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RESEARCH INTERESTS

Marine microbial ecology, bioinformatics, host-associated microbiomes, genomics and metagenomics, microbial competition, evolution

EDUCATION AND PROFESSIONAL EXPERIENCE

Georgia Institute of Technology Postdoctoral researcher Advisor: Frank Stewart Co-advisor: Kostas Konstantinidis (as of February 2019)	2017 - present
Scripps Institution of Oceanography, University of California, San Diego Ph.D. in Marine Biology Advisor: Paul Jensen	2011 – 2016
San Francisco State University M.S. in Marine Biology Advisor: Frances Wilkerson Co-advisor: Matthew Ashby	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 dynamics of a toxic dinoflagellate bloom. *Under review at Applied and Environmental Microbiology*.
- Thamdrup B, Steinsdottir HGR, Bertagnolli AD, Padilla CC, **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. *Limnology and Oceanography* 9999: 1-17. doi: 10.1002/lno.11235
- 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. doi:10.3354/ame01901

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

CURRENT RESEARCH PROJECTS

Comparing the gut microbiome of fasting humpback whales to feeding whales to determine how microbes regulate marine mammal feeding metabolism.

Tracking changes in the human gut microbiome over the course of a norovirus infection.
Determining whether the microbiome returns to pre-infection baseline composition with regards to taxonomy, function, both, or neither.

Analyzing the water column and sediment microbiomes of blue hole formations in the Gulf of Mexico as part of an interdisciplinary team studying the geochemistry and biology of these shallow oxygen minimum zones.

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 , Pratte ZA, Regensburger M, Gilde K, Hall E, Dove ADM, Stewart FJ. The <i>Ocean Voyager</i> Microbiome. Poster. American Society for Microbiology Microbe 2019 Conference.	2019
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. 2017
The *Ocean Voyager* Microbiome. Talk. Georgia Tech Postdoctoral Symposium.
- Patin NV**, Schorn M, Aguinaldo K, Lincecum T, Moore BS, Jensen PR. 2016
Effects of actinomycete secondary metabolites on sediment microbial communities. Poster. International Society for Microbial Ecology-16 Conference.
- Patin NV**, Duncan K, Dorrestein PC, Jensen PR. 2014
Competitive strategies differentiate closely related species of marine actinobacteria. Poster. International Society for Microbial Ecology-15 Conference.
- Patin NV**, Kunin V, Lidström U, Ashby M. 2010
Effects of OTU clustering and PCR artifacts on microbial diversity estimates. Poster. International Society for Microbial Ecology-13 Conference.

TEACHING AND MENTORING EXPERIENCE

- Mentor**, Zoë Dietrich (summer REU student) summer 2019
Guided student through sample processing and analysis of marine water column and sediment samples obtained from a blue hole field expedition. By the end of the summer the student had produced high-quality amplicon sequence data and interpreted the results in oral presentation, poster, and written report formats. The student will continue contributing to this project by participation in upcoming field work and data analysis.
- 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**, Claire Garfield and Gabriella Chebli (summer REU students) 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 on topics including amplicon and metagenome sequencing data analysis, phylogenetics, and ecological statistics.

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-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 2019
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.

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