

CURRICULUM VITAE

Samantha Marie Waters

EDUCATION:

<u>Institution</u>	<u>Degree</u>	<u>Date</u>	<u>Field of study</u>
University of Central Florida	B.S.	Dec. 2006	General Biology
University of Florida	PhD	2014	Microbiology

POST-DOCTORAL & GRADUATE LEVEL FELLOWSHIPS, GRANTS, & AWARDS:

1. Astrobiology Science Conference Travel Grant, 2012.
2. University of Florida Graduate Student Council Travel Grant, 2013.
3. 1st Place Graduate Student Presentation for Fl. ASM, 2013.
4. **2013-14 NASA Earth and Space Science Fellowship (NESSF) Program.**
5. **2014- Dreyfus Foundation Postdoctoral Fellowship.**

PROFESSIONAL EXPERIENCE:

- 2014-** Post-doctoral Research Fellow, Georgia Institute of Technology, School of Earth and Atmospheric Sciences. Research Advisors: Drs. Konstantinidis and Nenes. Atlanta, Ga. Metagenomic characterization of the mid-to-upper troposphere - the role of bacteria in cloud condensation and ice nucleation processes.
- 2010-2014** PhD Candidate, Microbiology and Cell Sciences Department, University of Florida. Research advisor: Dr. Wayne Nicholson. Kennedy Space Center, Fl.
Dissertation title: How does *Bacillus subtilis* respond and adapt to low-pressure growth?

- 2008-2009** Laboratory Technician II, Mitosciences, Inc., Eugene, OR.
Biochemical analysis of mono- & polyclonal antibodies for use in western blots, ELISAs, and other assays. Mammalian tissue culture.
- 2006-2007** Laboratory assistant in the lab of Dr. Christina Fernandez-Valle, Microbiology and Molecular Biology Department, UCF. Orlando, Fl.
Tissue culture of mouse/rat Schwann and neural cells.
- 2005-2006** Undergraduate research assistant for Dr. Yanga Fernandez, Physics Department, UCF. Orlando, Fl.
Computer analysis of comet ENKE spectral images.

TEACHING EXPERIENCE:

Fall, 2011: Guest Lecturer at MSU, Philosophy course (3 cr., 50 students), “Origins of Life: Geocentric Views”. Gave lecture by Skype.

Spring semester, 2011: Teaching Assistant in Adv. Microbio. Lab MCB4034L.

Fall semester, 2010: Teaching Assistant in Techniques in Microbio. PCB5136L.

PUBLICATIONS:

1. Nicholson, W.L., P. Fajardo-Cavazos, J.R. Fedenko, J.L. Ortiz-Lugo, A. Rivas-Castillo, **S.M. Waters**, and A.C. Schuerger. 2010. Exploring the low-pressure limit: evolution of *Bacillus subtilis* in the laboratory to enhanced growth at 5 kilopascals. *Appl. Environ. Microbiol* 76: 7559-7565.
2. Fajardo-Cavazos, Patricia, **S.M.Waters**, A.C.Schuerger, S.George, J.J Marois, and W.L.Nicholson. 2012. Evolution of *Bacillus subtilis* to enhanced growth at low pressure: up-regulated transcription of *des-desKR*, encoding the fatty acid desaturase system. *Astrobiology* 12: 258-270.
3. **Waters, S.M., J. Robles-Martinez, and W.L.Nicholson. Exposure of *Bacillus subtilis* to low-pressure (5 kPa) induces several global regulons including the *sigB*-mediated General Stress Response. *Appl Environ Microbio*. [dio:10.1128/AEM.00885-14](https://doi.org/10.1128/AEM.00885-14).**

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4. Waters, S.M., J. Robles-Martinez, and W.L.Nicholson. Microarray analysis of differential gene expression in a *Bacillus subtilis* strain adapted to enhanced growth at 5 kPa. *In preparation.*
5. Waters, S.M. and W.L.Nicholson. Whole genome re-sequencing reveals adaptive genomic changes in *Bacillus subtilis* to low pressure (5 kPa) growth. *In preparation.*

ABSTRACTS:

1. Waters, Samantha. 2011. Searching for Genetic Factors Involved in Evolution of *Bacillus subtilis* to Enhanced Hypobaric Growth: Microarray Studies. Astrobiology Graduate Conference, Abstract AGC11, p. 37.
2. Waters, S.M. and W.L. Nicholson. 2011. Up-Regulated General Stress Response Genes in *Bacillus subtilis* Grown at Low Pressure. 97th Annual SEB ASM Meeting, Program and Abstracts.
3. Waters, S.M. and W.L. Nicholson. 2012. Elucidating genomic adaptations involved in *Bacillus subtilis* evolution to hypobaric growth: Low-pressure as an environmental constraint on terrestrial biological processes. Astrobiology Science Conference 2012.
4. Waters, S.M. 2012. Genomic adaptations of *Bacillus subtilis* to hypobaria: implications for planetary protection and lithopanspermia. Astrobiology Graduate Conference, Abstract AGC12.

MEETINGS ATTENDED: (P), poster; (T), talk.

1. Astrobiology Graduate Conference, Bozeman, MT, June 2011 (P).
2. 97th Annual Southeastern Branch of American Society of Microbiology Meeting, Gainesville, Fl. October 2011 (T).
3. Astrobiology Science Conference, (AbSciCon) Atlanta, GA, April 2012 (T).
4. Astrobiology Graduate Conference, Pasadena, CA, August 2012 (T).

5. Florida Branch of American Society of Microbiology Meeting, Islamorada, Fl. April 2013.
(T).
6. Astrobiology Graduate Conference, Montreal, Quebec, Canada, June 2013. (T).

CONFERENCE AND SYMPOSIUM COMMITTEES:

1. Microbiology and Cell Science Department Symposium, Graduate Student Organizer,
St. Petersburg, Fl. Aug. 2013
2. **Astrobiology Graduate Conference (AbGradCon), Organizer, 2014.**