

Cécilia Batmalle Kretz

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EDUCATION

University of California, Irvine (UCI)

PhD. Molecular Microbial Ecology

March 2014

Dissertation title: Impact of genome content on the distribution and physiology of marine Cyanobacteria

Australian National University, Canberra, Australia (ANU)

B.S., Honors, Biochemistry and Molecular Biology

2006

Ryerson University, Toronto, Canada

B.S., Applied Chemistry and Biology

2004

RESEARCH EXPERIENCE

Georgia Institute of Technology

Postdoctoral Fellow

2014-Present

- Investigated the composition and characterized functional genes in deep marine subsurface sediments
- Performed metagenomic and metatranscriptomic analysis of marine oxygen minimum zones
- Evaluated differences in peat moss microbial community using comparative genomics
- Characterized the phylogeny of microbial enrichment

University of California Irvine

Graduate Researcher

2008-2014

- Developed and assessed the bias of a new method for targeted metagenomic sequencing
- Investigated the influence of growth rate on the physiological response of the cyanobacteria *Synechococcus* to phosphate stress in chemostats
- Analyzed the spatial and temporal variations in genome content of *Synechococcus* using targeted metagenomics

University of California Los Angeles, UCLA Hospital/NICU

Research Volunteer

2006-2007

- Investigated the effect of ethanol on biofilm producing pathogenic bacteria *Staphylococcus epidermidis* by RT-PCR and microarray analysis

Australian National University

Honors Research Thesis

2005-2006

- Investigated the advantages accruing from multiple bacteriocin production via bacterial competition and growth rate experiments

Ryerson University

Undergraduate Research Assistant

2003-2004

- Performed DNA extraction and characterization in wastewater bioreactors

TECHNICAL SKILLS

Bioinformatics:

- Next generation sequencing (Illumina, 454, PacBio)
- Comparative metagenomics and metatranscriptomics (BLAST, MEGAN, MG-RAST)
- 16S phylogenetics and multiple sequence alignments (QIIME, MOTHUR, PHYLIP, iTOL)
- Genome Assembly (CLC Genomics, Velvet)
- Genome Annotation (Pfam, CAZY, NCBI, SEED, KEGG)
- Unix, Perl, R, Matlab

Molecular Biology:

- DNA/RNA isolation, cell culture, Flow cytometry (Accuri C6)
- Next generation sequencing library preparation
- PCR/ RT-PCR/cDNA synthesis

TEACHING and TRAINING EXPERIENCE

Attended:

- Center for Dark Energy Biosphere Investigations (C-DEBI) Professional Development workshop (October 2014, Monterey, CA)
- Marine Genomics for Users (MG4U) (May 2012, Roscoff, France)
- Ocean Carbon & Biogeochemistry “Sea Change: Charting the course of ecological and biogeochemical ocean time series research” workshop (August 2010, Honolulu, HI)

Teaching:

- Teaching assistant: From organisms to ecosystems, Experimental biology laboratory, Human physiology, Philosophy of biology, Conservation biology
- Volunteer UC Irvine CLEAN Global Climate Change Education program, California Science Project

SELECTED PUBLICATIONS

Kretz CB, Bell DW, Lomas DA, Lomas MW, Martiny AC (2015) Influence of growth rate on the physiological response of marine *Synechococcus* to phosphate limitation. *Frontiers in Microbiology*. 10:3386

Batmalle C, Chiang HI, Zhang K, Lomas MW, Martiny AC (2014) Development and bias assessment of a method for targeted metagenomic sequencing of marine Cyanobacteria. *Applied and environmental microbiology*. 80:1116:1125

Glass JB, **Kretz CB**, Ganesh S, Ranjan P, Seston SL, Buck KN, Landing WM, Morton PL, Moffett JW, Giovannoni SJ, Vergin KL, Stewart FJ (2014) Marine metal availability predicts microbial community gene composition. In review. *ISME journal*

Kretz CB, Kent A, Chiang HI, Zhang K, Lomas MW, Martiny AC. Temporal and spatial variation of *Synechococcus* genome content in the Western North Atlantic. *In prep.*

Milislavljivic, V. Tran LP, **Batmalle C**, Bootsma HJ (2008) Benzyl alcohol and ethanol can enhance pathogenic potential of clinical *Staphylococcus epidermidis* strains. *American Journal of Infection Control*, 36:552-558

INVITED PRESENTATIONS

Kretz CB, Kent A, Chiang HI, Zhang K, Lomas MW, Martiny AC. 2014. Temporal and spatial variation of *Synechococcus* genome content in the Western North Atlantic. Georgia Institute of Technology Earth and Atmospheric Science seminar series.

Kretz CB, Martiny AC. 2012. Next-generation sequencing and its applications to environmental microbial ecology. University of Texas Austin, advanced topics n Microbial Ecology.

HONORS, AWARDS and FELLOWSHIPS

NSF Center for Dark Energy Biosphere Investigation small research grant (Co-I)	2014
Georgia Institute of Technology Frontier Postdoctoral Fellowship	2014
UC Irvine Biological Dissertation Fellowship	2013
Ryerson University Award of Merit for Academic Excellence	2003

PROFESSIONAL AFFILIATIONS

American Society for Microbiology, American Geophysical Union, Center for Dark Energy Biosphere Investigations, Golden Key Honor Society

LANGUAGE

Fluent English, French (native language) and Spanish. Intermediate Hebrew. Beginner Japanese.