**Jeremiah Faith**
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## Education

Boston University, PhD, Bioinformatics Program
Sept 2003 - Jan 2008

Louisiana State University, B.S. Zoology
Aug 1997 - May 2001 (*cum laude* GPA 3.75)

University of Wales, Swansea (study abroad)
Sept 1999 - July 2000

## Research Experience / Positions Held

***Postdoctoral Scholar*, WashU. Gordon Lab** (Mar 08 - present)

- Developing predictive models of the microbiota's response to host diet in gnotobiotic mice. Developing software and experimental technologies for exploring the metatranscriptomic landscape of mammalian microbiota under different diets.

***Graduate Student*, Boston University. Gardner Lab** (Sept 03 - Jan 08)

- Developed algorithms, statistical experimental designs, and high-throughput experimental techniques for large-scale determination of bacterial regulatory pathways.

***Scientific Programmer*, Cold Spring Harbor Laboratory. Sachidanandam Lab** (Feb 02 - Aug 03)

- Contributed to the computational pipeline for constructing a human/mouse genome-wide RNAi gene knockdown library and developed the *lightweight genome viewer*

***Research Associate 2*, Louisiana State University. Pollock Lab** (May 01 - Jan 02)

- Created tools for large-scale phylogenetic analysis of vertebrate mitochondrial genomes, and developed a quantitative model to characterize the asymmetrical skew of neutrally evolving base-pairs in vertebrate mitochondrial genomes

## Publications

**J.J. Faith**, N.P. McNulty, F.E. Rey, and J.I. Gordon. *Predicting a Human Gut Microbiotas Response to Diet in Gnotobiotic Mice.* Science. 2011 May 19. [Epub ahead of print]

A.L. Goodman, G.K. Kallstrom, **J.J. Faith**, A. Reyes, A. Moore, G. Dantas, and J.I. Gordon. *Extensive personal human gut microbiota culture collections characterized and manipulated in gnotobiotic mice.* Proc Natl Acad Sci U S A. 2011 Apr 12;108(15):6252-7. Epub 2011 Mar 21.

F.E. Rey*, **J.J. Faith***, J. Bain, M.J. Muehlbauer, R.D. Stevens, C.B. Newgard, and J.I. Gordon. *Dissecting the in vivo metabolic potential of two human gut acetogens.* J Biol Chem. 2010 Jul 16;285(29):22082-90. Epub 2010 May 5.

P.J. Turnbaugh, C. Quince, **J.J. Faith**, A.C. McHardy, T. Yatsunenko, F. Niazi, J. Affourtit, M. Egholm, B. Henrissat, R. Knight, and J.I. Gordon. *Organismal, genetic, and transcriptional variation in the deeply sequenced gut microbiomes of identical twins.* Proc Natl Acad Sci U S A 2010 Apr 20;107(16):7503-8. Epub 2010 Apr 2.

P.J. Turnbaugh, V.K. Ridaura, **J.J. Faith**, F.E. Rey, R. Knight, and J.I. Gordon. *The effect of diet on the human gut microbiome: a metagenomic analysis in humanized gnotobiotic mice.* Sci Transl Med. 2009 Nov 11;1(6):6ra14.

M. Giannakis*, H.K. Backhed*, S.L. Chen*, **J.J. Faith***, M. Wu, J.L. Guruge, L. Engstrand, and J.I. Gordon. *The response of gastric epithelial progenitors to Helicobacter pylori isolates obtained from Swedish patients with chronic atrophic gastritis.* Journal of Biological Chemistry 2009 Oct 30;284(44):30383-94. Epub 2009 Sep 1.

**J.J. Faith**, M.E. Driscoll, V.A. Fusaro, E.J. Cosgrove, B. Hayete, F.S. Juhn, S.J. Schneider, and T.S. Gardner. *Many Microbe Microarrays Database: uniformly normalized Affymetrix compendia with structured experimental metadata.* Nucleic Acids Research 2008 Jan;36(Database issue):D866-70. Epub 2007 Oct 11.

**J.J. Faith**, A.J. Olson, T.S. Gardner, and R. Sachidanandam. *Lightweight Genome Viewer: portable software for browsing genomics data in its chromosomal context.* BMC Bioinformatics 2007 Sep 18;8:344.

**J.J. Faith***, B. Hayete*, J.T. Thaden, I. Mogno, J. Wierzbowski, G. Cottarel, S. Kasif, J.J. Collins, and T.S. Gardner. *Large-scale computational mapping and experimental validation of Escherichia coli transcriptional regulatory interactions from a compendium of expression profiles.* PLoS Biology 2007 Jan;5(1):e8.

L.A. Nahum, M.T. Reynolds, Z.O. Wang, **J.J. Faith**, R. Jonna, Z.J. Jiang, T.J. Meyer, and D.D. Pollock. *EGenBio: A Data Management System for Evolutionary Genomics and Biodiversity.* BMC Bioinformatics 2006 Sep 6;7 Suppl 2:S7.

S.Z. Raina, **J.J. Faith**, H. Seligmann, T. Disotell, C-B. Stewart, and D.D. Pollock. *Evolution of base substitution gradients in primate mitochondrial genomes.* Genome Research 2005 May;15(5):665-73.

**J.J. Faith** and D.D. Pollock. *Likelihood analysis of asymmetrical mutation bias gradients in vertebrate mitochondrial genomes.* Genetics Oct;165(2):735-45.

M.S. Philips, R. Lawrence, R. Sachidanandam, A.P. Morris, D.J. Balding, M.A. Donaldson, J.F. Studebaker, W.M. Ankener, S.V. Alfisi, F.S. Kuo, A.L. Camisa, V. Pazorov, K.E. Scott, B.J. Carey, **J.J. Faith**, G. Katari, H.A Bhatti, J.M. Cyr, V. Derohannessian, C. Elosua, A.M. Forman, N.M. Grecco, C.R. Hock, J.M. Kuebler, J.A. Lathrop, M.A. Mockler, E.P. Nachtman, S.L. Restine, S.A. Varde, M.J. Hozza, C.A. Gelfand, J. Broxholme, G.R. Abecasis, M.T Boyce-Jacino, and L.R. Cardon. *Chromosome-wide distribution of haplotype blocks and the role of recombination hot spots.* Nature Genetics 2003 Mar;33(3):382-7. Epub 2003 Feb 18.

## Reviews and Commentaries

**J.J. Faith***, F.E. Rey*, D. O'Donnell, M. Karlsson, N.P. McNulty, G. Kallstrom, A.L. Goodman, and J.I. Gordon. *Creating and characterizing communities of human gut microbes in gnotobiotic mice.* ISME Journal. 2010. Sep;4(9):1094-8. Epub 2010 Jul 22.

T.S. Gardner and **J.J. Faith**. *Reverse-engineering transcription control networks.* Physics of Life Reviews 2010 Apr 22;2(1):65-88.

* = authors contributed equally

## Patents

B. Hayete, J.J. Faith, J.J. Collins, T.S. Gardner. *Method to determine transcriptional regulation pathways in organisms.* (patent-pending)

## Talks and Posters

**Talk** *Predicting a mammalian microbiota's response to changes in host diet.* Boston University Bioinformatics Program 10th Anniversary Symposium, *Oct 2009*; Boston, MA.

**Talk** *Defining a prokaryotic life: systems biology approaches to the complete demarcation of a prokaryotic genome sequence and its regulation.* New England Society for Microscopy, *May 2007*; Woods Hole, MA.

**Poster** J.J. Faith, R. Sachidanandam, T.S. Gardner. *A web-based tool for visualizing* Shewanella *gene expression profiles in their chromosomal context.* DOE Genomes to Life Grantees Conference, *Feb 2007*; Bethesda, MD.

**Talk** *Shotgun mapping of E. coli transcriptional regulation from a compendium of expression profiles.* BMES, *October 2006*; Chicago, IL.

**Poster** J.J. Faith, B. Hayete, J.T. Thaden, I. Mogno, J. Wierzbowski, G. Cottarel, S. Kasif, J.J. Collins, T.S. Gardner. *Genome-scale identification of* Escherichia coli *regulatory pathways.* International Conference on Systems Biology, *October 2005*; Boston MA.

**Talk** *Inferring regulatory networks from expression data.* TIGEM (Telethon Institute of Genetics and Medicine), *Settembre 2005*; Napoli, Italia.

## Honors, Awards, and Service

LSU Wind Ensemble Scholarship ($1250), 2000-01
Study Abroad Scholarship ($3000), 1999-2000
Louisiana Music Award ($650), 1999
LSU Tuition Exemption Scholarship ($27,000), 1997-2001
Ad hoc reviewer for: *Bioinformatics*, *Source Code for Biology and Medicine*, *RECOMB*, *Molecular Biology and Evolution*, *Journal of Molecular Evolution*, *Nucleic Acids Research*, *The ISME Journal*

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## Computer / Programming Skills

**Favorite / Fluent Languages**
`C`, Perl, javascript

**Moderately Fluent Languages** (occasionally need a reference)
php, Matlab

**Other Languages** (definitely need a reference)
`C++`, Java, R

**Miscellaneous computer tools I've used extensively**
Qt, SQL, CGI, HTML, CSS, ajax, Apache, Automake, Autoconf, Libtool, lex, yacc, vim, GD, gnuplot, GSL, latex, prototype.js, jquery.js

**Websites, databases, and software I developed and continue to maintain**
m3d.bu.edu ($M^{3D}$: Many Microbe Microarrays Database)
http://lwgv.sourceforge.net/ (a biological sequence viewer written in C using lex, yacc, cgic, and GD; no database required)
www.ilariamogno.com/photo/ (Personal photo album)
www.jeremiahfaith.com (Personal homepage)