Philip (Phil) Arevalo — Curriculum Vitae

Contact Information

Massachusetts Institute of Technology
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Education

Ph.D., MIT, Cambridge, MA, expected August 2017

Microbiology
Advisor: Martin Polz
Thesis Topic: Horizontal gene transfer as a driver of both cohesion and diversification in microbial populations.

Sc.B., Brown University, *cum honoribus*, Providence, RI, 2011

Applied Mathematics-Biology
A.B.: Classics
Advisor: Jeremy Rich
Senior thesis topic: Diversity of anammox bactera in ocean sediments.

Research Positions

Research Assistant, Woods Hole Oceanographic Institution, Woods Hole, MA
July 2011 - August 2012

Advisor: Stefan Sievert
Research topic: Bacterial and archaeal community composition in oxygen minimum zones and hydrothermal vents.

Teaching Experience

Graduate of Kaufman Teaching Certificate Program, MIT (Summer 2017)

Teaching Assistant for Microbial Population Genomics, MIT (Fall 2016)

Teaching Assistant for Microbial Genetics and Evolution, MIT (Fall 2014)

Lecturer Bioinformatics Workshop, Centro de Biología Molecular, Managua, Nicaragua (March 2014)

Primary author publications

1. Hehemann, J.-H.*, **Arevalo, P.***, Datta, M.S.*, Yu, X., Corzett, C., Preheim., S.P., Henschel, A., Timberlake, S., Alm, E.J., Polz, M.F. (2016). *Adaptive radiation by waves of gene transfer leads to fine-scale resource partitioning in marine microbes.* Nature Communications, 7. doi:10.1038/ncomms12860.
2. **Arevalo, P.**, Elsherbini, J., VanInsberghe, D., Gore, J., Alm, E.J., Polz, M.F. *A biological definition for microbial populations.* In Prep.

** indicates equal contribution of authors*

Contributing author publications

1. Takemura, A., Corzett, C., Hussain, F., **Arevalo, P.**, Datta, M,. Yu, X., Le Roux, F., Polz, M.F. (2017). Natural resource landscapes of a marine bacterium reveal distinct fitness-determining genes across the genome. Environmental Microbiology, 19:2422–2433. doi:10.1111/1462-2920.13765.
2. Chase, A.B., **Arevalo, P.**, Polz, M.F., Berlemont, R., Martiny, J.B.H. (2016). *Evidence for ecological flexibility in the cosmopolitan genus Curtobacterium.* Frontiers in Microbiology, 7:1874. doi: 10.3389/fmicb.2016.01874
3. Polzin, J., **Arevalo, P.**, Polz, M.F., Bright, M. Ontogenetic shifts in symbiont genotypes in hydrothermal vent tubeworms. Submitted.

4. Kauffman, K., Hussain, F., Yang, J., **Arevalo, P.**, Brown, J., Cutler, M., Kelly, L., Polz, M.F. Nontailed viruses are major unrecognized killers of bacteria in the ocean. Submitted.

Presentations and posters

Arevalo, P. *Horizontal gene transfer as a cohesive force in microbial populations.* April 2017. University of Chicago Ecology & Evolution Darwin's Weekly. Invited oral presentation.

Arevalo, P. & Polz, M.F. *A biolgical definition for microbial populations and its application to a reverse ecology approach.* August 2016. 16th International Symposium for Microbial Ecology. Evolution. Invited oral presentation (co-convener).

Arevalo, P. *A biolgical definition for microbial populations and its application to a reverse ecology approach.* Center for Microbiome Informatics and Therapeutics. June 2016. Work-in-progress meeting. Oral presentation.

Arevalo, P., Wuchter, C., Yang, T-H., Coolen, M., Sievert, S. *Stratified bacterial and archaeal communities across the oxygen minimum zone of the Eastern Tropical North Pacific.* August 2012 . 14th International Symposium for Microbial Ecology. Microbes in a changing ocean. Contributed oral presentation.

Arevalo, P. & Rich, J. *Diversity and abundance of anammox bacteria along environmental gradients in the Peru margin.* February 2011. American Society for Limnology and Oceanography Aquatic Sciences Meeting. Student Poster Session.

Honors and Awards

National Science Foundation Graduate Research Fellow (2012 - 2017)

MIT Energy Initiative BP Energy Fellow (2012)

Elected to the Society of Sigma Xi (May 2011)

Brown University Povar Prize in Zoology and Physiology (May 2011)

Outreach

Guest Lecturer Biotechnology III, Cambridge Rindge and Latin School (November 2016)

SPLASH Instructor Educational Studies Program, MIT (November 2013 & November 2015)

Service

Graduate Resident Tutor, MIT (March 2014 - Present)
- Ran regular study breaks, assisted in conflict resolution, and ensured general well-being of undergraduate students in a residential setting.

Writing Fellow, Brown University (September 2008 - May 2011)
- Provided writing support for ten students per semester focused on argumentation, style, and clarity.

Programming languages

Main: Python
Experienced: Matlab, Linux shell
Used in the past: Java
Github: http://github.com/philarevalo

Mentored students

Jai Padmakumar, Microbiology graduate program rotation (Spring 2017)
Joseph Elsherbini, Microbiology graduate program rotation (Winter 2015)