Feng-Ming James Chang

800 N. Union St., apt 215, Bloomington, IN 47408
(812)391-0562, birdsing0312@gmail.com

PROFILE

Analytical biochemist experienced in a variety of biophysical and bioanalytical methods. 6 years experience in biological mass spectrometry (MALDI-TOF-MS and LC-MS/MS) and ligand binding assays using fluorescence anisotropy and isothermal titration calorimetry (ITC).

EDUCATION

Indiana University, Bloomington, Indiana
Ph.D., Chemistry, 2014
National Taiwan University, Taipei, Taiwan
B.S.**,** Chemistry, 2004

Ph.D Dissertation: "Structural and functional characterization of the *bacillus species* copper sensing repressor protein CsoR"

RESEARCH AND PROFESSIONAL EXPERIENCE

Postdoctoral Fellow, Department of Chemistry, Indiana University, Bloomington, Indiana 2015-present
- Developed a HPLC/UPLC and LC-MS/MS methodology to study sulfide metabolites and enzymatic mechanism in pathogenic bacteria *Staphylococcus aureus*.

Graduate Research Assistant, Department of Chemistry, Indiana University, Bloomington, Indiana
Principal Investigator: David P. Giedroc, Ph.D. 2008-2014
- Biochemical and Structural Characterization of Cu(I)-sensing protein CsoR
  - Developed a new chemical/isotope labeling mass spectrometry-based methodology to study protein-protein and protein-DNA interaction.
  - Determined protein-ligand binding affinity by small molecule competition assay using UV/Vis spectroscopy, fluorescence anisotropy and ITC.
  - Determined protein structure by Small Angle X-ray Scattering (SAXS), X-ray crystallography and NMR spectrometry.

Research Assistant, Department of Chemistry, National Taiwan University, Taipei, Taiwan 2006-2007
- Natural product purification and characterization from *Cimicifuga heracleifolia*
  - Small molecule purification and structure elucidation by High Performance Liquid Chromatography (HPLC) and NMR spectrometry.

Research Assistant, Stem Cells Tissue Regeneration and Biomedical Materials Research Center, National Taiwan University, Taipei, Taiwan 2006
- Transdifferentiation of bone marrow stem cells into acinar cells
  - Cell co-culture of bone marrow stem cells and acinar cells, and determination by immunostaining methods.

TECHNICAL SKILLS

- **Mass Spectrometry:** MALDI-TOF-MS, ESI-MS, LC-MS/MS, HPLC/UPLC, GC-MS, ICP-MS.
- **Protein Biochemistry:** overexpression of recombinant protein in *E. coli*, protein purification (FPLC system), Gel Electrophoresis (SDS-PAGE, nucleic acid), anaerobic protein preparation, Isothermal Titration Calorimetry (ITC).
- **Spectroscopy:** UV/Visible, Fluorescence, Circular Dichroism, Atomic Absorption.
- **Structural Biology:** NMR, X-ray Crystallography, Small Angle X-ray Scattering (SAXS)
- **Molecular Biology:** General molecular biology procedures including PCR, cloning, mutagenesis etc.
- **Cell Biology:** Cell culture, Immunostaining, Flow cytometry and MTT test.

SELECTED PUBLICATIONS

F. M. Chang; J. Martin, D. P. Giedroc. Electrostatic occlusion and quaternary structural ion pairing are key determinants of Cu(I)-mediated allostery in the copper-sensing operon repressor (CsoR). *Biochemistry* 2015, *In Press*.

Y. Fu, **F. M. Chang,** D. P. Giedroc. Copper Transport and Trafficking at the Host-Bacterial Pathogen Interface. *Acc. Chem. Res.* 2014, *47*, 3605-3613.

F. M. Chang, H. J. Coyne, C. A. Cubillas Ramirez, P. V. Fleischmann, X. Fang, Z. Ma, D. Ma, J. D. Helmann, A. García-de los Santos, Y.-X. Wang, C. E. Dann III, D. P. Giedroc. Cu(I)-mediated allosteric switching in a copper-sensing operon repressor (CsoR). *J. Biol. Chem.* 2014, *289*, 19204-19217.

C. W. Lee, D. K. Chakravorty, **F. M. Chang**, H. Reyes-Caballero, Y. Ye, K. M. Merz, Jr., D. P. Giedroc, Solution Structure of Mycobacterium tuberculosis NmtR in the Apo State: Insights into Ni(II)-Mediated Allostery. *Biochemistry* 2012, *51*, 2619-2629

F. M. Chang, M. A. Lauber, W. E. Running, J. P. Reilly, D. P. Giedroc, Ratiometric pulse-chase amidination mass spectrometry as a probe of biomolecular complex formation. *Analytical Chemistry* 2011, *83*. 9092-9

SELECTED PRESENTATIONS

"Cu(I)-mediated structural transition of *Gt* CsoR by small angle X-ray scattering (SAXS), NMR spectroscopy and X-ray crystallography" Poster Presentation, 2013 American Chemical Society Fall National Meeting & Exposition, Indianapolis, Indiana, September, 2013

"Chemical probing of the Cu(I)-sensing repressor *B. subtilis* CsoR in various allosteric states and in copper trafficking" Poster Presentation, 7th International *Biometals* Symposium (*Biometals 2010*), Tucson, Arizona, July, 2010

PROFESSIONAL AFFILIATIONS

American Chemical Society, Biological Division
American Society for Biochemistry and Molecular Biology
American Society for Mass Spectrometry