

BIOGRAPHICAL SKETCH

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NAME Fei Philip Gao	POSITION TITLE		
COMMONS USER NAME Philip Gao	Director, Protein Production Core Laboratory		
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Beijing Medical University	B.S.	1988	Medical Chemistry
University of Kansas	Ph.D.	1996	Biochemistry
University of California in Los Angeles	Postdoc	1996-2000	Physiology, Immunology and Microbiology

A. Positions and Honors.**Positions and Employment**

- 08/89–08/96 Graduate Research Assistant, laboratory of Dr. Mark Richter, Department of Biochemistry, University of Kansas
- 08/96–08/00 Postdoctoral Fellow, laboratory of Dr. H. Ronald Kaback, University of California in Los Angeles
- 06/99–06/00 Visitor, National High Magnetic Field, Florida State University
- 09/00–12/01 Visiting Scientist, National High Magnetic Field Laboratory, Florida State University
- 01/02–04/07 Assistant Scholar Scientist, Membrane Protein Production Facility, High Magnetic Field Laboratory, Florida State University
- 05/07–06/08 Research Associate, Department of Molecular Biosciences, University of Kansas.
- 07/08-present Director, Protein Production Core Laboratory, University of Kansas

Honors and Awards

- 1991 The Borgendale Best Graduate Seminar Award in Biochemistry, University of Kansas
- 1993 Graduate School Summer Fellowship, 1993, Univ. of Kansas
- 1996-1997 Howard Hughes Medical Institute postdoctoral fellowship
- 1997-2000 NIH Research Service Award

B. Selected peer-reviewed publications (in chronological order).

- Li R, Gao F, Wang K. Kinetic studies on ligand substitution reaction of metallothioneins with DTPA and EDTA. *Chem. J. Chinese Univ.* 1990; 6(1):67-72
- Gao F, Lipscomb B, Wu I, Richter ML. In vitro assembly of the core catalytic complex of the chloroplast ATP synthase. *J Biol Chem.* 1995 Apr 28; 270(17):9763-9.
- Richter ML, Gao F. The chloroplast ATP synthase: structural changes during catalysis. *J Bioenerg Biomembr.* 1996 Oct; 28(5):443-9.
- Sokolov M, Lu L, Tucker W, Gao F, Gegenheimer PA, Richter ML. The 20 C-terminal amino acid residues of the chloroplast ATP synthase gamma subunit are not essential for activity. *J Biol Chem.* 1999 May 14; 274(20):13824-9.
- Hughes T, Strongin B, Gao FP, Vijayvergiya V, Busath DD, Davis RC. AFM visualization of mobile influenza A M2 molecules in planar bilayers. *Biophys J.* 2004 Jul; 87(1):311-22. PMC1304352
- Korepanova A, Gao FP, Hua Y, Qin H, Nakamoto RK, Cross TA. Cloning and expression of multiple integral membrane proteins from *Mycobacterium tuberculosis* in *Escherichia coli*. *Protein Sci.* 2005 Jan; 14(1):148-58. PMC2253320
- Chin KH, Huang ZW, Wei KC, Chou CC, Lee CC, Shr HL, Gao FP, Lyu PC, Wang AH, Chou SH. Preparation, crystallization and preliminary X-ray characterization of a conserved hypothetical protein XC1692 from *Xanthomonas campestris*. *Acta Crystallograph Sect F Struct Biol Cryst Commun.* 2005 Jul

- 1; 61(Pt 7):691-3. PMC1952469
8. Xiong Y, Chalmers MJ, Gao FP, Cross TA, Marshall AG. Identification of Mycobacterium tuberculosis H37Rv integral membrane proteins by one-dimensional gel electrophoresis and liquid chromatography electrospray ionization tandem mass spectrometry. *J Proteome Res.* 2005 June 4(3):855-61.
 9. Yang CY, Chin KH, Chou CC, Shr HL, Gao FP, Lyu PC, Wang AH, Chou SH. Cloning, purification crystallization and preliminary X-ray characterization of a conserved hypothetical protein XC6422 from *Xanthomonas campestris*. *Acta Crystallograph Sect F Struct Biol Cryst Commun.* 2005 Jul 1; 61(Pt 7):703-5. PMC1952462
 10. Tu ZL, Li JN, Chin KH, Chou CC, Lee CC, Shr HL, Lyu PC, Gao FP, Wang AH, Chou SH. Cloning, expression, crystallization and preliminary X-ray analysis of a putative multiple antibiotic resistance repressor protein (MarR) from *Xanthomonas campestris*. *Acta Crystallograph Sect F Struct Biol Cryst Commun.* 2005 Jul 1;61(Pt 7):706-8. PMC1952447
 11. Wu YY, Chin KH, Chou CC, Lee CC, Shr HL, Gao FP, Lyu PC, Wang AH, Chou SH. Cloning, purification, crystallization and preliminary X-ray crystallographic analysis of XC847, a 3'-5' oligoribonuclease from *Xanthomonas campestris*. *Acta Crystallograph Sect F Struct Biol Cryst Commun.* 2005 Oct 1; 61(Pt 10):902-5. PMC1991326
 12. Li C, Mo Y, Hu J, Chekmenev E, Tian C, Gao FP, Fu R, Gor'kov P, Brey W, Cross TA., Analysis of RF heating and sample stability in aligned static solid-state NMR spectroscopy. *J Magn Reson.* 2006 May; 180(1):51-7.
 13. Page RC, Moore JD, Nguyen HB, Sharma M, Chase R, Gao FP, Mobley CK, Sanders CR, Ma L, Sonnichsen FD, Lee S, Howell SC, Opella SJ, Cross TA. Comprehensive evaluation of solution nuclear magnetic resonance spectroscopy sample preparation for helical integral membrane proteins. *J Struct Funct Genomics.* 2006; 7(1):51-64.
 14. Hu J, Qin H, Li C, Sharma M, Cross TA, Gao FP. Structural biology of transmembrane domains: efficient production and characterization of transmembrane peptides by NMR. *Protein Sci.* 2007 Oct; 16(10):2153-65. PMC2204124
 15. Page RC, Li C, Hu J, Gao FP, Cross TA. Lipid bilayers: an essential environment for the understanding of membrane proteins. *Magn Reson Chem.* 2007 Dec 19;45(S1):S2-S11.
 16. Hu J, Qin H, Sharma M, Cross TA, Gao FP. Chemical cleavage of fusion proteins for high-level production of transmembrane peptides and protein domains containing conserved methionines. *Biochim Biophys Acta.* 2008 Apr;1778(4):1060-6. Epub 2008 Jan 11.
 17. Qin H, Hu J, Hua Y, Challa SV, A Cross TA and Gao FP. Construction of a Series of Vectors for High Throughput Cloning and Expression Screening of Membrane Proteins from *Mycobacterium tuberculosis*. *BMC Biotechnology,* 2008; 8:51. PMC2396618
 18. Hu J, Sharma M, Qin H, Gao FP, Cross TA. Ligand binding in the conserved interhelical loop of cora, a magnesium transporter from mycobacterium tuberculosis. *J Biol Chem.* 2009 Apr 3. [Epub ahead of print]

C. Research Support.

Ongoing

■2P20RR017708-06 (PI: R.P. Hanzlik)

09/30/02 – 03/31/13

National Institutes of Health COBRE

Protein Structure and Function

Core B: Protein Production Core Laboratory

Core B goal is to provide large quantities of specified proteins that may prove to be excellent new drug targets for a variety of disease states. NIH COBRE program objectives are (1) to strengthen an institution's biomedical research infrastructure through the establishment of a thematic multi-disciplinary center, and (2) to enhance the ability of investigators to compete independently for complementary NIH individual research grants or other external peer-reviewed support.

Role: Core Leader

Completed (during the last three years)

■W911NF-05-1-0054 (PI: M.L. Richter)

02/15/05 – 02/14/08

DOD, Army Research Office

Patterning complex motor proteins on solid surfaces

The goal of the proposed research is to produce a prototype hybrid F_1 -based nanodevice that is firmly attached to a solid surface in a defined density and orientation with an extended, smoothly rotating armature that rotates in response to binding of a target ligand.

Role: Research Associate

■5R01AI023007-21 (PI: T.A. Cross)

03/01/05 – 04/30/07

National Institutes of Health

Correlation: Structure-Dynamics-Function in Channels

Project goals are to clone and express integral membrane proteins from prokaryotes and to obtain high resolution structures of these proteins.

Role: Co-Investigator