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 — 2017 - present
Postdoctoral researcher, Frank Stewart (advisor)

Scripps Institution of Oceanography, University of California, San Diego — 2011 – 2016
Ph.D. in Marine Biology, Paul Jensen (advisor)

San Francisco State University — 2009 – 2011
M.S. in Marine Biology, Frances Wilkerson/Matthew Ashby (co-advisors)

Stanford University — 2004 –2008
B.S. in Biological Sciences, minor in French.

PUBLICATIONS

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. *Conditionally accepted at Limnology and Oceanography.*

Patin NV, Locklear S, Stewart FJ, Lopanik NB. 2018. Symbiont frequency predicts microbiome composition in a model bacterial-bryozoan symbiosis. *Conditionally accepted at Aquatic Microbial Ecology*.

Tuttle RN, Demko A, **Patin NV**, Kapono C, Dorrestein PC, Jensen PR. 2018. The detection of specialized metabolites and their producers in ocean sediments. *In press at Applied and Environmental Microbiology.*

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.

WORKS IN PROGRESS

Generating a metatranscriptome of the bryozoan *Bugula neritina* and associating gene transcript levels with changes in environmental conditions.

Generating and analyzing the virome of the Georgia Aquarium *Ocean Voyager* water column over a short (48-hour) time period.

Identifying the role of the gut microbiome in processing bioactive seaweed compounds in the tropical crab *Porphyra rotundifrons.*

AWARDS, HONORS, AND RESEARCH SUPPORT

Best Talk, Georgia Tech Postdoctoral Symposium 2017

Edward A. Frieman Director’s Prize for Excellence in Graduate Student Research 2016

Awarded for the 2016 ISMEJ publication listed above.

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, Locklear S, Stewart FJ, Lopanik NB. Title TBD. **Invited Talk**. 35th annual meeting of the International Society of Chemical Ecology. 2019

Patin NV, Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The *Ocean Voyager* Microbiome. **Invited Talk**. Kennesaw State University. 2018

Patin NV, Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The *Ocean Voyager* Microbiome. **Invited Talk**. Astrobiology Graduate Conference, Georgia Institute of Technology. 2018

Patin NV, Locklear S, Stewart FJ, Lopanik NB. The microbiome of the bryozoan *Bugula neritina* is shaped by a cytotoxin-producing symbiont. Poster. 7th Conference on Beneficial Microbes. 2018

Patin NV, Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The *Ocean Voyager* Microbiome. Poster. 11th Georgia Tech Bioinformatic Conference. 2017

Patin NV, Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The *Ocean Voyager* 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 2017, 2018
Assessed and ranked the quality of 3rd-5th grade science fair projects.

Visiting speaker, Northwestern Middle School March 2017
Presented short talks and interactive lessons on microbiology to 6th and 7th graders.

Co-author: Don't tax future scientists out of existence. Op-ed. 2017
Atlanta Journal-Constitution.
http://getschooled.blog.myajc.com/2017/11/28/opinion-dont-tax-future-scientists-and-engineers-out-of-existence/

Co-coordinator, Scripps Community Outreach Program for Education 2013 – 2016
Facilitated educational outreach opportunities at SIO and volunteered for these opportunities.

Student Representative, SIO Heritage Committee 2015 - 2016
Generated recommendations to the UC San Diego administration for the upkeep and preservation of historical buildings, facilities, and other resources.

Organizer, Microbial Oceanography Journal Club 2012 –2014
Organized monthly paper discussions for graduate students and postdocs.

Member, Marine Biology Curricular Group Student Committee 2012, 2013
Wrote evaluations for SIO faculty members based on course evaluations, instructor evaluations, and student feedback.

Volunteer, Sea Lion Bowl, National Ocean Sciences Bowl 2009, 2010
Assisted with preparation and logistics of two annual high school marine science quiz bowls.

FIELD EXPERIENCE

Mote Marine Lab, Sarasota, Florida 2018
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.

Gump Research Station, Mo'orea, French Polynesia 2017
Collected crabs for gut microbiome analyses. Conducted feeding experiments on

crabs for gut transcriptome analyses. Collected seaweeds for study on nutrient loads and algal microbiomes. Sampled coral over a 48-hour period for diel microbiome study.

Carrie Bow Cay Field Station, Belize 2014, 2015
Conducted *in situ* experiments to detect microbial bioactive compounds in marine sediments and to assess effects of actinomycete compounds on natural communities.

Viti Levu, Fiji 2014
Conducted *in situ* experiments on microbial chemical competition. Collected sediment samples for cultivation of actinomycete bacteria.

UNOLS cruise, Bahamas 2013
Collected sediment samples for cultivation of actinomycete bacteria and culture-independent sediment community analyses.

UNOLS cruise, Yucatán Peninsula, Mexico 2012
Collected sediment, algal, and invertebrate samples for cultivation of actinomycete bacteria.

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