

NAME	POSITION TITLE	INSTITUTION
Jun Yin	Assistant Professor of Chemistry	University of Chicago

Education and Training

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Peking University, Beijing, China	B.S.	1995	Chemistry
Rutgers University, New Brunswick, NJ	M.S.	1997	Biochemistry
University of California at Berkeley, CA	Ph.D.	2003	Bioorganic Chemistry
Harvard Medical School, Boston, MA	Postdoc	2003-2006	Biochemistry

Employment and Experience

09/1994-08/1995 Peking University, undergraduate research in the Department of Chemistry with Prof. Baohuai Wang.

- Measured the enthalpies of dissolution of fullerenes C₆₀ and C₇₀ in organic solvents by microcalorimetry.

09/1995-08/1997 Rutgers University, graduate research in the Department of Chemistry with Prof. Stephen Anderson.

- Measured the kinetics of amyloid β -peptide fibril formation in vitro and characterized the interaction of tissue plasminogen activator (tPA) with amyloid β peptide fibrils in Alzheimer's disease.

09/1997-07/2003 The University of California at Berkeley and The Scripps Research Institute, graduate research in the Department of Chemistry with Prof. Peter G. Schultz.

- Solved a total of eight crystal structures of the Fab fragments of catalytic antibodies 7G12 and 28B4 in the germline forms and in the affinity-matured forms with various ligands or substrates bound; Elucidated the catalytic mechanism of the ferrocyclase antibody 7G12 and the monooxygenase antibody 28B4 by site directed mutagenesis, X-ray crystallography and resonance Raman spectroscopy.
- Carried out directed evolution on a heme-binding peroxidase antibody using phage display and increased its peroxidase activity by a factor of ten.
- Teaching assistant for Organic Chemistry for the fall semesters of 1997 and 1998 at UC Berkeley.

08/2003 -08/2006 Harvard Medical School, postdoctoral research in the Department of Biological Chemistry and Molecular Pharmacology with Prof. Christopher T. Walsh.

- Identified short peptide tags by phage display as efficient substrates of the posttranslational modification reactions catalyzed by Sfp and AcpS phosphopantetheinyl transferases; Developed an efficient site-specific protein labeling method based on the short peptide modification catalyzed by Sfp and AcpS.
- Used Sfp and AcpS to label cell surface transferrin receptors and epidermal growth factor receptors (ErbB) with small molecule fluorophores and imaged the trafficking dynamics of the transferrin-transferrin receptor 1 complex on live cell surfaces by fluorescence resonance energy transfer (FRET).
- Developed an efficient method for encoding a library of small molecules with DNA barcodes and quickly deconvolute the identity of the small molecules with high binding affinities to target protein receptors from a high throughput screen.
- Developed a phage display method for shotgun cloning of biosynthetic gene clusters from a single bacterial genome or from environmental DNA.

08/2006 – present The University of Chicago, assistant professor at the Department of Chemistry.

- Taught Physical Organic Chemistry in the fall quarter of 2006.
- Current research activities are focused on mechanism of cell signaling pathways by protein posttranslational modification, molecular imaging of ErbB receptor tyrosine kinases and engineering natural product biosynthetic pathways for the combinatorial biosynthesis of structurally diversified natural products.

Honors

1993-1994 Outstanding student scholarship, Peking University
 1995-1996 Graduate student fellowship, Rutgers University
 2006 Camille and Henry Dreyfus Foundation New Faculty Award

Service in Federal Government Committee

2006 Member of the study section for the In Vivo Cellular and Molecular Imaging Centers (ICMICs) of the National Cancer Institute and the National Institutes of Health.

Publications

1. **Yin, J.**, Wang, B. H., Li, Z. F., Zhang Y. M., Zhou, X. H. & Gu, Z. N. (1996) Enthalpies of dissolution of C₆₀ and C₇₀ in o-xylene, toluene, and carbon disulfide at temperatures from 293.15 K to 313.15 K. *J Chem Thermodynamics* 28, 1145-1151.
2. Romesberg, F. E., Santarsiero, B. D., Spiller, B., **Yin, J.**, Barnes, D., Schultz, P. G. & Stevens, R. C. (1998). Structural and kinetic evidence for strain in biological catalysis. *Biochemistry* 37, 14404-9.
3. **Yin, J.**, Mundorff, E. C., Yang, P. L., Wendt, K. U., Hanway, D., Stevens, R. C. & Schultz, P. G. (2001). A comparative analysis of the immunological evolution of antibody 28B4. *Biochemistry* 40, 10764-73.
4. Schultz, P. G., **Yin, J.** & Lerner, R. A. (2002). The chemistry of the antibody molecule. *Angew Chem Int Ed Engl* 41, 4427-37.
5. **Yin, J.**, Andryski, S. E., Beuscher, A. E. t., Stevens, R. C. & Schultz, P. G. (2003). Structural evidence for substrate strain in antibody catalysis. *Proc Natl Acad Sci U S A* 100, 856-61.
6. **Yin, J.**, Beuscher, A. E. t., Andryski, S. E., Stevens, R. C. & Schultz, P. G. (2003). Structural plasticity and the evolution of antibody affinity and specificity. *J Mol Biol* 330, 651-6. This paper was featured on the cover of the issue.
7. **Yin J.** & Schultz P. G. (2004) Immunological evolution of antibody catalysis. In "*Catalytic Antibodies*" (Keinan, E. ed), Wiley-VCH, Weinheim, pp. 1-29.
8. Jimenez, R., Salazar, G., **Yin, J.**, Joo, T. & Romesberg, F. E. (2004). Protein dynamics and the immunological evolution of molecular recognition. *Proc Natl Acad Sci U S A* 101, 3803-8.
9. **Yin, J.**, Mills, J. H. & Schultz, P. G. (2004). A catalysis-based selection for peroxidase antibodies with increased activity. *J Am Chem Soc* 126, 3006-7.
10. **Yin, J.**, Liu, F., Li, X. & Walsh, C. T. (2004). Labeling proteins with small molecules by site-specific posttranslational modification. *J Am Chem Soc* 126, 7754-5. This paper was featured in Science and Technology Concentrates in *Chem & Eng News* 82, [24] 31 (2004).
11. **Yin, J.**, Liu, F., Schinke, M., Daly, C. & Walsh, C. T. (2004). Phagemid encoded small molecules for high throughput screening of chemical libraries. *J Am Chem Soc* 126, 13570-1.
12. Venkatesh Rao, S., **Yin, J.**, Jarzecki, A. A., Schultz, P. G. & Spiro, T. G. (2004). Porphyrin distortion during affinity maturation of a ferrocyclase antibody, monitored by Resonance Raman spectroscopy. *J Am Chem Soc* 126, 16361-7.
13. Vaillancourt, F. H., **Yin, J.** & Walsh, C. T. (2005). SyrB2 in syringomycin E biosynthesis is a nonheme FeII α -ketoglutarate- and O₂-dependent halogenase. *Proc Natl Acad Sci U S A* 102, 10111-6.
14. **Yin, J.**, Lin, A. J., Buckett, P. D., Wessling-Resnick, M., Golan, D. E. & Walsh, C. T. (2005). Single-cell FRET imaging of transferrin receptor trafficking dynamics by Sfp-catalyzed, site-specific protein labeling. *Chem Biol* 12, 999-1006. This paper was featured in a Previews article in *Chem Biol* 12, 954-956 (2005) and in Research Highlights in *Nature Methods* 2, 808 (2005).
15. **Yin, J.**, Straight, P. D., McLoughlin, S. M., Zhou, Z., Lin, A. J., Golan, D. E., Kelleher, N. L., Kolter, R. & Walsh, C. T. (2005). Genetically encoded short peptide tag for versatile protein labeling by Sfp phosphopantetheinyl transferase. *Proc Natl Acad Sci U S A* 102, 15815-20.
16. McLoughlin, S. M., Mazur, M. T., Miller, L. M., **Yin, J.**, Liu, F., Walsh, C. T. & Kelleher, N. L. (2005). Chemoenzymatic approaches for streamlined detection of active site modifications on thiotemplate assembly lines using mass spectrometry. *Biochemistry*, 44, 14159-69.
17. **Yin, J.**, Lin, A. J., Golan, D. E. & Walsh, C. T. (2006). Site-specific protein labeling by Sfp phosphopantetheinyl transferase. *Nature Protocols*, 1, 280-5.
18. Singh, G. M., Vaillancourt, F. H., **Yin, J.**, and Walsh, C. T. (2007) Characterization of SyrC, an Aminoacyltransferase Shuttling Threonyl and Chlorothreonyl Residues in the Syringomycin Biosynthetic Assembly Line. *Chem Biol* 14, 31-40.
19. **Yin, J.**, Straight, P. D., Hrvatin, S., Dorrestein, P. C., Bumpus, S., Jao, C., Kelleher, N. L., Kolter, R., and Walsh, C. T. (2007) Genome-wide high throughput mining of natural product biosynthetic gene clusters by phage display. *Chem Biol* 14, 303-12. This paper was featured in Research Highlights in *Nature Methods* 4, 470-1 (2007).
20. Zhou, Z., Cironi, P., Lin, A. J., Xu, Y., Hrvatin, S., Golan, D. E., Silver, P., Walsh, C. T., and **Yin, J.** (2007) Genetically encoded short peptide tags for orthogonal protein labeling by Sfp and AcpS phosphopantetheinyl transferases. *ACS Chem Biol*, 2, 337-46.

Patent

1. **Yin, J.**, Walsh, C. T., Straight, P. D., Kolter, R. & Zhou, Z. (2005) Genetically encoded short peptide tag for versatile protein labeling by Sfp phosphopantetheinyl transferase. United States patent.
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