Environmental Microbiology*. 83(4): e02676-16.
- Schorn MA, Alanjary MM, Aguinaldo K, Korobeynikov A, Podell S, **Patin NV**, Lincecum T, Jensen PR, Ziemert N, Moore BS. 2016. Sequencing rare marine actinomycete genomes reveals high density of unique natural product biosynthetic gene clusters. *Microbiology*. 162(12): 2075-2086.
- Patin NV**, Duncan K, Dorrestein PC, Jensen PR. 2016. Competitive strategies differentiate closely related species of marine actinobacteria. *The ISME Journal*. 10: 478-490.
- Wietz M, Duncan K, **Patin NV**, Jensen PR. 2013. Antagonistic interactions mediated by marine bacteria: The role of small molecules. *Journal of Chemical Ecology*. 9: 879-891.
- Patin NV**, Kunin V, Lidström U, Ashby M. 2012. Effects of OTU clustering and PCR artifacts on microbial diversity estimates. *Microbial Ecology*. 65(3): 709-19.
- Bagulayan A, Bartlett-Roa JN, Carter AL, Inman BG, Keen EM, Orenstein EC, **Patin NV**, Sato KNS, Sibert EC, Simonis AE, Van Cise AM, Franks PJS. 2012. Journey to the center of the gyre: The fate of the Tohoku Tsunami debris field. *Oceanography* 25(2): 200–207.

AWARDS, HONORS, AND RESEARCH SUPPORT

Peggy Cotter Travel Award, American Society for Microbiology	2019
Best Talk, Georgia Tech Postdoctoral Symposium	2017
Edward A. Frieman Director's Prize for Excellence in Graduate Student Research <i>Awarded for the 2016 ISMEJ publication listed above.</i>	2016
International Society for Microbial Ecology Student Travel Grant	2014, 2016
SIO Department Graduate Student Excellence Travel Award	2014, 2016

San Francisco Bay Scholarship	2009
DAAD Research Internship in Science and Engineering Fellowship	2007
Stanford Undergraduate Research Grant	2006

PRESENTATIONS AND INVITED TALKS

Patin NV . Chemical Ecology in the Age of Microbiome Science and Big Data. Invited Talk . 35 th annual meeting of the International Society of Chemical Ecology. Atlanta, GA.	2019
Patin NV , Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The <i>Ocean Voyager</i> Microbiome. Invited Talk . Kennesaw State University.	2018
Patin NV , Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The <i>Ocean Voyager</i> Microbiome. Invited Talk . Astrobiology Graduate Conference, Georgia Institute of Technology.	2018
Patin NV , Locklear S, Stewart FJ, Lopanik NB. The microbiome of the bryozoan <i>Bugula neritina</i> is shaped by a cytotoxin-producing symbiont. Poster. 7 th Conference on Beneficial Microbes.	2018
Patin NV , Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The <i>Ocean Voyager</i> Microbiome. Poster. 11 th Georgia Tech Bioinformatic Conference.	2017
Patin NV , Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The <i>Ocean Voyager</i> Microbiome. Talk. Georgia Tech Postdoctoral Symposium.	2017
Patin NV , Schorn M, Aguinaldo K, Lincecum T, Moore BS, Jensen PR. Effects of actinomycete secondary metabolites on sediment microbial communities. Poster. International Society for Microbial Ecology-16 Conference.	2016
Patin NV , Duncan K, Dorrestein PC, Jensen PR. Competitive strategies differentiate closely related species of marine actinobacteria. Poster. International Society for Microbial Ecology-15 Conference.	2014
Patin NV , Kunin V, Lidström U, Ashby M. Effects of OTU clustering and PCR artifacts on microbial diversity estimates. Poster. International Society for Microbial Ecology-13 Conference.	2010

TEACHING AND MENTORING EXPERIENCE

Mentor , Chloe Pryor (undergraduate)	fall 2018-present
Taught basic molecular biology laboratory skills to a first-year undergraduate, leading to the generation of high-throughput sequencing data set. Currently teaching basic data analysis (sequence read quality control, taxonomic assessment,	

and statistical analysis via the QIIME2 pipeline).

Mentor, summer REU students (Claire Garfield and Gabriella Chebli) summer 2018
Developed a summer research project incorporating field collections, molecular biology, and metabolomic data generation and analyses for two undergraduate students. Guided students through all components of the project including a 4-day field trip to Florida as the single head scientist in charge of all aspects of the trip (scientific, educational, and logistical). By the end of the summer students had generated two major preliminary data sets that were used in an NSF grant proposal. They also presented their results as a poster and a paper at the Georgia Tech REU Research Symposium.

Mentor, Alicia Caughman (undergraduate) spring 2018
Taught molecular biology and high-throughput sequencing techniques to a Georgia Tech undergraduate over a period of six months, leading to her co-authorship on a publication (Pratte et al. 2018 *Coral Reefs*).

Organizer/lecturer, Georgia Tech Bioinformatics User Group 2017 - present
Conducting tutorials on basic bioinformatic programs and skills for next-generation sequence analysis.

Teaching Assistant, SIO282: Microbial Life in Extreme Environments, UCSD 2016
Prof. Doug Bartlett
Graded exams and conducted exam review sessions. Designed and presented a lecture on microbial symbiosis.

Teaching Assistant, GES56: Changes in the Coastal Ocean, Stanford, CA 2008
Prof. Rob Dunbar
Provided teaching support for class on the science and policy of the California coast. Created and executed lesson plan about the Channel Islands marine reserve.

OUTREACH AND SERVICE

Founder and Organizer, Georgia Tech Bioinformatics User Group (GT-BUG) 2017-present
Established a regular meeting of students, postdoc, and faculty interested in bioinformatics for discussions, tutorials, and invited speakers in order to address community needs in sharing knowledge and experience among scientists from Georgia Tech, Emory University, the Centers for Disease Control and Prevention, and Georgia State University.

Co-organizer, Summer Workshop in Marine Science (SWiMS) 2017, 2018
Helped developed tutorials on incorporating marine science into high school lesson plans and delivered tutorials to workshop attendees (high school teachers).

Visiting speaker, Gwinnett High School. 2018
Spent a day giving short talks and interactive lessons on ocean pollution to 9th graders.

Judge, Morningside Elementary School Science Fair Assessed and ranked the quality of 3 rd -5 th grade science fair projects.	2017, 2018
Visiting speaker, Northwestern Middle School Presented short talks and interactive lessons on microbiology to 6 th and 7 th graders.	March 2017
Co-author: Don't tax future scientists out of existence. Op-ed. Atlanta Journal-Constitution. http://getschooled.blog.myajc.com/2017/11/28/opinion-dont-tax-future-scientists-and-engineers-out-of-existence/	2017
Co-coordinator, Scripps Community Outreach Program for Education Facilitated educational outreach opportunities at SIO and volunteered for these opportunities.	2013 – 2016
Student Representative, SIO Heritage Committee Generated recommendations to the UC San Diego administration for the upkeep and preservation of historical buildings, facilities, and other resources.	2015 - 2016
Organizer, Microbial Oceanography Journal Club Organized monthly paper discussions for graduate students and postdocs.	2012 –2014
Member, Marine Biology Curricular Group Student Committee Wrote evaluations for SIO faculty members based on course evaluations, instructor evaluations, and student feedback.	2012, 2013
Volunteer, Sea Lion Bowl, National Ocean Sciences Bowl Assisted with preparation and logistics of two annual high school marine science quiz bowls.	2009, 2010

FIELD EXPERIENCE

Mote Marine Lab, Sarasota, Florida Led the microbial sampling of blue hole formations in the Gulf of Mexico as part of an interdisciplinary, exploratory expedition. Collected water and sediment samples over four days of field work via SCUBA diving and robotic lander deployment, in collaboration with Mote Marine Laboratory and Florida Atlantic University.	2019
Mote Marine Lab, Sarasota, Florida Organized and led a field collection experiment to the southwest coast of Florida with two undergraduate students. Collected water samples from twelve sites and size-fractionated for particle-associated and free-living microbial community analyses. Taught all methods to the accompanying students.	2018
Gump Research Station, Mo'orea, French Polynesia Collected crabs for gut microbiome analyses. Conducted feeding experiments on crabs for gut transcriptome analyses. Collected seaweeds for study on nutrient	2017

loads and algal microbiomes. Sampled coral over a 48-hour period for diel microbiome study.

Carrie Bow Cay Field Station, Belize Conducted <i>in situ</i> experiments to detect microbial bioactive compounds in marine sediments and to assess effects of actinomycete compounds on natural communities.	2014, 2015
Viti Levu, Fiji Conducted <i>in situ</i> experiments on microbial chemical competition. Collected sediment samples for cultivation of actinomycete bacteria.	2014
UNOLS cruise, Bahamas Collected sediment samples for cultivation of actinomycete bacteria and culture-independent sediment community analyses.	2013
UNOLS cruise, Yucatán Peninsula, Mexico Collected sediment, algal, and invertebrate samples for cultivation of actinomycete bacteria.	2012

PROFESSIONAL ASSOCIATIONS

American Association for the Advancement of Science
The American Society of Microbiology

OTHER

Citizenship: United States and Switzerland
Languages: Proficient in French and German, some knowledge of Spanish
Society Memberships: Union of Concerned Scientists, 500 Women Scientists, Sierra Club, Surfrider Foundation
Other: AAUS Scientific Diver, PADI Divemaster