Albion E. Baucom

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EXPERIENCE

Research Specialist **12/05-Present**

University of California, San Francisco, Molecular Structure Group
Principle Investigator: **David A Agard Ph.D.**

- Development of methods in helical reconstruction imaged by electron microscopy
- Determination of structure of biological molecules solved by cryo and negative stain electron microscopy

Post-Graduate Researcher **1/00-9/05**

University of California, Santa Cruz, Center for Molecular Biology of RNA
Principle Investigator: **Harry F. Noller Ph.D.** (831) 459-2453

- Responsible for solving the 3-dimensional x-ray structure of the 70S ribosome.
- Directly involved in x-ray data collection, data reduction, modeling, and structural analysis.
- Provided custom programming, data analysis, training, figure making, and technical support for a diverse team of graduate, post-doctoral, and staff scientists.
- Produced illustrations, diagrams and animations for journal articles and presentations
- Administered a large collection of networked PC, Macintosh, SGI and LINUX computers

Producer/Animator/Programmer **5/92-Present**

Cabrillo College, Computers and Chemistry at Cabrillo College (C4) Project
Principle Investigator: **Harry G. Ungar Ph.D.** (703) 292-4647.

- Programming lead on two NSF grants for undergraduate curriculum development in chemistry
- Produced chemistry software, molecular graphics, and animations for use in the classroom and college level chemistry textbooks.
- Developed novel methods of visualizing small molecules in an educational setting
- Managed a database of small molecules for use in course material

Undergraduate Researcher **9/94-9/96**

University of California, Santa Cruz, Department Chemistry and Biochemistry
Principle Investigator: **Lydia M. Gregoret Ph.D., David Haussler Ph.D.,**

- Studied protein structure and function using computational methods and molecular modeling
- Provided custom programming, research and technical assistance for lab members
- Created molecular graphics, illustrations and animations for publications and presentations
- UNIX system administration for SGIs, PCs, and Macintoshes.

EDUCATION

M.S. Computer Science **10/96-12/99**
Department of Computer Science and Engineering
University of California, Santa Cruz
Advisors: **David Haussler Ph.D., Lydia M. Gregoret Ph.D.**
Thesis: "*Protein Structure and Function Prediction: Tools and Techniques*"

B.A. Molecular, Cellular, and Developmental Biology **9/92-6/96**
Department of Molecular, Cellular and Developmental Biology
University of California, Santa Cruz

AWARDS

AAAS Newcomb-Cleveland award for research article of the year in *Science* 2001
Honors in Biology, Cabrillo College 1994
Cannon B. Jensen Scholarship, Chemistry, Cabrillo College 1993

TALKS

Baucom, A. E., Visualizing the Ribosome: A Molecular Machine Comes into Focus, Gordon Research Conference, Visualization in Science and Education, Oxford UK, July 23, 2003 (invited talk).

Baucom, A. E., Ungar, H. G., Calciano, L., Molecular Visualization: A Library of Computer Models, Java Based Tools and Viewers for Chime., American Chemical Society 218th National Meeting, New Orleans, August 26, 1999.

PUBLICATIONS

Hickerson, Robyn, Majumdar, Zigurts K., **Baucom, Albion E**., Clegg, Robert M., Noller, Harry F., Measurement of Internal Movements within the 30S Ribosomal Subunit Using Forster Resonance Energy Transfer, Journal of Molecular Biology, Journal of Molecular Biology, 354(2):459-72, 2005

Noller, Harry F, **Baucom, Albion E.**, Structure of the 70S Ribosome: Implications for Movement, Biochem Soc Trans 2002 30(6):1159-61.

Noller, Harry F., Yusupov, Marat M., Yusupova, Gulnara Z., **Baucom, A. E.**, Cate, JHD, Translocation of tRNA during protein synthesis, FEBS Letters, 514(1):11-6, 2002.

Noller, H.F., Yusupov, M., Yusupova, G., **Baucom, A. E.**, Lieberman, K., Lancaster, L., Dallas, A., Fredrick, K., Earnest, T.N., and Cate, J.H.D. Structure of the Ribosome at 5.5 Å Resolution and Its Interactions with Functional Ligands. Cold Spring Harbor Symposia on Quantitative Biology: The Ribosome, Volume 66. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, pp. 57-66, 2001.

Yusupov, M. M., Yusupova, G. Zh., **Baucom, A. E.**, Lieberman, K., Earnest T. N., Cate J. H. D., Noller, H. F., Crystal Structure of the Ribosome at 5.5 A Resolution, Science 292(5518):883-896, 2001.

Stawiski, E. W., **Baucom, A. E.**, Lohr, S. C., Gregoret, L. M., Predicting Protein Function from Structure: Unique Structural Features of Proteases, Proceedings of the National Academy of Sciences of the United States of America 97(8):3954-8, 2000.

Bentz, J., **Baucom, A. E.**, Hansen, M., Gregoret, L. M., Dinamo: Interactive Protein Alignment and Model Building., Bioinformatics (15):309-316., 1999.

Hansen, M, **Baucom, A. E.**, Bentz, J., Gregoret, L. M., Dinamo: A Coupled Sequence Alignment Editor/Molecular Graphics Tool for Interactive Homology Modeling of Proteins., Pacific Symposium on Biocomputing 106-17, 1998.