
BIOGRAPHICAL SKETCH

NAME	POSITION TITLE		
Dr. Marvin L. Hackert	William Shive Professor of Biochemistry Dept. Chem.& Biochem., Univ. of Tx at Austin		
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Central College, Pella, Iowa	B.A. (Honors)	1966	Chemistry (Honors)
Iowa State University, Ames, Iowa	Ph.D. (NDEA)	1970	Phys. Chem/Crystallog.
Purdue Univ., W. Lafayette, IN	NIH Fellow	'70-'74	Protein Crystallography

ACADEMIC CAREER University of Texas at Austin

Assistant Professor of Chemistry (1974-1980), Associate Professor of Chemistry (1980 –1986)

Professor of Chemistry and Biochemistry (1986 -)

1993-present William Shive Centennial Professor of Biochemistry

1995-2000 Chairman, Department of Chemistry and Biochemistry

1997-present Director, Biochemical Institute, University of Texas at Austin

MEMBERSHIPS and PROFESSIONAL SERVICE

Member - ACS, CCR, ACA, ASBMB, AAAS

Elected - US Nat. Comm. for Cryst.- '93-'96; Chair Elect '97-'99, Chair '00-'02

ACA - BIOMAC SIG (Sec-treas. '86-'88; Chair:'91-'92)

- ACA Publication Committee : 1988-'91 (Chair - 1991)

- ACA Service Awardee - 1992

- Nominated for Office of President-Elect for 1996, 1997

- Local Co-Chair (2002 ACA meeting in San Antonio)

Advisory Board - UCSD Multiwire Area Detector Facility : 1986-95

National Advisory Council - Central College (1996 - present)

NIH Reviewers Reserve (1994-98)

Journal Reviews: Acta Cryst., JBC, JMB, Sci., Nature, Biochem., etc.

UNIVERSITY and DEPARTMENTAL SERVICE

Faculty Council (2000-2002) – Ed. Policy Comm. / TA. & AI Rights and Resp. Comm.

Faculty Budget Advisory Committee (2001-2004)

Dept. IT / Web Site Comm. / Editor – *Chemical Compositions*

Chair; Dept. of Chemistry and Biochemistry (1995-2000)

Graduate Adviser and GSC Chair; Ph.D. in Biochemistry (1986-90)

Graduate Adviser and GSC Chair; Dept. Chem. & Biochem. (1991-95)

Graduate Assembly (1989-95); Chair, 1991-92

Univ. Texas System Faculty Advisory Group - 1991-92

University Research Inst. Awards Comm. - 1987-89

Assistant to Chairman (Dr. Robert Wyatt; 1984-87)

Biochemistry Division Coordinator: 1984-89

Departmental Computer Accounts Representative: 1984-1995

College of Natural Sciences - Course and Curr. Comm: 1989-92

UIL Texas State Science Contest Director (Chemistry): 1983-96

Executive Comm. - Molecular Biophysics Training Grant

Other: Advising, Fac. Search Comm., Grad. Adm. Comm., Awards Comm.

RESEARCH AREAS

Dr. Hackert's research interests are in structural molecular biology. A primary research focus is on structure/function relationships of pyruvoyl- and PLP-dependent enzymes using biochemical and protein crystallographic techniques. Dr. Hackert's laboratory has shown that all PLP-dependent decarboxylases should fall into two very different structural families. Current initiatives in this area are to determine the structure of antizyme and antizyme:OrnDC complexes that regulate OrnDC activity. Dr. Hackert's

laboratory is also involved in a number of collaborative structural projects: tautomerase and MIF (Whitman, Pharmacy) and E2 core fragments and the regulatory phosphatase of a multienzyme complex (Reed, Chem/Biochem.).

BIBLIOGRAPHY (Publications last 24 months)

Knapp, J.E., Oliveira, M.A., Xie, Q., Ernst, S.R., Riggs, A.F., and Hackert, M.L., "The Structural and Functional Analysis of the Hemoglobin D Component from Chicken", *J. Biol. Chem.*, **274**, 6411-6420 (1999).

Kern, A.D., Oliveira, M.A., Coffino, P. and Hackert, M.L., "The Structure of Mammalian Ornithine Decarboxylase at 1.6Å Resolution: Stereochemical Implications of PLP-dependent Amino Acid Decarboxylases" *Structure*, **7**, 567-581 (1999).

Taylor, A.B., Johnson, W.H., Czerwinski, R.M., Li, H.-S., Hackert, M.L., and Whitman, C.P. "Crystal Structure of Macrophage Migration Inhibitory Factor Complexed with (E)-2-Fluoro-*p*-hydroxycinnamate at 1.8Å resolution: Implications for Enzymatic Catalysis and Inhibition" *Biochemistry*, **38**, 7444-7452 (1999).

Vitali, J., Carroll, D., Chaudhry R., Hackert, M.L. "The Three-dimensional Structure of the Gly121Tyr Dimeric Form of Ornithine Decarboxylase from *Lactobacillus* 30a" *Acta Cryst.*, **D55**, 1978-1985 (1999).

Knapp, J.E., Carroll, D., Lawson, J.E., Ernst, S.R., Reed, L.J., and Hackert, M.L., " Expression, Purification, and Structural Analysis of the Trimeric Form of the Catalytic Domain of the *Escherichia coli* Dihydrolipoamide Succinyltransferase " *Protein Science*, **9**, 37-48 (2000).

Almud, J.J., Oliveira, M.A., Kern, A.D., Grishin, N.V., Phillips, M.A. and Hackert, M.L., " Crystal Structure of Human Ornithine Decarboxylase at 2.1Å Resolution: Structural Insights to Antizyme Binding" *J. Molec. Biol.*, **295**, 7-16 (2000).

Hackert, M.L., Kern, A.D., Oliveira, M.A., Almud, J.J., Carroll, D.W., and Ernst, S.R. "Mouse Ornithine Decarboxylase: Structural Comparisons to Other PLP-Dependent Enzymes" in *Biochemistry and Molecular Biology of Vitamin B6 and PQQ-dependent Proteins*, ed. A. Iriarte, H.M. Kagen, and M. Martinez-Carrion, Birkhauser Verlag, Basel, 321-326 (2000).

Stamps, S.L., Taylor, A.B., Wang S.C., Hackert, M.L., Whitman, C.P., "Mechanism of the phenylpyruvate tautomerase activity of macrophage migration inhibitory factor: properties of the P1G, P1A, Y95F, and N97A mutants" *Biochemistry*, **39**:9671-8 (2000).

OTHER SELECTED PUBLICATIONS (Last five years)

Momany, C., Ghosh, R., Hackert, M.L., "Two Structural Motifs For Pyridoxal-5'-Phosphate Binding In Decarboxylases: An Analysis Based on the Crystal Structure of the *Lactobacillus* 30A Ornithine Decarboxylase" *Protein Science*, **4**, 849-854 (1995).

Mitchell, D., Kitto, G.B. and Hackert, M.L., "Structural Analysis of Monomeric Hemichrome and Dimeric Cyanomet Hemoglobin from *Caudina arenicola*" *J. Molec. Biol.*, **251**, 421-431 (1995).

Momany, C., Ernst, S.R., Ghosh, R., Hackert, M.L., "Crystallographic Structure of a PLP-Dependent Ornithine Decarboxylase from *Lactobacillus* 30A to 3.1Å" *J. Molec. Biol.*, **252**, 643-655 (1995).

M.A. Oliveira, D. Carroll, L. Davidson, C. Momany, and M.L. Hackert, "The GTP Effector Site of Ornithine Decarboxylase from *Lactobacillus* 30a: kinetic and structural characterization" *Biochemistry*, **36**, 16147-16154 (1997).

M.L. Hackert and A.E. Pegg, "Pyruvoyl-dependent Enzymes" a review chapter in *Comprehensive Biological Catalysis*, Vol. 3, Sec G, ed. M. L. Sinnott, Academic Press, pp201-216, 1998.

Knapp, J.E., Mitchell, D.T., Yazdi, M.A., Ernst, S.R., Reed, L.J., and Hackert, M.L., "Crystal Structure of the Truncated Cubic Core of the *Escherichia coli* 2-Oxoglutarate Dehydrogenase Multienzyme Complex" *J. Molec. Biol.*, **280**, 655-668 (1998).

Taylor, A.B., Czerwinski, R.M., Johnson, W.H., Whitman, C.P., and Hackert, M.L., "Crystal Structure of 4-Oxalocrotonate Tautomerase Inactivated by 2-Oxo-3-pentynotate at 2.4Å resolution: Analysis and Implications for the Mechanism of Inactivation and Catalysis" *Biochemistry*, **37**, 14692-14700 (1998).