Molly K. Gibson

Contact

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Education

Ph.D. Computational & Systems Biology 2010-Present
Washington University, St. Louis, Missouri
Advisor: Dr. Gautam Dantas
Expected Graduation: June 2015

B.S. Computer Science 2005-2009
Truman State University, Kirksville, Missouri *summa cum laude*

Honors and Awards

National Science Foundation Graduate Fellowship	2011-2014
Outstanding Talk, Genetics & Computational Biology Retreat	2014
1st Place Overall Poster, International Meeting on Microbial Genomics	2014
Outstanding Poster, Genetics & Computational Biology Retreat	2013
Clinton Global Initiative University (CGIU)	2013
Mr. & Mrs. Spencer T. Olin Fellowship	2010-2015
Undergraduate Research Fellowship	2008-2009
Phi Kappa Phi, Truman State University Chapter	2009
Omicron Delta Kappa, National Leadership Honor Society	2007
The Boeing Company - Math & Computer Science Scholar	2008
Dean's List (Truman State Univ.)	2005-2009
National Merit Coorporation Scholar	2005-2009
President's Honorary Scholar	2005-2009
President's Leadership Scholar	2005-2009

Professional Experience

Washington University School of Medicine, Saint Louis, MO
Graduate Researcher, Center for Genome Sciences and Systems Biology 2010-Present
Mr. and Mrs. Spencer T. Olin Fellow, Washington University in Saint louis 2010-Present
NSF Graduate Research Fellow 2011-2014
Developed and applied computational tools and models for studying antibiotic resistance in soil and human associated microbial communities

The BALSA Group, Saint Louis, MO
Project Manager/Consultant 2011-Present
Provided data-driven consulting solutions to startup and growth-stage biotechnology companies, including market analysis & budget review, intellectual property and licensing analysis, and technology assessment.

The Boeing Company, Saint Louis, MO
Software Engineer 2009-2010
Developed, maintained, and tested code that integrates software components into a fully functional software system for high fidelity F15-E flight simulator

Maize Shoot Apical Meristem Project, Kirksville, MO
Undergraduate Researcher 2007-2009
Designed, developed and populated a relational database to house the expression and functional

annotation data of a set of approximately 40,000 *Zea mays* genes.

The SERVE Center, Kirksville, MO
Senior Staff Coordinator 2006-2009
Led a staff of 15 employees, including scheduling, payroll, and performance evaluation, executing staff meetings and delegating tasks to ensure the highest level of productivity.

Computational Skills

Languages	bash, Python, Perl, R, Java, C++, Ada, XML
Version Control	git, hg, svn, cvs
Other	LaTeX, MatLab, SQL, nose

Teaching

Bioinformatics Workshop January 6-8, 2015
http://mollykgibson.com/bioinformatics
Washington University School of Medicine
Developed and led a novice-level bioinformatics workshop for scientists at Washington University

Software Carpentry 2013-Present
Mozilla Labs (https://www.softwarecarpentry.org)
Instructor/Contributor
- Washington University in Saint Louis (August 11-12, 2014)
- Lawrence Berkeley National Laboratory (April 14-15, 2014)
- Iowa State University (January 8-9, 2014)

Bio5495: Algorithms for Computational Biology Fall 2011
Washington University in Saint Louis
Teaching Assistant
Topics covered: probability theory, hidden Markov models (HMMs), network inference, transcription factor binding motifs, modeling gene regulation dynamics, metabolic modeling, short read alignment

Science Outreach

The Young Scientist Program (http://ysp.wustl.edu) 2011-2015
Washington University in Saint Louis
Director (2014-2015)
Director of Information Technology (2012-2014)
College Prep Coordinator (2011-2012)

Professional Service

Professional Affiliation	
American Society for Microbiology (ASM)	2013-Present
Association for Women in Science (AWIS)	2012-Present

Publications

1. **Gibson MK**, Wang B, Ahmadi S, Wallace M, Burham CA, Tarr PI, Warner BB, Dantas G. Resistome mediated response of very low birth weight infant gut microbiota to antibiotics. (In preparation)
2. Kaminski J*, **Gibson MK***, Franzosa EA, Segata N, Dantas G, Huttenhower C. Fast and Accurate Metagenomic Search with ShortBRED. (In preparation)
3. Moore AM, Ahmadi S, Patel S, **Gibson MK**, Wang B, Ndao M, Deych E, Shannon W, Tarr P, Warner BB, Dantas G. Gut resistome development in healthy twin pairs and mothers in the first year of life. (Submitted, *Science*)
4. **Gibson MK**, Forsberg KJ, Dantas G. Improved annotation of antibiotic resistance determinants reveals resistomes cluster by ecology. *The ISME Journal*. 2015; 9:207.

5. Lax S, Smith DP, Hampton-Marcell J, Owens SM, Handley KM, Scott NM, Gibbson SM, Larsen P, Shogan BD, Weiss S, Metcalf JL, Ursell LK, Vazquez-Baeza Y, Van Treuren W, Hasan NA, **Gibson MK**, Colwell R, Dantas G, Knight R, Gilbert JA. Longitudinal Analysis of Microbial Interaction Between Humans and the Indoor Environment. *Science.* 2014; 345(6200):1048

6. **Gibson MK***, Pesesky MW*, Dantas G. The Yin and Yang of Bacterial Resilience in the Human Gut Microbiota. *J. Mol. Biol.* 2014; DOI: 10.1016/j.jmb.2014.05.029

7. Forsberg KJ*, Patel S*, **Gibson MK**, Lauber CL, Knight R, Fierer N, Dantas G. Bacterial phylogeny structures soil resistomes across habitats. *Nature.* 2014; 509 (7502): 612.

8. Pehrsson EC, Forsberg KJ, **Gibson MK**, Ahmadi S and Dantas G. Novel resistance functions uncovered using functional metagenomic investigations of resistance reservoirs. *Front Microbiol.* 2013; 4:145. doi: 10.3389/fmicb.2013.00145

** These authors contributed equally*

References Available upon request