

Richard A Bonneau, PhD.

Institute for Systems Biology
1441 N. 34th St.
Seattle, WA 98103
rbonneau@systemsbiology.org
206-732-1463
206-992-9029

Education

- 1997-2001 **University of Washington**, Seattle, WA
Ph.D. in Biochemistry, Biomolecular Structure and Design Program.
- 1994-1997 **Florida State University**, Tallahassee, FL
BA in Biochemistry.

Research and Professional Experience:

Assistant Professor 2005-. **New York University. Dept. of Biology, Dept. of Computer Science.**

Sr. Scientist. 2002-2005. Institute for Systems Biology, Seattle. With Dr. Leroy Hood. Network Inference, development of combined Biclustering and motif detection methods; genome wide *de novo* structure prediction and structure –based genome annotation.

Sr. Scientist. 2002. Structural GenomiX, San Diego. Modeling and functional annotation of human kinase non-catalytic domains. Annotation of human secreted proteins of unknown function. X-ray crystallographic refinement-methods development.

Graduate Student. 1997-2001. University of Washington. With Dr. David Baker. *Ab initio* protein structure prediction methods development.

Research Assistant. 1997. National High Magnetic Field Laboratory, Tallahassee. With Dr. Allen G. Marshall. Design of ultra low flow rate chromatography systems for the analysis of low concentration biological samples via Fourier Transform Ion Cyclotron Resonance mass spectrometry.

Undergraduate Research. Florida State University. 1995-1996. With Dr. Tim Logan. Study of FKBP-12 by proton exchange using NMR (MEXICO). Methods for isotopic labeling in mammalian cell lines. **1993-1994.** With Dr George Bates. Plant transformation and genetic manipulation, plant cell culture.

Teaching Experience:

Halobacterium Curriculum Development. 2002-2004. As part of ISB's ongoing commitment to revolutionizing high-school biology curriculum I have

participated in our summer program aimed at creating an inquiry based high-school systems-biology curriculum by working with high school interns and local teachers.

Biochemistry, Teaching Assistant, UW. 1999-2000.

High School Teacher. 1997-1998. NOVA High, Seattle. Designed and taught a high school biochemistry curriculum for students with little or no science education ages 14-22. See www.novaproj.org.

Board Member, FSU Center for Participant Education. 1994-1996. CPE is the oldest free university in the country. Adult education programs, free classes and lectures covering diverse topics were offered free of charge to the community. Taught "Grinding on the Green".

Fellowships and Awards

Howard Hughes Medical Institute pre-doctoral Fellowship in the Biological Sciences, 1998-2001

Magna Cum Laude, Biochemistry, FSU, 1996

American Cancer Society – James Jay Fisher Fellowship, 1996

Florida Academic Scholars Award, 1993

International Baccalaureate Degree, 1993

Selected Publications:

Bonneau R, Reiss DJ, Shannon P, Hood L, Baliga NS, Thorsson V (2005) The Inferelator: a procedure for learning parsimonious regulatory networks from systems-biology data-sets de novo [Submitted].

David J Reiss, Nitin S Baliga, **Bonneau R**. (2005) Integrated biclustering of heterogeneous genome-wide datasets [Submitted]

Malmström L, Riffle M, Strauss CEM, Davis TN, **Bonneau R**, Baker D. (2005) Genome-wide de novo structure prediction for *Saccharomyces cerevisiae* and integration of a structural compendium with the Gene Ontology database. [Submitted]

Shannon P, Reiss DJ, **Bonneau R**, Baliga NS (2005) The Gaggle: A system for integrating bioinformatics and computational biology software and data sources. [Submitted].

Bonneau, R. (2005) *De Novo Structure Prediction: methods and applications*. Chapter 12 in *Bioinformatics: From genomes to therapies*. Wiley-VCH. [In press]

Bonneau R, Baliga NS, Deutsch EW, Shannon P, Hood L. (2004) Comprehensive *de novo* structure prediction in a systems-biology context for the archaea *Halobacterium* sp. NRC-1. *Genome Biology*. **5**(8):R52-68

Baliga NS, Bjork SJ, **Bonneau R**, Pan M, Iloanusi C, Kottemann MC, Hood L, DiRuggiero J. (2004) Systems level insights into the stress response to UV radiation in the halophilic archaeon *Halobacterium* NRC-1. *Genome Res*. **14**(6):1025-35. Epub 2004 May 12.

Weston, A.D.*, Baliga, N.S.*, **Bonneau, R.***, Hood, L. (2003) Systems Approaches Applied to the Study of *Saccharomyces cerevisiae* and *Halobacterium* sp. *Cold Spring Harbor Symposia on Quantitative Biology LVIII* 68:345-57 * **equal authorship**

Baliga NS., **Bonneau R.**, Facciotti M, Pan M, Deutsch E, Glusman G, Shannon P, Chiu Y, Weng RS, Kan JR, Hung P, Date S, Marcotte E, Hood L, Ng V. (2004) Genome sequence of *Haloarcula marismortui* – a halophilic archaeon from the Dead Sea. *Genome Res.* **5**(8):R52

Facciotti, M.T., **Bonneau, R.**, Hood, L., and Baliga, N.S. (2004) Systems Biology Experimental Design - Considerations for Building Predictive Gene Regulatory Network Models for Prokaryotic Systems. *Current Genomics* [In Press]

Flory MR, Lee H, **Bonneau R**, Mallick P, Serikawa K, Goodlett D, Morris D, Aebersold R. (2005) Quantitative proteomic analysis of the budding yeast cell cycle using acid-cleavable isotopically labeled affinity tag reagents. *Proteomics* [Submitted].

Bonneau, R., Dylan Chivian, Charlie EM Strauss, Carol Rohl, David Baker. (2002) De Novo Prediction of Three Dimensional Structures for Major Protein Families. *JMB*, **322**(1):65-78.

Bonneau, R., Ingo Ruczinski, Jerry Tsai, David Baker. (2002) Contact Order and *ab initio* Structure Prediction. *Protein Science*, **11**(8):1937-44.

Bonneau, R., Jerry Tsai, Ingo Ruczinski, Dylan Chivian, Carol Rohl, Charlie EM Strauss, David Baker. (2001) Rosetta in CASP4: Progress in *ab initio* protein structure prediction. *Proteins*. **45** (S5)119-126.

Bonneau, R., Jerry Tsai, Ingo Ruczinski, David Baker. (2001) Functional inferences from blind *ab initio* protein structure predictions. *J. Struct. Biol.* **134**(2-3), 186-90.

Bonneau, R., Strauss, C. & Baker, D. (2001). Improving the performance of Rosetta using multiple sequence alignment information and global measures of hydrophobic core formation. *Proteins* **43** (1), 1-11.

Bonneau, R & Baker, D. (2001). *Ab Initio* Protein Structure Prediction: Progress and Prospects. *Annu. Rev. Biophys. Biomol. Struct.* **30**, 173-89. Review.

Chivian D, Kim DE, Malmstrom L, Bradley P, Robertson T, Murphy P, Strauss CE, **Bonneau R**, Rohl CA, Baker D. (2003) Automated prediction of CASP-5 structures using the Robetta server. *Proteins*. **53** Suppl 6:524-33.

Tsai J, **Bonneau R**, Morozov AV, Kuhlman B, Rohl CA, Baker D. (2003) An improved protein decoy set for testing energy functions for protein structure prediction. *Proteins*. **53**(1):76-87.

Chivian D, Robertson T, **Bonneau R**, Baker D. (2003) *Ab initio* methods. *Methods Biochem Anal.* **44**:547-57. Review.

Chivian, D., **Bonneau, R.**, Baker, D. et al. (2003) Chapter 27: Ab initio structure prediction. (In) Bourne, P.E. (2003) *Structural Bioinformatics (Methods of Biochemical Analysis, V. 44)*. New York: John Wiley & Sons; ISBN: 0471201995.

Ruczinski, I., Kooperberg, C., **Bonneau, R.**, Baker, D. (2001) Distributions of beta sheets in proteins with application to structure prediction. *Proteins* **48**(1), 85-97.

Simons, K. T., **Bonneau, R.**, Ruczinski, I. & Baker, D. (1999). *Ab initio* protein structure prediction of CASP III targets using ROSETTA. *Proteins* **37**(S3), 171-176.

Selected Speaking Engagements:

Transcriptome 2005. Shanghai, China. 2005.

2nd International E. coli Alliance Conference on Systems Biology. Banff, Canada, 2004.

Invited Speaker. Biomedical Engineering Society Annual Fall meeting. Nashville, TN 2003

IBC workshop: Advances in Structure-Guided Drug Discovery, In silico techniques and SAR approaches, La Jolla, CA, November 15, 2002.

Institute for Complex Adaptive Matter Workshop, "Self-Organizing Biomolecules – the evolving picture", Santa Fe, NM, USA, January 2002.

The 39th meeting of the Biophysical Society of Japan, Osaka, Japan, October 2001.

"4th Critical Assessment of Protein Structure Prediction", Assilomar, CA, USA, December 2000.