Guy Haskin Fernald

Research Interests

Integrated systems pharmacology for the prediction of pharmacological phenotypes, pharmacogenes, and drug repositioning.

Education

Stanford University *Stanford, California* **Current**
Ph.D candidate in Biomedical Informatics, Master's of Science in Medicine candidate.

UC Berkeley Extension *Berkeley, California* **2004**
Classes in microbiology and bioinformatics.

City College of San Francisco *San Francisco, California* **2003**
Classes in biology and chemistry. Laboratory work in PCR, recombinant DNA, and gel electrophoresis.

Swarthmore College *Swarthmore, Pennsylvania* **1994**
Bachelor of Arts. Majors: Mathematics and Computer Science. Additional courses at the University of Edinburgh.

Honors and Awards

- National Science Foundation GRFP Honorable Mention, 2009.
- National Library of Medicine Training Grant Recipient, 2008.
- Phi Beta Kappa, 1994.
- Bachelor of Arts awarded with Distinction, 1994.
- Nasa Ames Group Achievement Award, 1990.

Publications

Fernald GH, Capriotti E, Daneshjou R, Karczewski KJ, Altman RB. Bioinformatics Challenges for Personalized Medicine. Bioinformatics (2011) 27 (13): 1741-1748.

Tatonetti NP, Fernald GH, and Altman RB. A novel signal detection algorithm for identifying hidden drug-drug interactions in adverse event reports. J Am Med Inform Assoc. 2011 Jun 14.

Tatonetti NP, Denny JC, Murphy SN, Fernald GH, Krishnan G, Castro V, Yue P, Tsau PS, Kohane I, Roden DM, and Altman RB. Detecting drug interactions from adverse-event reports: interaction between paroxetine and pravastatin increases blood glucose levels. Clinical Pharmacology and Therapeutics (2011) 90 1, 133142.

Han MH, Hwang SI, Roy DB, Lundgren DH, Price JV, Ousman SS, Fernald GH, Gerlitz B, Robinson WH, Baranzini SE, Grinnell BW, Raine CS, Sobel RA, Han DK, Steinman L. Proteomic analysis of active multiple sclerosis lesions reveals therapeutic targets. Nature. 2008 Feb 28;451(7182):1076-81.

Fernald GH, Pachner A, Caillier S, Narayan K, Oksenberg JR, Baranzini SE. Genome-Wide Network Analysis Reveals the Global Properties of IFN-beta Immediate Transcriptional Effects in Humans.J Immunol. 2007 Apr 15;178(8):5076-85.

Fernald GH, Yeh RF, Hauser SL, Oksenberg JR, Baranzini SE. 2005. Mapping gene activity in complex disorders: Integration of expression and genomic scans for multiple sclerosis. J Neuroimmunol 167(1-2):157-69.

Conference Presentations

Fernald GH, Tatonetti NP, Altman RB. 2010. A Systems Biology Method for Predicting Drug-Gene Interactions in Saccharomyces cerevisiae, P-STAR Conference, Memphis, TN.

Fernald GH, Pachner A, Caillier S, Narayan K, Oksenberg JR, Baranzini SE. 2006. Network-based

analysis unveils global properties of IFNβ immediate transcriptional effects in humans. International Conference on Complex Systems. Boston, Massachusetts.

Poster Presentations

Fernald GH, Tatonetti NP, Altman RB. Generating Credible Hypotheses for Drug-Drug and Drug-Gene Phenotypes. NLM Bioinformatics Training Program Conference, June 2011.

Fernald GH, Tatonetti NP, Altman RB. A Systems Biology Method for Predicting Drug-Gene Interaction in Saccharomyces cerevisiae. BCATS 2010.

Fernald GH, Tatonetti NP, Altman RB. PharmReduce: A Symmetric Framework to Rank Pharmacogenes, Phenotypic Effects, and Small Molecules. BCATS 2009.

Patents

Adams N, Brown M, Carlstrom B, Elkin B, Hegarty P, Haskin G, Putanec B. Operating resource management system. US Patent no. 7,117,165, October 3, 2006.

Professional Experience

University of California, San Francisco *San Francisco, California*
Research Associate **2004 – 2007**
Investigated the role of genetic linkage and gene expression in multiple sclerosis and experimental autoimmune encephalomyelitis through statistical methods, network analysis, and computer modeling with the use of high performance computing and distributed processing.

Instituto National de Salud Pública *Cuernavaca, México*
(National Public Health Institute)
Technical Consultant **2001 – 2002**
Developed direction and managed the implementation of internal and external computer resources for the health economics group. Worked in Spanish and English.

Ariba *Sunnyvale, California*
Manager and Engineer **1996 – 2001**
Member of original technical team that developed patented purchasing system. Worked on first six versions of released software. Managed team of programmers that implemented internationalization, management tools, and web applications.

Netmarket (acquired by Cendant) *Cambridge, Massachusetts*
Founder and Chief Programmer **1993 – 1996**
Co-founded software startup, hired engineers, and led software development efforts. Wrote software for first music CD store on the web, as featured in the New York Times.

Swarthmore College *Swarthmore, Pennsylvania*
Summer Researcher, Computer Science **1993**
Investigated the use of diagrams in developing proof plans for a natural deduction system.

Nasa Ames Research Center *Moffet Field, California*
Graphics Programmer **1990**
Conceived and produced animations and images for turbomachinery research group.

Technical Skills

- Programming Experience: statistical computing, client/server database, web programming, distributed computing.
- Languages: Python, R, SQL, C, Ruby, Perl, MATLAB, LaTeX.
- Operating Systems: Unix (Linux, Solaris, OS X), Windows.

Interests and Skills

- Activities and skills: Spanish proficiency, cooking (Certificate in Culinary Arts from the French Culinary Institute, New York City), classical guitar, and tennis.
- Board member: San Francisco Works (previous), Mission Learning Center (previous).

References

Available on request.