

## Curriculum Vitae

### Jamie Susan Foster

Department of Microbiology and Cell Science  
University of Florida Space Life Sciences Lab  
505 Odyssey Way  
Merritt Island, FL 32953  
Tel. 321-525-1047

email: [jfoster@ufl.edu](mailto:jfoster@ufl.edu); <http://www.jamiefosterscience.com>

### Professional Preparation

University of Hawai'i, Honolulu	Ph.D.	Zoology	1996-2000
University of Southern California	M.S.	Biological Sciences	1993-1996
University of Massachusetts, Amherst	B.S.	Zoology	1988-1992

### Professional Experience

2019 -	Full Professor, Department of Microbiology and Cell Science University of Florida, Space Life Science Laboratory, Merritt Island, FL
2012 – 2019	Associate Professor, Department of Microbiology and Cell Science University of Florida, Space Life Science Laboratory, Merritt Island, FL
2005 - 2012	Assistant Professor, Department of Microbiology and Cell Science University of Florida, Space Life Science Laboratory, Merritt Island, FL
2004 - 2005	Postdoctoral Researcher, NASA Ames Research Center, Moffett Field, CA
2003 - 2004	Visiting Scholar, Purdue University, West Lafayette, IN
2001 - 2003	Postdoctoral Researcher, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda, MD

### Peer-Reviewed Publications (Past 10 years; > 50 total; \*corresponding author)

- Belcaid, M, G Casaburi, SJ McAnulty, H Schmidbau, AM Suria, S Moriano-Gutierrez, MS Pankey, TH Oakley, N Kremer, EJ Koch, AJ Collins, H Nguyen, S Lek, Irina Goncharenko, P Minx, E Sodergren, G Weinstock, D Rokhsar, Margaret McFall-Ngai, O Simakov\*, **JS Foster\***, SV Nyholm\* (2019) Symbiotic organs shaped by distinct modes of genome evolution in cephalopods. *PNAS* 116(8) 3030-3035
- Duscher AA, A Conesa, M Bishop, SD Zubizarreta, and **JS Foster\*** (2018) Transcriptional profiling of the mutualistic bacterium *Vibrio fischeri* and a *hfq* mutant under modeled microgravity. *npj Microgravity* 4(1): 25
- Babilonia, J, A Conesa, G Casaburi, C Pereira, AS Louyakis, RP Reid, **JS Foster\*** (2018) Comparative metagenomics of the dominant stromatolite-forming mats of Hamelin Pool, Shark Bay, Western Australia. *Frontiers in Microbiology* 9:1359
- Louyakis, AS, H Gourelé, G. Casaburi, RME Bonjawo, AA Duscher, and **JS Foster\*** (2018) A year in the life of a thrombolite: comparative metatranscriptomics reveals dynamic metabolic changes over diel and seasonal cycles *Environmental Microbiology* 20 (2), 842-861
- Chaturvedi, P., DC Vanegas, BA Hauser, **JS Foster**, MS Sepulveda and EM McLamore\* (2017) Microprofiling real time nitric oxide flux for field studies using a stratified nanohybrid carbon-metal electrode. *Analytical Methods* 9, 6061

- Casaburi, G, I Goncharenko-Foster, AA Duscher and **JS Foster\*** (2017) Transcriptomic changes in an animal-bacterial symbiosis under modeled microgravity conditions. *Scientific Reports* 7:46318
- Louyakis, AS, JM Mobberley, BE Vitek, PT Visscher, PD Hagan, RP Reid, R. Kozdon, IJ Orland, JW Valley, NJ Planavsky, G. Casaburi, **JS Foster\*** (2017) A study of the microbial spatial heterogeneity of Bahamian thrombolites using molecular, biochemical, and stable isotope analyses. *Astrobiology* 17(5): 413-430.
- Foster, JS\*** (2016). Microbialite. In *AccessScience*. McGraw-Hill Education. <https://doi.org/10.1036/1097-8542.422110>
- Warden, JG, G. Casaburi, CR Omelon, PC Bennett, DO Brecker, and **JS Foster\*** (2016) Characterization of microbial mat microbiomes in the modern thrombolite ecosystem of Lake Clifton, Western Australia using whole shotgun metagenomics. *Frontiers in Microbiology* 7:1064.
- Heath-Heckman, EA, **JS Foster**, MA Apicella, WE Goldman, MJ McFall-Ngai\* (2016) Environmental cues and symbiont MAMPs function in concert to drive the daily remodeling of the crypt-cell brush border of the *Euprymna scolopes* light organ. *Cellular microbiology*. doi: 10.1111/cmi.12602
- Paul\*, V, D Wronkiewicz, MR Mormile, **JS Foster** (2016) Mineralogy and Microbial Diversity of the Microbialites in the Hypersaline Storr's Lake, The Bahamas. *Astrobiology* 16: 282-300
- Suosaari, EP, RP Reid\*, PE Playford, **JS Foster**, JF Stolz, G Casaburi, PD Hagan, V Chirayath, IG Macintyre, NJ Planavsky, and GP Eberli (2016) New Insight into Stromatolite Formation in Shark Bay, Western Australia. *Scientific Reports* 6, 20557; doi: 10.1038/srep20557
- Casaburi, G, AA Duscher, RP Reid, and **JS Foster\*** (2016) Characterization of the stromatolite microbiome from Little Darby Island, The Bahamas using predictive and whole shotgun metagenomic analysis. *Environmental Microbiology* 18: 1452-1469
- Mobberley, JM, CLM Khodadad, PT Visscher, RP Reid, P Hagan, **JS Foster\*** (2015) Inner workings of thrombolites: spatial gradients of metabolic activity as revealed by metatranscriptome profiling. *Scientific Reports* 5, 12601; doi: 10.1038/srep12601
- Foster\*, J.S.** and J.A. Lemus (2015) Developing the critical thinking skills of astrobiology students through creative and scientific inquiry. *Astrobiology* 15:89-99.
- Foster\*, J.S.**, R. Wheeler and R. Pamphile (2014) Host-microbe interactions in microgravity: assessment and implications. *Life* 4(2): 250-266.
- Ahrendt, S.R., J.M. Mobberley, P.T. Visscher, L.L. Koss and **J.S. Foster\*** (2014) Effects of elevated carbon dioxide and salinity on the microbial diversity in lithifying microbial mats. *Minerals* 4:145-169.
- Chaturvedi, P., BA Hauser, **JS Foster**, E Karplus; LH Levine, JL Coutts, JT Richards, ES McLamore\* (2014) A multiplexing fiber optic microsensor system for monitoring spatially resolved oxygen patterns. *Sensors & Actuators: B. Chemical* 196:71-79.
- Grant, KC, CLM. Khodadad, and **JS Foster\*** (2014) Role of Hfq in an animal-microbe symbiosis under simulated microgravity conditions. *International Journal of Astrobiology* 13:53-61.
- JHW Saw, M Schatz, MV Brown, D Kunkel, **JS Foster**, H Schick, S Christensen, S Hou, M

- Alam, SP Donachie\* (2013) Cultivation and complete genome sequencing of *Gloeobacter kilaueensis* sp. nov., from a lava cave in Kīlauea Caldera, Hawai‘i. *PLOS ONE* 8(10) e76376.
- Mobberley, JM, CLM Khodadad and **JS Foster\*** (2013) Metabolic potential of lithifying cyanobacteria-dominated thrombolitic mats. *Photosynthesis Research* 118:125-140.
- Foster\***, **JS**, CLM Khodadad, SR Ahrendt and ML Parrish (2013) Impact of simulated microgravity on the normal developmental time line of an animal-bacteria symbiosis. *Scientific Reports* 3:1340.
- Foster\***, **J.S.** (2012) Impact of microgravity on the physiology and genetics of microbes. *Microbiologist* 13:26-30.
- Bowlin, EM, J Klaus, **JS Foster\***, MS Andres, L Custals, and RP Reid\* (2012) Environmental controls on microbial community cycling in modern marine stromatolites. *Sedimentary Geology* 263-264:45-55.
- Khodadad, CLM and **JS Foster\*** (2012) Metagenomic and metabolic profiling of nonlithifying and lithifying stromatolitic mats of Highborne Cay, The Bahamas. *PLOS ONE* 7(5): e38229.
- Mobberley, J.M., M Ortega, **JS Foster\*** (2012) Comparative diversity analyses of modern marine thrombolites by barcoded pyrosequencing. *Environmental Microbiology* 14: 82-100.
- Foster\***, **J.S.**, and N. Shiel-Rolle (2011) Building scientific literacy through summer science camps: a strategy for design, implementation and assessment. *Science Education International* 22:85-98.
- Foster\***, **J.S.**, K.R. Kerney, M.L.Parrish, C.L.M. Khodadad and S.R. Ahrendt (2011) Potential of the *Euprymna/Vibrio* symbiosis as a model to assess the impact of microgravity on bacteria-induced animal development. *Gravitational and Space Biology* 25:44-47.
- Khodadad, C.L.M., A.R. Zimmerman, S. Uthandi, S.J. Green, **J.S. Foster\*** (2011) Taxa-specific changes in soil microbial composition induced by pyrogenic carbon amendments. *Soil Biology and Biochemistry* 43: 385-392.
- Myshrall, K.L., J.M. Mobberley, S.A. Havemann, S.J. Green, P.T. Visscher, R.P. Reid, and **J.S. Foster\*** (2010) Biogeochemical cycling and microbial diversity in the modern marine thrombolites of Highborne Cay, Bahamas. *Geobiology*: 8(4):337-354
- Foster\***, **J.S.**, S.J. Green, S.R. Ahrendt\*, S. Golubic, R.P. Reid, K.L. Hetherington, and L. Bebout. (2009) Molecular and morphological characterization of cyanobacterial diversity in the marine stromatolites of Highborne Cay, Bahamas. *ISME Journal* 3: 573-587.
- Foster\***, **J.S.**, and Drew, J.C. (2009). Astrobiology undergraduate education: students' knowledge and perceptions of the field. *Astrobiology* 9: 325-333.
- Stolz\*, J.F., R.P. Reid, P.T. Visscher, A.W. Decho, R.S. Norman, R.J. Aspden, E.M. Bowlin, J. Franks, **J.S. Foster\***, D.M. Paterson, K.M. Przekop, G.J.C. Underwood, and L. Prufert-Bebout (2009) The microbial communities of the modern marine stromatolites at Highborne Cay, Bahamas. *Atoll Research Bulletin* 567:1-24.
- Foster\***, **J.S.**, S.A. Havemann, A. Singh, and L.A. Sherman (2009) Role of *mrgA* in peroxide and light stress in the cyanobacterium *Synechocystis* sp. PCC 6803. *FEMS Microbiology Letters* 293:298-304.

**Book Chapters (Past 10 years; 4 total; \*corresponding author)**

- Foster\***, **JS** and SJ Green (2011) Microbial diversity in modern stromatolites. In: *Cellular*

*origin, Life in Extreme Habitats and Astrobiology: Interactions with Sediments* (eds J Seckbach, V Tewari) Springer, pp. 385- 405.

- Reid\*, P., **J.S. Foster**, G. Radtke, S. Golubic (2010) Modern marine stromatolites of Little Darby Island, Exuma Archipelago, Bahamas: environmental setting, accretion mechanisms and role of euendoliths. In: *Advances in Stromatolite Geology*, (Reitner, J; Thrauth, M.H.; Stüwe, K.; Yuen, D., Eds.) Springer, Berlin, pp. 77 - 90.
- Foster\***, **J.S.** and J.M. Mobberley (2010) Past, present, and future: microbial mats as models for astrobiological research. In: *Cellular Origin, Life in Extreme Habitats and Astrobiology: Microbial Mats: Modern and Ancient Microorganisms in Stratified Systems*. (J. Seckbach and A. Oren, eds.) Springer, Berlin pp. 563-582.

## Research Funding Awards

### Current Funding

- NASA Space Biology** (PI); 11/01/2018 – 10/31/2021; \$ 309,702; Impact of microgravity on bacteria-induced animal development
- NASA Space Biology** (PI); 8/1/18 – 7/31/21; \$280,818; Effects of modeled microgravity on the induction of bacteria-induced apoptosis during animal development
- NASA Florida Space Grant Consortium** (PI); 09/01/2019 – 08/31/2020; \$25,000; Understanding plant-microbe interactions for applications in spaceflight
- NASA Florida Space Grant Consortium** (Co-I); 09/01/2019 – 08/31/2020; \$25,000; Facilitating knowledge exchange between microbiology and computer science students: a computationally intensive approach to discover new adaptation genes in extreme environments.
- Florida Space Institute: Space Research Initiative** (PI); 3/1/18 – 2/18/19; \$61,684; Elucidating the impact of microgravity on the innate immune response using an animal-bacterial symbiosis.

### Previous Funding (past 10 years)

- NASA Space Biology** (PI); 12/1/13 – 11/30/18; \$491,334; Impact of microgravity on the cell-cell interactions between a mutualistic bacterium and its animal host
- Florida Space Institute: Space Research Initiative** (PI); 3/1/18 – 2/18/19; \$61,684; Elucidating the impact of microgravity on the innate immune response using an animal-bacterial symbiosis.
- Florida Space Grant Consortium**; 4/8/17 – 10/8/18; \$11,000; Impact of modeled microgravity on the beneficial symbiosis between the bobtail squid, *Euprymna scolopes*, and its luminescence bacterium, *Vibrio fischeri*.
- NASA Astrobiology: Exobiology and Evolutionary Biology** (PI); 6/1/14 – 5/31/18; \$369,225; Biodiversity, functional genomics, and carbonate microstructure: an integrated approach to defining the stromatolite microbiome
- Space Research Institute** (PI); 5/31/16 – 5/31/17; \$98,738; Mechanisms underlying microgravity-induced delays in the immune system of an animal-bacteria model system.
- NASA Astrobiology: Exobiology and Evolutionary Biology** (PI); 1/17/12 – 1/16/17; \$795,207 Metatranscriptome and biogeochemistry of marine thrombolitic microbial mats: pathways to biosignatures
- Florida Space Institute** (PI); \$73,984; Dec 17, 2012 – 9/15/14; Effects of microgravity on bacteria-induced animal development

**Florida Space Grant Consortium (Co-I); \$24,599; 09/1/13 – 08/31/14; Portable Biosensor Technology for Monitoring Microbialite Biogeochemistry**

**Florida Space Grant Consortium (PI); \$8,779; 09/1/13 – 08/31/14; Bridging the gap between undergraduate and graduate STEM education: development of a post-baccalaureate internship at the Space Life Sciences Lab**

**NASA Graduate Student Researchers Program (PI); \$90,000; 08/15/10 – 07/31/13; Molecular and metabolic mechanisms of carbon sequestration in marine thrombolites for bioregenerative life support; Graduate Student Fellowship for one of my Ph.D. students.**

**Florida Space Grant Consortium (PI); \$24,668; 08/1/11 – 07/31/12; Effects of microgravity on bacteria-induced animal development**

**Florida Space Grant Consortium (PI); \$5,000; 11/1/10 – 10/31/2011; Effects of microgravity on the development of animal-bacterial symbioses**

**University of Florida College of Agricultural and Life Sciences (PI); \$4000; 09/1/10 – 04/30/11; Integrating research-based activities into distance education courses using reusable learning objects and podcasting**

**Popular Press Media (Past 5 years):**

Discoveries: Strategies for Academic Reading (Japan), NASA Astrobiology Magazine, Science News for Kids, New Scientist (UK); Asahi Shimbun (Japan); Discovery Channel (Canada); The Daily (an iPad newspaper; US); Gainesville Sun (US); WCJB TV20 Technology Spotlight (US); WUFT 89.1 public radio (US) and Independent Florida Alligator (UF).

**Professional Memberships (Past 5 years)**

Florida Branch of American Society for Microbiology – President, Treasurer  
American Society for Gravitational Space Research - Board Member  
International Society for Microbial Ecology - Member  
American Society for Microbiology - Member

**Professional Service for State and National Organizations (Past 5 years):**

American Society for Microbiology Council on Microbial Sciences, 2017 – 2019  
NASA P-Star Grant Review Panel, Group Chief  
NASA Solar Systems Working Grant Review Panel, Group Chief  
NASA Solar Systems Working Grant Review Panel, Review Chair  
American Society for Microbiology Award Nomination Committee, 2015 - 2017  
Editorial Board Member for journal Geobiology 2014 - present  
Editorial Board Member for journal Astrobiology 2014 – 2015  
National Science Foundation Graduate Research Fellowship Program, 2011-2015  
NASA Habitable Worlds Grant Review Panel – Carbon and Life Subpanel Chair  
National Science Foundation Science Technology Center Site Visitor, 2015  
National Science Foundation Integrative Organismal Systems Panel  
NASA Astrobiology Institute Grant Review Panel, Review Chair  
NASA Astrobiology Strategy Meeting, 2014  
NASA Earth Space Science Fellowship Virtual Panel, Chair  
Dept. of Defense National Defense Science and Engineering Graduate Panel  
NASA Planetary Protection Grant Review Panel  
NASA Exobiology and Evolutionary Biology Grant Review Panel

National Science Foundation Dissertation Improvement Grant Panel  
Florida Space Grant Consortium, Board Member, 2008 - present

**University of Florida Service Committees (Past 5 years)**

UF Senate Nominating Committee, 2017 - 2020  
UF Institute of Food and Agricultural Sciences Faculty Assembly (elected), 2015-2019  
UF Undergraduate Honors Committee, 2015 – present  
UF Department of Microbiology Online Masters Committee, Chair, 2014 – present  
UF Undergraduate Curriculum Committee, 2014 - present  
UF Dissertation Award Committee, 2014  
UF Graduate Recruitment Committee, 2013 – present  
UF Undergraduate Research Symposium Committee, Chair, 2012  
Served on Graduate Student Committees from UF, UMiami, Missouri S&T (total 7)

**Ad-Hoc reviewer for the following funding agencies and programs (Past 5 Years):**

Australian Research Council, American Chemical Society Petroleum Research Fund, Florida Space Grant Consortium, Florida Space Research Institute, German Science Foundation, NASA Astrobiology, NASA Planetary Protection, NASA Postdoctoral Program, NASA Earth Space Science Fellowship, National Science Foundation, Netherlands Organization for Scientific Research Ecogenomics, North Carolina Biotechnology Center, Space Florida, United Kingdom Space Agency, Qatar National Science Fund.

**Manuscript Reviewer for the following Scientific Journals (Past 5 years):**

African Journal of Agriculture Research, Antonie van Leeuwenhoek Journal of Microbiology, Applied and Environmental Microbiology, Acta Astronautica, Astrobiology, Biogeochemistry, Bioinformatics, Biological Bulletin, Biotechniques, BMC Genomics, Cosmic Evolution, Environmental Microbiology, Environmental Microbiology Reports, FEMS Microbial Ecology, Frontiers in Microbiology, ISME Journal, Geobiology, Invertebrate Zoology, Geobiology, Geomicrobiology Journal, Gravitational and Space Research, Journal of Chemical Education, Journal of Experimental Marine Biology, Life, Meteoritics & Planetary Science, Microbiology, mSystems, Nature Microgravity, Open Microbiology Journal, Plant and Soil Science, PLOS One, Science Education International, Scientific Reports.

**Editorial Board for following Journals (Past 5 years)**

Gravitational and Space Research, Editor-in-Chief, 2017 - present  
npj Microgravity, 2017 – present  
Scientific Reports, 2017 – present  
Geobiology, 2014 – present  
Gravitational and Space Research, Associate Editor, 2016 – 2017  
Astrobiology, 2014

**Presented Scientific Research (Past 5 years):**

American Society for Microbiology, General Meeting, Atlanta, GA, 2018  
30th Annual Host-Microbe Interactions, University of California, San Diego, 2018  
Astrobiology Science Conference, 2017, 2015, 2012, 2010  
American Society for Gravitational and Space Biology, 2016, 2015, 2011

Florida Branch American Society for Microbiology, 2017, 2016, 2015, 2013, 2011  
28th Annual Host-Microbe Interactions, University of Hawaii, 2016  
27th Annual Host-Microbe Interactions, Kennedy Space Center, 2015  
CEINGE - Biotechnologie Avanzate, University of Naples, Italy, 2015  
Whitney Marine Lab Seminar Series, St. Augustine FL, 2015  
26th Annual Host-Microbe Interactions, Univ. Connecticut, 2014  
Southeastern Branch of American Society for Microbiology, 2014  
American Society for Microbiology General Meeting, Boston, 2014  
Florida Space Grant Consortium Board Meeting, 2014, 2011, 2010  
Florida Space Research Institute Seminar Series, 2013  
Valencia College Seminar Series, 2013  
Florida Institute of Technology Seminar Series, 2013  
25th Annual Host-Microbe Interactions, University of Wisconsin, 2013  
Indo-US Workshop on Cyanobacteria: Molecular Networks to Biofuels, India, 2012  
International Society for Microbial Ecology, 2012, 2010

**Educational Outreach Lectures and Activities (Past 5 years):**

NASA GeneLab High School Program, Guest Lecturer, 2018  
Whitney Lab Public Lecture Series “Stromatolites: Windows into the Ancient Earth”, St. Augustine, FL 2015  
Center for Advancement of Science in Space Summer Camp Lecture “Astrobiology: Understanding the Origin and Evolution of Life”, 2014  
University of Florida Life in the Universe Non-Major Course, “Stromatolites: Oldest Ecosystems on Earth” 2014  
Jacksonville State College Professional Development Workshop, “Obtaining a graduate degree: the why, where, and how of it all”, 2014  
Stromatolites and Astrobiology Public Discussion, MAVEN Launch Kennedy Space Center Visitor Center, 2013  
Developed curriculum for international stromatolite and science camp in Bahamas for low-income students  
Developing Astrobiology Podcasts for UF undergraduates  
<http://jamiefosterscience.com/education.html>  
Developed and taught Astrobiology course for undergraduate students at UF (2007 - present)

**Collaborators & Other Affiliations**

**• Collaborators (Past Five Years)**

S. Donachie (University of Hawai’i), J. Drew (University of Florida), S. Golubic (Boston University), S.J. Green (Florida State University), K. Kostantinidis (Georgia Tech), A. Singh (Washington University), P. Reid (University of Miami), L. Sherman (Purdue University), P.T. Visscher (University of Connecticut), A. Zimmerman (University of Florida).

**• Graduate Advisors and Postdoctoral Sponsors**

Margaret McFall-Ngai (University of Hawai’i)  
Paul E. Kolenbrander (NIH - NIDCR),  
Lynn J. Rothschild (NASA Ames Research Center)  
Louis Sherman (Purdue University)

• **Mentored students in the following programs in addition to UF students:**

Bahamas Marine EcoCentre Internship, Florida Space Grant Internship program, NASA Graduate Student Researchers Program, NASA Motivating Undergraduate in Science Technology program, NASA Planetary Biology Internship program, NSF Research Experiences for Undergraduates Program, Space Florida Summer Internship.

• **Thesis Advisor and Postgraduate-Scholar Sponsor**

*Graduate Students (7 total):* Madeline Vroom, University of Florida, Ph.D. 2021; Alexandra Duscher, University of Florida, Ph.D. 2019, Joany Babilonia, University of Florida, Ph.D. 2019; Artemis Louyakis, University of Florida, Ph.D. 2017; Regine Pamphile, University of Florida, M.S. 2014; Jennifer Mobberley, University of Florida, Ph.D. 2013; Matoya Robinson, University of Florida, M.S. 2007;

*Postgraduate- Scholars (3 total):* Giorgio Casaburi (2014 – 2017), Christina Khodadad (2008 – 2013); Stephanie Havemann (2007 – 2008).

• **Other mentored students**

*Graduate Students (3 total):* Kristin Myshrall, University of Connecticut, Ph.D. 2012 (2010 summer intern); Varun Paul, Missouri University of Science and Technology, Ph.D. 2014 (2011 summer NASA Planetary Biology Intern); John Warden, University of Texas-Austin, Ph.D. 2015 (2012 summer NASA Planetary Biology Intern).

*Mentored Undergraduates: (14 total):* Angel Troncoso Garcia (2018), Sergio D. Zubizarreta (2017), Nicholas Cullen (2015), Kimberley Cranmore (2014), Mary Bishop (2014), Nick LoCastro (2013), Jenni Larmore (2012), Kyle Grant (2011-2012), Maya Ortega (2011), Krystal Kerney (2010 – 2011), Vardo McKenzie (2011), Joseph Gredder (2009), Steven Ahrendt (2007-2010), Christine Simone (2006)

*Mentored High School Students (3 total):* Rachelle Bonjawo (2014-2015); Ellen Sukharovsky (2011); Mirina Parish (2010-2011).