

CURRICULUM VITAE**Weixing Zhao, Ph.D.**

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CITIZENSHIP P.R. China (permanent residency in U.S.)

CURRENT POSITION

08/2013-Present Associate Research Scientist, Department of Molecular Biophysics and Biochemistry, Yale University School of Medicine

EDUCATION

09/2002-06/2007 Ph.D. in Molecular Biology/Botany, Peking University, China

09/1998-06/2002 B.Sc. in Plant Molecular & Development Biology, Peking University, China

RESEARCH EXPERIENCE/TRAINING

07/2002-06/2007 Research Assistant, National Laboratory of Protein Engineering and Plant Genetic Engineering, Peking University, China
 Thesis Advisor: Dr. Jindong Zhao

08/2007-07/2013 Postdoctoral Associate, Department of Molecular Biophysics and Biochemistry, Yale University School of Medicine
 Mentor: Dr. Patrick Sung

PROFESSIONAL ACTIVITIES & HONORS

1998-2002 **Awards for leadership** (namely Guanghai Scholarship once, Songgang Scholarship once, Donggang Scholarship three times)
 Outstanding Undergraduate Student Award of Beijing, China
 Outstanding Graduate Student Award of Beijing, China

2006 **First Class Prize of Natural Science Award** honored by the Ministry of Education of the People's Republic of China (the 3rd contributor)

2007 **Second Class Prize of National Natural Science Award** honored by the People's Republic of China (the 3rd contributor), the Top-Level Award for Basic Research in China

2012-present **Regular Reviewer** for journals: DNA repair, BMC Molecular Biology, World Journal of Microbiology and Biotechnology, Journal of Genetics and Genomics, and Yale Journal of Biology & Medicine.

- 2014-present **Editorial Board Member** for Journal: *World Journal of Microbiology and Biotechnology*
- 2011 **Invited Speaker**, Lawrence Berkeley National Laboratory -Life Sciences Division, hosted by Dr. Claudia Wiese, Feb 18th 2011. “Mechanism for the Bipartite Action of Hop2-Mnd1 in Homologous DNA Pairing”
- 2015 **Invited Speaker**, 27th Annual Fanconi Anemia Research Fund Scientific Symposium September 17-20, 2015 “Promotion of BRCA2-dependent Homologous Recombination by DSS1 via RPA Targeting and DNA Mimicry”

BIBLIOGRAPHY

Publications (21 articles published or in press, total citations: 574):

a) Research Articles from Postdoctoral Studies at Yale University

1. Raynard, S., **Zhao, W.**, Bussen, W., Lu, L., Ding, Y.Y., Busygina, V., Meetei, A.R., and Sung, P. (2008). Functional role of BLAP75 in BLM-topoisomerase IIIalpha-dependent holliday junction processing. *J Biol Chem* 283, 15701-15708.
2. Robertson, R.B., Moses, D.N., Kwon, Y., Chan, P., **Zhao, W.**, Chi, P., Klein, H., Sung, P., and Greene, E.C. (2009). Visualizing the disassembly of *S. cerevisiae* Rad51 nucleoprotein filaments. *J Mol Biol* 388, 703-720.
3. Niu, H., Chung, W.H., Zhu, Z., Kwon, Y., **Zhao, W.**, Chi, P., Prakash, R., Seong, C., Liu, D., Lu, L., Ira, G., and Sung, P. (2010). Mechanism of the ATP-dependent DNA end-resection machinery from *Saccharomyces cerevisiae*. *Nature* 467, 108-111.
4. Dunlop, M.H., Dray, E., **Zhao, W.**, Tsai, M.S., Wiese, C., Schild, D., and Sung, P. (2011). RAD51-associated protein 1 (RAD51AP1) interacts with the meiotic recombinase DMC1 through a conserved motif. *J Biol Chem* 286, 37328-37334.
5. Dunlop, M.H.*, Dray, E.*, **Zhao, W.**, San Filippo, J., Tsai, M.S., Leung, S.G., Schild, D., Wiese, C., and Sung, P. (2012). Mechanistic insights into RAD51-associated protein 1 (RAD51AP1) action in homologous DNA repair. *J Biol Chem* 287, 12343-12347. (*Co-first authors)
6. **Zhao, W.**, Saro, D., Hammel, M., Kwon, Y., Xu, Y., Rambo, R.P., Williams, G.J., Chi, P., Lu, L., Pezza, R.J., *et al.* (2014). Mechanistic insights into the role of Hop2-Mnd1 in meiotic homologous DNA pairing. *Nucleic Acids Res.* 42, 906-917.
7. Buisson, R., Niraj, J., Pauty, J., Maity, R., **Zhao, W.**, Coulombe, Y., Sung, P., and Masson, J.Y. (2014). Breast Cancer Proteins PALB2 and BRCA2 Stimulate Polymerase eta in Recombination-Associated DNA Synthesis at Blocked Replication Forks. *Cell reports* 6, 553-564.
8. Moktan, H., Guiraldelli, M.F., Eyster, C.A., **Zhao, W.**, Lee, C.Y., Mather, T., Camerini-Otero, R.D., Sung, P., Zhou, D.H., and Pezza, R.J. (2014). Solution Structure and DNA-binding Properties of the Winged Helix Domain of the Meiotic Recombination HOP2 Protein. *J Biol Chem* 289, 14682-14691.
9. **Zhao W***, Sung P*. (2015). Significance of ligand interactions involving Hop2-Mnd1 and the RAD51 and DMC1 recombinases in homologous DNA repair and XX ovarian dysgenesis. *Nucleic Acids Res.* 43, 4055-4066. (*Co-corresponding authors)
10. **Zhao, W.**, Vaithiyalingam, S., San Filippo, J., Maranon, D.G., Jimenez-Sainz, J., Fontenay, G.V., Kwon, Y., Leung, S. G., Lu, L., Jensen, R. B., Chazin, W.J., Wiese, C., Sung, P. (2015).

Promotion of BRCA2-dependent Homologous Recombination by DSS1 via RPA Targeting and DNA Mimicry. *Mol cell* 59:176-187. (Cover of the issue July 16th; F1000 Recommended)

11. Parplys, C. A.*, **Zhao, W.***, Sharma, N.*, Groesser, T., Liang, F., Leung, G. S., Grundt, K., Dray, E., Idate, R., Østvold, A.C., Schild, D., Sung, P. and Wiese, C. NUCKS1 is a novel RAD51AP1 paralog required for homologous recombination and genome stability. *Nucleic Acids Res.*, 43: 9817-9834. (*Co-first authors)
12. Lee, J.Y., Terakawa, T., Qi, Z., Steinfeld, J. B., Redding, S., Kwon, Y., Gaines, W. A., **Zhao, W.**, Sung, P., and Greene, E. C. (2015). Base triplet recognition during DNA strand exchange by the Rad51/RecA family of recombinases. *Science* 349: 977-981.
13. Trego, S. K., Groesser, T., Davalos, R. A., Parplys, C. A., **Zhao, W.**, Nelson, R. M., Hlaing, A., Shih, B., Rydberg, B., Pluth, M. J., Tsai, M. S., Hoeijmakers, J. J., Sung, P., Wiese, C., Campisi, J., and Cooper, K. P. (2016). Non-catalytic Roles for XPG with BRCA1 and BRCA2 in Homologous Recombination and Genome Stability. *Mol cell* 61: 535-546.
14. Borgogno, M. V., Monti, M. R., **Zhao, W.**, Sung, P., Argarana, C. E. and Pezza, R.J. (2016). Tolerance of DNA Mismatches in Dmc1 Recombinase-Mediated DNA Strand Exchange. (*J Biol Chem* accepted)

b) Research Articles from Graduate Studies at Peking University

1. Zhao, Y.*, Shi, Y.*, **Zhao, W.**, Huang, X., Wang, D., Brown, N., Brand, J., and Zhao, J. (2005). CcbP, a calcium-binding protein from *Anabaena* sp. PCC 7120, provides evidence that calcium ions regulate heterocyst differentiation. *Proc Natl Acad Sci U S A* 102, 5744-5748. (*Co-first authors)
2. Chen X, Cui D, Liu C, Li H, **Zhao W.** (2006) Sample Pretreatment Microfluidic Chip for DNA extraction from Rat Peripheral Blood. *CHEM J CHINESE U.* 27, 618-621.
3. Shi, Y.*, **Zhao, W.***, Zhang, W., Ye, Z., and Zhao, J. (2006). Regulation of intracellular free calcium concentration during heterocyst differentiation by HetR and NtcA in *Anabaena* sp. PCC 7120. *Proc Natl Acad Sci U S A* 103, 11334-11339. (*Co-first authors)
4. **Zhao, W.**, Guo, Q., and Zhao, J. (2007). A membrane-associated Mn-superoxide dismutase protects the photosynthetic apparatus and nitrogenase from oxidative damage in the Cyanobacterium *Anabaena* sp. PCC 7120. *Plant Cell Physiol* 48, 563-572.
5. **Zhao, W.***, Ye, Z.*, and Zhao, J. (2007). RbrA, a cyanobacterial rubrerythrin, functions as a FNR-dependent peroxidase in heterocysts in protection of nitrogenase from damage by hydrogen peroxide in *Anabaena* sp. PCC 7120. *Mol Microbiol* 66, 1219-1230. (*Co-first authors)
6. Hu, B.*, Yang, G.*, **Zhao, W.**, Zhang, Y., and Zhao, J. (2007). MreB is important for cell shape but not for chromosome segregation of the filamentous cyanobacterium *Anabaena* sp. PCC 7120. *Mol Microbiol* 63, 1640-1652. (*Co-first authors)
7. Zhang, Y., Pu, H., Wang, Q., Cheng, S., **Zhao, W.**, Zhang, Y., and Zhao, J. (2007). PII is important in regulation of nitrogen metabolism but not required for heterocyst formation in the Cyanobacterium *Anabaena* sp. PCC 7120. *J Biol Chem* 282, 33641-33648.

Book Chapter

1. Kwon, Y., **Zhao, W.**, and Sung, P. (2011). Chapter: "Biochemical studies on human Rad51-mediated homologous recombination" in "DNA Recombination", published by Humana Press. *Methods Mol Biol* 745, 421-435.

Conferences

1. **Zhao W.**, Xu Y., Saro D., Hammel M., Kwon Y., Rambo R., Williams G.J., Chi P., Xue X., Lu L., Pezza R., Camerini-Otero D., Wang H. and Sung P. (2011). “Mechanistic and Structural insights into the Bipartite Action of Hop2-Mnd1 in Homologous DNA Pairing” FASEB: Genetic Recombination & Genome Rearrangements, Steamboat Springs, Colorado. July 24-29, 2011.
2. **Zhao W.**, Kwon Y., Begovic S., Lu L. and Sung P. (2012). “The Functional Role of DSS1 in Homologous Recombination” Structural Cell Biology of DNA Repair Machines, Berkeley, California. April 12-15, 2012.
3. **Zhao W.**, Liu X., Kwon Y., Begovic S., Lu L., Vaithiyalingam S., Wiese C., Schild D., Chazin W. and Sung P. (2013). “Enhancement of BRCA2-Mediated Homologous Recombination by DSS1 via DNA Mimicry” Structural Cell Biology of DNA Repair Machines, Berkeley Marina, California. April 11-14, 2013.
4. **Zhao W.**, Xu Y., Saro D., Wang H. and Sung P. (2013). “Mechanistic and structural insights of the Hop2-Mnd1 in homologous DNA pairing” DNA Repair Symposium: A Celebration of 50 Years of DNA Repair at Yale University, New Haven, Connecticut. May 3, 2013.
5. **Zhao W.**, Xu Y., Saro D., Hammel M. and Sung P. (2013). “Mechanistic and Structural insights of the Hop2-Mnd1-DMC1-ssDNA ensemble in homologous DNA pairing” FASEB: Genetic Recombination & Genome Rearrangements, Steamboat Springs, Colorado. July 21-26, 2013.
6. **Zhao W.**, Vaithiyalingam S., Wiese C., Chazin W. J. and Sung P. (2014). “Promotion of BRCA2-dependent HR by DSS1 via RPA targeting and DNA Mimicry” Structural Cell Biology of DNA repair Machines, Berkeley, California. March 26-29, 2014.
7. **Zhao W.**, Wiese C., and Sung P. (2015). “BRCA complex in Homologous Recombination” Structural Cell Biology of DNA repair Machines, Berkeley, California. April 26-28, 2015.
8. **Zhao W.**, Vaithiyalingam S., Filippo J.S., Maranon D.G., Jimenez-Sainz J., Jensen R.B., Chazin W.J., Wiese C., Sung P. (2015) “Promotion of BRCA2/RAD51-dependent homologous recombination by DSS1” 27th Annual Fanconi Anemia Research Fund Scientific Symposium, Toronto, Canada, September 17-20, 2015

TRAINING AND MENTORING

Trained and supervised graduate students Zi Ye (2004-2007), Qing Wu (2011-2013) and Shen Cheng (2015-present) and undergraduate students Qinxi Guo (2005-2007) and Jeffrey Tang (2010).