Curriculum Vitae for **Mark Little**

Ph.D. Candidate in Cell and Molecular Biology (SDSU/UCSD)

Personal:

Mark Little
SDSU Biology Department, NLS 301
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https://scholar.google.com/citations?user=3R9wS1cAAAAJ&hl=en

Education:

B.S. in Biology with an Emphasis in Marine Biology (SDSU 2008-2013)
M.S. in Microbiology (SDSU 2014 - 2016, Coursework completed, transferred to Ph.D. program)
Ph.D. in Cellular and Molecular Biology (SDSU/UCSD 2016 - Present)
Dissertation title: Phage ecology in marine holobiont disease and competition

Honors & Awards:

Harold and June Grant Memorial Scholarship SDSU (2015)
Elliott Family Fund Scholarship SDSU (2016)
Most Innovative and Creative Poster, Graduate Student Symposium, SDSU (2016)
Jordan D. Covin Memorial Scholarship SDSU (2015, 2018)
Graduate Student Travel Award SDSU (2019)

Laboratory Experience

Research Associate II (Mentors: Dr. Forest Rohwer, Dr. Juris Grasis, and Dr. Linda Wegley Kelly)
2011 – 2014
Teaching Associate and Graduate Student Researcher, San Diego State University (Mentors: Dr. Forest Rohwer and Dr. Linda Wegley Kelly)
2015 – Present

Classes taught:
Teaching Associate (SDSU) for Bio 101L, 200L, 204L, 515L (2014-2015, 2018-present).
Specimen collection from San Diego coastal marine ecosystems and lab preparation.
Coordinator: Constance Gramlich
Teaching Associate - Biology 366L: Biochemistry, Cellular and Molecular Biology Lab I. (2016-2018)
Teaching Assistant - Marine ecology and metagenomics summer course for HBRC students at UCLA (2015)
Teaching Assistant - Metagenomics and metabolomics lab course for Filipino students at De La Salle University, Manila, Philippines (2015)

Teaching Assistant - Marine ecological metagenomics summer course in US (2014) for Indonesian and American students - Marine ecology and biodiversity section
Teaching Assistant - Marine Ecology summer course in Bali (2013) for Indonesian and American students - Marine Ecology and Biodiversity section

Field Expeditions:
NOAA HARAMP: Main Hawaiian Islands (2016 – 4 weeks)
Anilao, Philippines: ARMS retrieval (2015 – 4 weeks)
NOAA MARAMP: Northern Mariana Islands (2014 - 4 weeks)
Wachapreague, Virginia: ARMS retrieval (2013 – 2 weeks)
Fort Pierce, Florida: ARMS retrieval (2013 – 2 weeks)
Carrie Bow Caye, Belize: ARMS retrieval (2013 – 2 weeks)
Bali, Indonesia: ARMS retrieval (2013 - 6 weeks)
San Diego County lakes: *Hydra* spp. biogeography project (2011- monthly trips)

Research Interests:
I am interested in investigating the microbial and viral ecological dynamics associated with animal host holobionts, more specifically, in the mucosal surfaces in humans and scleractinian corals. These systems are unique in the sense that they provide a complex niche for bacteriophage that predate on microbial pathogens that antagonize the host. I hope that my research will lead to advancements in therapies that utilize viruses to manipulate conditions favorable for their animal hosts, which will be applied across diverse environments ranging from human clinical settings to large-scale ecosystem treatments for preservation and restoration.

In addition to my research I am involved in teaching and community outreach. I have taught classes and workshops on a variety of topics including marine ecology, metagenomics, molecular biology, and experimental microbial ecology.

Publications:
M. Little*, E.E. George*, M.G.I. Arts, J. Shivak, S. Benler, J. Huckeba, Z.A. Quinlan, V. Boscaro, B. Mueller, A.G. Cobián Güemes, M.I. Rojas, B. White, D. Petras, C.B. Silveira, A.F. Haas, L. Wegley Kelly, M.J.A. Vermeij, R.A. Quinn, P.J. Keeling, P.C. Dorrestein, F. Rohwer, and T.N.F. Roach. Three-dimensional molecular cartography of the Caribbean reef-building coral Orbicella faveolata. Frontiers in Marine Science. (Accepted)

T.N.F. Roach*, **M. Little***, M.G.I. Arts, J. Huckeba, A.F. Haas, E.E. George, R.A. Quinn, A.G. Cobián-Güemes, D.S. Naliboff, C.B Silveira, M.J.A. Vermeij, L. Wegley Kelly, P.C. Dorrestein, F. Rohwer, A multi-omic analysis of in situ coral-turf algal interactions. Proc. Natl. Acad. Sci. U. S. A. (2020)

M. Little*, M.I. Rojas*, F. Rohwer, Bacteriophage can drive virulence in marine pathogens. Marine Disease Ecology. Oxford University Press. (2020)

C. Ghose, M. Ly, L.K. Schwanemann, J.H. Shin, K. Atab, J.J. Barr, **M. Little**, R.T. Schooley, J. Chopyk, D.T. Pride, The Virome of Cerebrospinal Fluid: Viruses Where We Once Thought There Were None. Front. Microbiol. 10, 2061 (2019).

I. Galtier d'Auriac, R.A. Quinn, H. Maughan, L.-F. Nothias, **M. Little**, C.A. Kapono, A. Cobian, B.T. Reyes, K. Green, S.D. Quistad, M. Leray, J.E. Smith, P.C. Dorrestein, F. Rohwer, D.D. Deheyn, A.C. Hartmann, Before platelets: the production of platelet-activating factor during growth and stress in a basal marine organism. Proc. Biol. Sci. 285 (2018)

J.E. Zlamal, T.K. Raab, **M. Little**, R.A. Edwards, D.A. Lipson, Biological chlorine cycling in the Arctic Coastal Plain. Biogeochemistry (2017)

R.A. Quinn, M.J.A. Vermeij, A.C. Hartmann, I. Galtier d'Auriac, S. Benler, A. Haas, S.D. Quistad, Y.W. Lim, **M. Little**, S. Sandin, J.E. Smith, P.C. Dorrestein, F. Rohwer, Metabolomics of reef benthic interactions reveals a bioactive lipid involved in coral defence. Proc. Biol. Sci. 283 (2016), doi:10.1098/rspb.2016.0469.

B. Knowles*, C.B. Silveira, B*. A. Bailey, K. Barott, V.A. Cantu, A.G. Cobián-Güemes, F.H. Coutinho, E.A. Dinsdale, B. Felts, K.A. Furby, E.E. George, K.T. Green, G.B. Gregoracci, A.F. Haas, J.M. Haggerty, E.R. Hester, N. Hisakawa, L.W. Kelly, Y.W. Lim, **M. Little**, A. Luque, T. McDole-Somera, K. McNair, L.S. de Oliveira, S.D. Quistad, N.L. Robinett, E. Sala, P. Salamon, S.E. Sanchez, S. Sandin, G.G.Z. Silva, J. Smith, C. Sullivan, C. Thompson, M.J.A. Vermeij, M. Youle, C. Young, B. Zgliczynski, R. Brainard, R.A. Edwards, J. Nulton, F. Thompson, F. Rohwer, Lytic to temperate switching of viral communities. Nature. 539, 123 (2016).

J.A. Grasis, T. Lachnit, F. Anton-Erxleben, Y.W. Lim, R. Schmieder, S. Fraune, S. Franzenburg, S. Insua, G. Machado, M. Haynes, **M. Little**, R. Kimble, P. Rosenstiel, F.L. Rohwer, T.C.G. Bosch, Species-specific viromes in the ancestral holobiont Hydra. PLoS One. 9, e109952 (2014).

In Review/Preparation:
M. Little, A. G. Cobián-Güemes, A. Cantu , Y. W. Lim, N. L. Robinett, A. C. Hartmann, M. J. A. Vermeij, L. W. Kelly, G. G. Z. Silva, B. Felts, S. Sandin, E. Sala, J. Smith, B. Zgliczynski, R. A. Edwards, F. Rohwer. Assembling and understanding the holobiont genome consortium from pristine reefs in the Southern Line Islands. (In preparation for submission)

J. Keliher, E. Ransom, **M. Little**, J. B. Geller. A comparison of microbial metagenomes in cryptofaunal sponges and ascidians from Moorea, French Polynesia. (In review)

A. C. Hartmann, E. Ransome, M. A. Timmers, N. K. D. Cahyani, A. W. Angorro, R. A. Quinn, M. Manuel-Santos, I. Wirawati, E. M. Kurniasih, B. Subhan, D. Petras, R. Ravago-Gotanco, N. P. D. Pertiwi, J. M. Casey, J. E. B. Comendador, **M. Little**, M. C. Ablan-Lagman, D. Kurnianto, M. C. Lagumen, M. L. S. Diego-McGlone, A. Sembiring, Y. F. Syamsuni, C. Castor, D. Dumale, R. E. Brainard, V. Hilomen, N. Knowlton, T. M. Lim, A. Collins, H. Madduppa, G. N.

Mahardika, J. B. Geller, P. C. Dorrestein, P. Barber, C. Meyer, F. Rohwer. Small molecule diversity on coral reefs. (In preparation for submission)

A. G. Cobián-Güemes, C. B. Silveira, J. C. R. Cabello, **M. Little**, V. A. Cantú, S. Benler, R. A. Edwards, D. Conrad, F. Rohwer. Virulence factors and loss of diversity in acute cystic fibrosis pulmonary exacerbations discovered through a Cystic Fibrosis Rapid Response strategy. (In preparation for submission)

D. Naliboff, T. N. F. Roach, **M. Little**, K. Green, R. E. Brainard, M. I. Rojas, D. Lipson, F. Rohwer, L. W. Kelly. The crossroads of metabolic diversity and metabolic capacity across coral reefs of the Pacific Ocean. (In preparation for submission)

Professional Memberships:

American Association of Underwater Sciences (AAUS)
International Coral Reef Society (ICRS)
PeerJ Reviewer
Marine Ecology and Biology Student Association SDSU (MEBSA)
Stanford Hopkins Microbiology Course Alumni

Professional Presentations:

M. Little, M. I. Rojas, and F. Rohwer. Prophages in Host-Associated Microbes: The Most Abundant Symbiosis on Earth and Its Relevance in Marine Holobionts. Talk at Gordon Research Seminar in Marine Molecular Ecology, Hong Kong 2019. Invited Speaker.

M. Little, M. I. Rojas, and F. Rohwer. Prophages in Host-Associated Microbes: The Most Abundant Symbiosis on Earth and Its Relevance in Marine Holobionts. Poster at Gordon Research Conference in Marine Molecular Ecology, Hong Kong 2019.

M. Little, M. I. Rojas, and F. Rohwer. Prophages in Host-Associated Microbes: The Most Abundant Symbiosis on Earth and Its Relevance in Marine Holobionts. Talk at Symbiofest 2019, Athens, Georgia.

M. Little and F. Rohwer. Microbial and viral dynamics in coral reef benthic competition. Talk at Graduate Student Symposium at SDSU. May 2017.

M. Little, T. N. F. Roach, Y.W. Lim, L.W. Kelly, M. J. A. Vermeij, F. Rohwer. Elucidating the microbial and viral role in coral-algal competition. Talk at International Coral Reef Society, Oahu, Hawaii. June 2016.

My research in the news:

https://eurekalert.org/pub_releases/2020-06/uoha-bfb060220.php?fbclid=IwAR361LYiVwXauWO2xJLrtv161G58_jaH5iDcAaTP-23mJ_BoJRMFqrOjfXA

https://www.sandiegouniontribune.com/news/health/story/2020-05-14/door-knobs-trash-cans-gas-pumps-citizen-scientists-enlisted-to-help-find-coronavirus-on-everyday-surfaces

https://www.latimes.com/california/story/2020-05-21/citizen-scientists-enlisted-to-help-find-coronavirus-on-everyday-surfaces

https://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=78011&fbclid=IwAR02Dg6j34P3JkSufPlX6cKpe15yIF5PXdMINrF7-GTYHGCZq28abBlc6WI

https://www.eurekalert.org/pub_releases/2020-05/sdsu-rth051220.php

https://www.mauinews.com/news/local-news/2020/06/a-probiotic-for-corals/?fbclid=IwAR08mHmRvlWG6qDd_4KrTwUThy0nOW4sOFuFZuw1i4XvkGzDliBdunCGdzs