

Curriculum Vitae

NAME: Gongyi Zhang

PROFESSIONAL ADDRESS:

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EDUCATION:

- June 1988: Bachelor in Maritime Engineering; Dalian Maritime University, Dalian, P. R. China
- June 1990: M.S. (equivalent) in Protein Crystallography, University of Science and Technology of China, Hefei, P. R. of China
- Sept. 1993: Ph.D. in Protein Crystallography; Institute of Biophysics, Academic Sinica, Beijing, P. R. of China

ACADEMIC APPOINTMENTS:

**1988-1990: Graduate Fellow, Laboratory of Dr. Liwen Niu and Dr. Dongcai Liang
University of Science and Technology of China, P. R. of China**

- a) Structure studies of glucose isomerase from *E. coli*.
- b) Purification and characterization of anti-coagulation and anti-hypertension factors from five-pace snake venom.

**1990-1993: Graduate Fellow, Laboratory of Dr. Dongcai Liang,
Institute of Biophysics, Academic Sinica, P. R. of China**

- a) High resolution structure determination of mutated porcine insulins.
- b) Purification and crystallization of F1-ATPase from porcine heart mitochondria.

**1993-1996: Visiting Fellow, Laboratory of Dr. James H. Hurley
NIDDK, NIH**

- a) Structure determination of protein Kinase C Zinc finger domain complexed with phorbol-13-acetate at 1.9 Å°.
- b) Structure determination of catalytic core of Adenylyl Cyclase with Forskolin at 2.2 Å°.

**1997-1999: Postdoctoral Fellow, Laboratory of Dr. Seth A. Darst
The Rockefeller University**

- a) Structure determination of the N-terminal domain of alpha subunit of RNA polymerase from *E. coli* at 2.5 Å°
- b) Preliminary X-ray analysis of C-terminal domain of alpha subunit and whole length alpha subunit of RNA polymerase from *E. coli*
- c) Structure determination of core RNA polymerase from *Thermus aquaticus* at 3.3 Å° resolution

1999- : **Assistant Professor, Department of Immunology, National Jewish Medical and Research Center (until 2004) and Departments of Immunology and Pharmacology, School of Medicine, UCHSC (present).**

- a) Structural and functional studies of TALL-1 and its cognate receptors.
- b) Structural studies of SarA family proteins.
- c) Structure and function studies of RNA polymerase holoenzyme with its regulator proteins from *thermus aquaticu*.

2004-2015: **Associate Professor, Department of Immunology, National Jewish Health**

- a) Structural and functional characterization of JMJD2 histone demethylases.
- b) Structure and function studies of signal transduction proteins, apoptotic proteins, and T-cell related proteins.
- c) Structural and functional characterization of JMJD6, a RNA binding enzyme.
- d) Structural and functional studies of other JMJC domain containing proteins.
- e) Structural and lipid ligand characterization of SPLUNC1 protein.
- f) The mechanism of Protein folding and unfolding.

2015-current: Professor, Department of Biomedical Research, National Jewish Health

- a) Functional characterization of a Novel JmjC protein family.
- b) The mechanism of amyloid formation of neurodegenerative diseases.
- c) The mechanism of transcription regulation of cancer cells.
- d) Development of monoclonal antibodies against specific cancer antigens.

HONORS, SPECIAL RECOGNITIONS AND AWARDS:

Zhongzhi Zhang's Excellent Experimental Award, USTC, P. R. China (1990)

Golden Crystal Award, 1st place, Molecular Structure Cooperation (1997)

PEW Scholar Award (2001)

Outstanding Junior Faculty Award, National Jewish Medical and Research Center (2001)

Travel award recipient of the Arthritis National Research Foundation (2002)

Outstanding achievement Award in basic science, National Jewish of Health (2007)

Award as outstanding Chinese born young scientist by Chinese Nature and Science foundation (2005)

BIBLIOGRAPHY:

Peer Reviewed:

1. **Gongyi Zhang**, Liwen Niu, Cai Tao, Wenzhi Huang, Chuang Wang, and Dongcai Liang. (1990) Crystal Growth and Preliminary X-ray Analysis of Glucose Isomerase from *Streptomycin M1033*. *Kexue Tongbao*, Vol. 36, 7, 1991 (China).
2. Zuli Wan, **Gongyi Zhang**, and Dongcai Liang. (1994) X-ray studies on the structure of A1-(L-ALA)-Insulin at 1.9 Angstrom Resolution. *Acta Biochem. and Biophys. Sin.*, Vol 67, (China).
3. **Gongyi Zhang**, Marcelo G. Kzanietz, Peter M. Blumberg, and James H. Hurley. (1995) Crystal Structure of Cys2 Activator-Binding Domain of Protein Kinase C Delta in Complex with Phorbol Ester. *Cell*, Vol. 81, 917-924.

4. James Endrizzi, **Gongyi Zhang**, Wenfong Chen, Roberta F. Colman, and James H. Hurley. (1996) Crystallization and Preliminary Diffraction Analysis of Porcine Heart Mitochondria NADP-Dependent Isocitrate Dehydrogenase. *Acta Cryst.* D52, 1024-1026.
5. **Gongyi Zhang**, Yu Liu, Jun Qin, Binh Vo, Wei-jen Tang, Arnold E. Ruoho, James H. Hurley. (1997) Characterization and Crystallization of a Minimal Catalytic Core Domain from Mammalian Type II Adenylyl Cyclase. *Protein Sciences*, 6: 903-908.
6. **Gongyi Zhang**, Yu Liu, Arnold E. Ruoho, and James H. Hurley. (1997) Structure of the Adenylyl Cyclase Catalytic Core. *Nature*, Vol. 386, 247-253. (article)
7. S. H. Bryant, T. Madej, J. Janin, Y. Liu, A. E. Ruoho, **Gongyi Zhang**, and James H. Hurley. (1997) A Polymerase I Palm in Adenylyl Cyclase? *Nature*, Vol. 388, 34-34.
8. **Gongyi Zhang**, Seth A. Darst. (1998) Structure of the E. Coli RNA polymerase alpha subunit N-terminal domain. *Science*, Vol 281, 262-266.
9. S. A. Darst, A. Polyakov, C. Richter, and **Gongyi Zhang**. (1998) Insights into E. coli RNA Polymerase Structure from a Combination of X-ray and Electron Crystallography. *Journal of Structural Biology*, 124, 115-122.
10. **Gongyi Zhang**, Elizabeth Campbell, Leonid Minakhin, Catherine Richter, Konstantin Severinov, and Seth A. Darst. (1999) Crystal Structure of Thermus aquaticus core RNA polymerase at 3.3 angstrom resolution. *Cell*, 98, 811-824. (featured as cover).
11. Yingfang Liu, Adhar Manna, Ronggui Li, Ambrose L. Cheung, **Gongyi Zhang**. (2001). Crystal structure of the repressor protein SarR from S. aureus. *Proc Natl Acad Sci U S A*. 98 (12): 6877-6882.
12. Darst SA, Opalka N, Chacon P, Polyakov A, Richter C, **Zhang G**, Wriggers W. (2002). Conformational flexibility of bacterial RNA polymerase. *Proc Natl Acad Sci U S A*. 99(7):4296-301.
13. Yingfang Liu, Lianguo Xu, Hong-Bing Shu, and **Gongyi Zhang**. (2002). Crystal structure of sTALL-1 reveals a virus-like structure of TNF family ligand. *Cell*, 108, 383-394.
14. Mikael Sigvardsson, Dawn R. Clark, Daniel Fitzsimmons, Michelle Doyle, Peter Akerblad, Thomas Breslin, Sven Bilke, Ronggui Li, Carmen yeamans, **Gongyi Zhang**, and James Hagman. (2002). Early B cell factor and E2A proteins cooperate to activate the early B cell-specific mb-1 promoter. *Molecular and Cellular Biology*, 22, 8539-8551.
15. Yingfang Liu, Xia Hong, John Kappler, Ling Jiang, Rongguang Zhang, Lianguo Xu, Cheol-Ho Pan, Wesley E. Martin, Robert C. Murphy, Hong-Bing Shu, Shaodong Dai, and **Gongyi Zhang**. (2003). Ligand-receptor binding revealed by the TNF family member sTALL-1. *Nature* 423, 49-56 (article).
16. Ronggui Li, Adhar C. Manna, Shaodong Dai, Ambrose L. Cheung, and **Gongyi Zhang**. 2003. Crystal structure of SarS from Staphylococcus aureus. *Journal of Bacteriology*. 185, 4219-4225.

17. Xia Hong, John Kappler, Zhongzhou Chen, Yingfang Liu, Liangguo Xu, Hong-Bing Shu, and **Gongyi Zhang**. Is native BAFF a trimer or a virus-like cluster? *Nature*. 427, 414-414.
18. Yingfang Liu, Adhar C. Manna, Cheol-Ho Pan, Irina A. Kriksunov, Daniel J. Thiel, Ambrose L. Cheung, and **Gongyi Zhang**. 2006. Structural and function analyses of the global regulatory protein SarA from *Staphylococcus aureus*. *Proc Natl Acad Sci U S A*. 103 (7), 2392-2397.
19. Whetstine, J.R., Nottke, A., Lan, F., Huarte, M., Smolikov, S., Chen, Z., Spooner, E., Li, E., **Gongyi Zhang**, Colaiacovo, M., Shi, Y. 2006. Reversal of Histone Lysine Trimethylation by the JMJD2 Family of Histone Demethylases. *Cell*. 2006 Apr 6; [Epub ahead of print].
20. Chen, Z., Zang, J., Whetstine, J., Hong, X., Davrazou, F., Kutateladze, T.G., Simpson, M., Mao, Q., Pan, C., Dai, S., Hagman, J., Hansen, K., Shi, Y., **Gongyi Zhang**. 2006. Structural Insights into Histone Demethylation by JMJD2 Family members. *Cell*, 2006 May 2; [Epub ahead of print].
21. Chen Z, Zang J, Kappler J, Hong X, Crawford F, Wang Q, Lan F, Jiang C, Whetstine J, Dai S, Hansen K, Shi Y, **Gongyi Zhang**. (2007). Structural basis of the recognition of a methylated histone tail by JMJD2A. *Proc Natl Acad Sci U S A*. 2007 Jun 13; [Epub ahead of print].
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24. Hong X, Zang J, White J, Wang C, Pan CH, Zhao R, Murphy RC, Dai S, Henson P, Kappler JW, Hagman J, **Zhang G**. Interaction of JMJD6 with single-stranded RNA. *Proc Natl Acad Sci U S A*. 2010 Aug 17;107(33):14568-72. Epub 2010 Aug 2.
25. Terry Powers JL, Mace KE, Parfrey H, Lee SJ, **Zhang G**, Riches DW. TNF Receptor-1 (TNF-R1) Ubiquitous Scaffolding and Signaling Protein Interacts with TNF-R1 and TRAF2 via an N-Terminal Docking Interface. *Biochemistry*. 2010 Aug 20. [Epub ahead of print]
26. Chu HW, Gally F, Thaikootathil J, Janssen-Heininger YM, Wu Q, **Zhang G**, Reisdorph N, Case S, Minor M, Smith S, Jiang D, Michels N, Simon G, Martin RJ. . SPLUNC1 regulation in airway epithelial cells: role of Toll-like receptor 2 signaling. *Respir Res*. 2010 Nov 5;11:155.
27. Reyes D, Andrey DO, Monod A, Kelley WL, **Zhang G**, Cheung AL. Coordinated regulation by AgrA, SarA, and SarR to control agr expression in *Staphylococcus aureus*. *J Bacteriol*. 2011 Nov;193(21):6020-31. Epub 2011 Sep 9.

28. Yang N, Ma P, Lang J, Zhang Y, Deng J, Ju X, **Zhang G**, Jiang C. Phosphatidylinositol 4-kinase III β is required for severe acute respiratory syndrome coronavirus spike-mediated cell entry. *J Biol Chem*. 2012 Mar 9;287(11):8457-67. Epub 2012 Jan 17.
29. Thaikoottathil JV, Martin RJ, Di PY, Minor M, Case S, Zhang B, **Zhang G**, Huang H, Chu HW. SPLUNC1 Deficiency Enhances Airway Eosinophilic Inflammation in Mice. *Am J Respir Cell Mol Biol*. 2012 Apr 12. [Epub ahead of print]
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31. Chao Wang^{#,1}, Zhongzhou Chen^{#,1}, Xia Hong¹, Fangkun Ning¹, Haolin Liu¹, Jianye Zang¹, Xiaoxue Yan¹, Jennifer Kemp¹, Catherine A. Musselman², Tatinna G. Kutateladze², Chengyu Jiang³, **Gongyi Zhang^{*1}** (2014). The Structural Basis of Urea-Induced Protein Unfolding. *Acta Crystallogr D Biol Crystallogr*. 2014 Nov;70(Pt 11):2840-7. doi: 10.1107/S1399004714018094. Epub 2014 Oct 16. (Featured as Cover).
32. Ning F, Wang C, Berry KZ, Kandasamy P, Liu H, Murphy RC, Voelker DR, Nho CW, Pan CH, Dai S, Niu L, Chu HW, **Gongyi Zhang** (2014). Structural characterization of the pulmonary innate immune protein SPLUNC1 and identification of lipid ligands. *FASEB J*. 2014 Sep 15. pii: fj.14-259291. [Epub ahead of print] (Featured as cover).
33. Liu H, White J, Crawford F, Jin N, Ju X, Liu K, Jiang C, Marrack P, **Zhang G**, Kappler JW (2015). A Rapid Method to Characterize Mouse IgG Antibodies and Isolate Native Antigen Binding IgG B Cell Hybridomas. *PLoS One*. 2015 Aug 28;10(8):e0136613. doi: 10.1371/journal.pone.0136613. eCollection 2015. PMID: 26317987

Book Chapters, Invited Articles and Reviews:

1. S. A. Darst, A. Polyakov, C. Richter, and **Gongyi Zhang**. (1998) Structural Studies of E. coli RNA polymerase. *Cold Spring Harbor Symposia on Quantitative Biology*, Volume LXIII.
2. Ambrose L Cheung and **Gongyi Zhang**. (2002). Global Regulation of Virulence Determinants in Staphylococcus Aureus by the SarA Protein Family. *Frontier in Bioscience* 7, d1825-1842.
3. Ambrose L. Cheung and **Gongyi Zhang**. (2001) Do SarA and SarR possess similar structures? *Trends in Microbiology*. 9 (12):570-573.
4. **Gongyi Zhang** and James H. Hurley. (2003). Crystallization of the Protein Kinase Cdelta C1B Domain. *Methods Mol Biol*. 233:299-304.
5. **Gongyi Zhang**. 2004. Ligand-receptor binding in the TNF/TNFR family. *Current Opinion in Structural Biology*. 14(2): 154-160.

6. Amborse L Cheung, Arnold S. Bayer, **Gongyi Zhang**, and Hattie Gresham. 2004. Regulation of virulence determinants *in vitro* and *in vivo* in *Staphylococcus aureus*. ***FEMS in Microbiology . FEMS in Microbiology***, 40(1), 1-9.