

ANDREW C. HAUSRATH

Department of Biochemistry and Molecular Biophysics
Biosciences West, Rm 451
University of Arizona
Tucson, AZ 85721
(520) 626-1925 office
(520) 529-4102 home
hausrath@email.arizona.edu

EDUCATION

2000 Ph.D. Chemistry, University of Oregon
1991 B.A. Mathematics, University of California, Santa Cruz
1991 B.A. Physics, University of California, Santa Cruz

PROFESSIONAL EXPERIENCE

2001-Present: Research Associate, UA Dept. of Biochemistry and Molecular Biophysics,
Tucson, AZ
2000-2001: Postdoctoral Fellow, Howard Hughes Medical Institute, Eugene, OR
1993-2000: Research Assistant, Institute of Molecular Biology., Eugene, OR
1992-1993: Teaching Assistant, UO Chemistry Dept., Eugene, OR
1991-1992: Chemist, Applied Biosystems, Foster City, CA
1990-1991: Teaching Assistant, UCSC Dept., Santa Cruz, CA

PROFESSIONAL AFFILIATIONS

Program in Applied Mathematics, University of Arizona, Tucson 2004-present

PROFESSIONAL ACTIVITIES

Reviewer for *Protein Science*

GRANTS PENDING

Discrete and Continuous Models of Proteins: New Tools for Structure Determination, Fold Space Exploration, and Design, Andrew Hausrath (PI) and Alain Goriely (Co-PI), submitted 6/30/04, Combined NSF/NIGMS Bio-Math Initiative, \$710,269.00

Protein Design Processes: Design of Modular Binding Proteins Using Differential Geometry, John Osterhout (PI), Andrew Hausrath (Co-PI), and Alain Goriely (Co-PI), submitted 9/17/04, Defense Advanced Research Projects Agency, \$4,472,201.78

TEACHING EXPERIENCE

University of Arizona, Fall 2004: BIOC 460 General Protein and General Metabolic Biochemistry: Fundamentals of biochemistry, including proteins, enzymes, carbohydrates and lipids and their metabolic relationships. I wrote and delivered 20 lectures comprising for the first half of this ~500-student nonmajors biochemistry class.

University of Arizona, Fall 2002: BIOC 462A Introduction to the properties and metabolism of proteins, nucleic acids, enzymes, carbohydrates and lipids. I led discussion sections for this ~100 student class for biochemistry and chemistry majors.

University of Oregon, 1996-2000: CHEM 664 Physical Biochemistry. Gave occasional lectures on protein crystallography for this graduate class of ~40 students.

University of Oregon, 1992-93: General Chemistry Lab. I was a teaching assistant for lab sections in the undergraduate chemistry majors course.

University of California, Santa Cruz, 1990-91: General Physics Lab. As an undergraduate I was a teaching assistant for the non-majors general physics class and led lab sections.

University of California, Santa Cruz, 1988-91: Reader for various classes in mathematics (Calculus, Complex Analysis, Abstract Algebra) and physics (General Physics, Analytical Mechanics)

PUBLICATIONS

Dyer CM, Quillin ML, Campos A, Lu J, McEvoy MM, Hausrath AC, Westbrook EM, Matsumura P, Matthew BW, Dahlquist FW (2004) Structure of the Constitutively Active Double Mutant CheY^{D13K Y106W} Alone and in Complex with a FliM Peptide. *J Mol Biol*, 342(4):1325-35.

Basha E, Lee GJ, Breci LA, Hausrath AC, Buan NR, Giese KC, Vierling E (2004) The identity of proteins associated with a small heat shock protein during heat stress in vivo indicates that these chaperones protect a wide range of cellular functions. *J Biol Chem* 279(9):7566-75.

Hausrath AC, Matthews BW (2002) Thermolysin in the absence of substrate has an open conformation. *Acta Crystallogr D Biol Crystallogr* 58(Pt. 6 Iss. 2):1002-7.

Hausrath AC, Capaldi RA, Matthews BW (2001) The conformation of the epsilon- and gamma-subunits within the Escherichia coli F(1) ATPase. *J Biol Chem* 276(50):47227-32.

Hausrath AC, Gruber G, Matthews BW, Capaldi RA (1999) Structural features of the gamma subunit of the Escherichia coli F(1) ATPase revealed by a 4.4-A resolution map obtained by x-ray crystallography. *Proc Natl Acad Sci U S A* 96(24):13697-702.

Gassner NC, Baase WA, Hausrath AC, Matthews BW (1999) Substitution with selenomethionine can enhance the stability of methionine-rich proteins. *J Mol Biol* 294(1):17-20.

McEvoy MM, Hausrath AC, Randolph GB, Remington SJ, Dahlquist FW (1998) Two binding modes reveal flexibility in kinase/response regulator interactions in the bacterial chemotaxis pathway. *Proc Natl Acad Sci U S A* **95**(13):7333-8.

Gruber G, Hausrath A, Sagermann M, Capaldi RA (1997) An improved purification of ECF1 and ECF1F0 by using a cytochrome bo-deficient strain of Escherichia coli facilitates crystallization of these complexes. *FEBS Lett* **410**(2-3):165-8.

Holland DR, Hausrath AC, Juers D, Matthews BW (1995) Structural analysis of zinc substitutions in the active site of thermolysin. *Protein Sci* **4**(10):1955-65.

Hausrath AC, Matthews BW (1994) Redetermination and refinement of the complex of benzylsuccinic acid with thermolysin and its relation to the complex with carboxypeptidase A. *J Biol Chem* **269**(29):18839-42.

REFERENCES

Brian W. Matthews (PhD advisor)
Investigator, Howard Hughes Medical Institute
Professor of Physics
Institute of Molecular Biology
University of Oregon
Eugene, OR 97403-1229
Phone: 541-346-2572
Fax: 541-346-5870
Email: brian@uoxray.uoregon.edu

Frederick W. Dahlquist
Professor of Chemistry and Biochemistry
Dept. of Chemistry and Biochemistry
University of California, Santa Barbara
Santa Barbara CA 93106-9510
Phone: 805-893-5326
Fax: 805-893-4120
Email: dahlquist@chem.ucsb.edu

S. James Remington
Professor of Physics
Institute of Molecular Biology
University of Oregon
Eugene, OR 97403-1229
Phone: 541-346-2572
Fax: 541-346-5870
Email: jremington@uoxray.uoregon.edu

Alain Goriely
Associate Professor of Mathematics
Dept. of Mathematics
University of Arizona
Tucson, AZ 85721-0089

Note that Prof. Goriely is on sabbatical in France this year- the best way to contact him is email:
goriely@math.arizona.edu