

# XIAOYUN LIU

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## HIGHLIGHTS

- Unique cross-disciplinary experience spanning analytical chemistry and biology
- Successfully set up/operate a proteomics platform in biology programs
- Outstanding collaboration record in a multidisciplinary environment

## EDUCATION & TRAINING

- Postdoctoral Associate, Microbial Pathogenesis, Yale University 2009-present
- PhD, Analytical Chemistry, Indiana University (Bloomington, IN) 2008
- MS, Analytical Chemistry, Michigan State University (East Lansing, MI) 2003
- BS, Chemistry, Jilin University (Changchun, China) 2001

## RESEARCH EXPERIENCE

**Yale University, School of Medicine** 2009-present

Advisor: Prof. Jorge E. Galán

- Discovered a novel post-translational modification on Rab GTPases mediated by a *Legionella* effector protein (*Nature* 2011)
- Investigated *in vivo* metabolism of *Campylobacter* within host cells by quantitative proteomics (*PLoS Pathog* 2012)
- Characterized the dynamic composition of a multi-protein complex involved in bacterial type III secretion systems (*Science* 2011)
- Identified a new *Salmonella* virulence factor by proteomic profiling of the bacterial secretome (*PNAS* 2011)
- Uncovered host substrates of a *Salmonella* virulence factor with tyrosine phosphatase activity by phosphotyrosine proteomic profiling (work in progress)

**Indiana University, Department of Chemistry** 2003-2008

Advisor: Prof. David E. Clemmer

- Examined protein constituents of *Chlamydia* outer membrane envelope (*JBacteriol* 2010)
- Studied protein expression in a mouse model of Huntington's disease (*JPR* 2007)
- Analyzed the plasma proteome using LC-ion mobility-MS instrumentation (*JASMS* 2007)

**Michigan State University, Department of Chemistry** 2001-2003

Advisor: Prof. Merlin L. Bruening

- Studied solute transport through ultrathin polyelectrolyte membranes (*ChemMater* 2004)

## TEACHING EXPERIENCE

Associate Instructor, Department of Chemistry, Indiana University	2003-2006
Teaching Assistant, Department of Chemistry, Michigan State University	2001-2003

## PUBLICATIONS

1. Carleton H, Lara-Tejero M, **Liu X**, Galán JE. (2012) Engineering the type III secretion system in non-replicating nanoparticles for antigen delivery. (submitted)
2. **Liu X**, Gao B, Novik V, Galán JE. (2012) Quantitative proteomics of intracellular *Campylobacter jejuni* reveals metabolic reprogramming. *PLoS Pathog.*, 8, e1002562.
3. Spanò S, **Liu X**, Galán JE. (2011) Proteolytic targeting of Rab29 by an effector protein distinguishes the intracellular compartment of human-adapted and broad-host *Salmonella*. *Proc. Natl. Acad. Sci. USA*, 108, 18418-18423.
4. Mukherjee S\*, **Liu X\***, Arasaki K, McDonough J, Galán JE, Roy CR. (2011) Modulation of Rab GTPase function by a protein phosphocholine transferase. *Nature*, 477, 103-106. (\*co-first author)
5. Lara-Tejero M, Kato J, Wagner S, **Liu X**, Galán JE. (2011) A sorting platform determines the order of protein secretion in bacterial type III systems. *Science*, 331, 1188-1191.
6. **Liu X**, Afrane M, Clemmer DE, Zhong G, Nelson DE. (2010) Identification of *Chlamydia trachomatis* outer membrane proteins by differential proteomics. *J. Bacteriol.*, 192, 2852-2860.
7. **Liu X**, Miller BR, Rebec GV, Clemmer DE. (2007) Protein expression in the striatum and cortex regions of the brain for a mouse model of Huntington's disease. *J. Proteome Res.*, 6, 3134-3142.
8. **Liu X**, Valentine SJ, Plasencia MD, Trimpin S, Naylor S, Clemmer DE. (2007) Mapping the human plasma proteome by SCX-LC-IMS-MS. *J. Am. Soc. Mass Spectrom.*, 18, 1249-1264.
9. Valentine SJ, Plasencia MD, **Liu X**, Krishnan M, Naylor S, Udseth HR, Smith RD, Clemmer DE. (2006) Toward plasma proteome profiling with ion mobility-mass spectrometry. *J. Proteome Res.*, 5, 2977-2984.
10. Valentine SJ, **Liu X**, Plasencia MD, Hilderbrand AE, Kurulugama RT, Koeniger SL, Clemmer DE. (2005) Developing liquid chromatography ion mobility mass spectrometry techniques. *Expert Rev. Proteomics*, 2, 553-565.
11. **Liu X**, Plasencia MD, Ragg S, Valentine SJ, Clemmer DE. (2004) Development of high-throughput dispersive LC-ion mobility-TOFMS techniques for analyzing the human plasma proteome. *Brief. Funct. Genomic. Proteomic.*, 3, 177-186.
12. **Liu X**, Bruening ML. (2004) Size-selective transport of uncharged solutes through multilayer polyelectrolyte membranes. *Chem. Mater.*, 16, 351-357.