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Education and Training

2004-2009	Institute of Chemistry, Chinese Academy of Sciences	PhD	Biochemistry and Biophysics
2009-2011	Beijing Institute of Technology	Postdoctoral Researcher	Biosensor
2011	Austrian Institute of Technology	Visiting Scientist	Biosensor
2012-2016	Oklahoma State University	Research Scientist	Plant Biology
2016-Present	Michigan State University	Research Scientist	Plant Biology

Research Experience

2016-Present	Research Scientist, Michigan State University, USA Research project: Photobiology/Photosynthesis/Photoprotection in cyanobacteria
2012-2016	Research Scientist, Oklahoma State University, USA Research project: Photobiology/Photosynthesis/Water oxidation of Photosystem II
2011	Visiting Scientist, Austrian Institute of Technology, Austria Research project: Biosensor/Surface plasmon-enhanced fluorescence spectroscopy biosensor
2009-2011	Postdoctoral Researcher, Beijing Institute of Technology, China Research project: Biosensor/Surface plasmon resonance based biosensor
2004-2009	Institute of Chemistry, Chinese Academy of Sciences, China Research project: Photobiology/Photosynthesis/Regulation mechanism of electron transfer and catalytic reactions in Photosystem II

Publications

First-author papers:

1. **Bao H.** Melnicki MR, Pawlowski EG, Sutter M, Agostoni M, Lechno-Yossef S, Cai F, Montgomery BL, Kerfeld CA. 2017. Additional families of orange carotenoid proteins in the photoprotective system of cyanobacteria, *Nature Plants* 3, 17089
2. **Bao H.** Melnicki MR, Kerfeld CA. 2017. Structure and functions of orange carotenoid protein homologs in cyanobacteria, *Curr. Opin. Plant Biol.* 37, 1-9
3. **Bao H.** Burnap RL. 2016. Photoactivation: The light-driven assembly of the water oxidation complex of photosystem II, *Front Plant Sci.* 7, 578
4. **Bao H.** Burnap RL. 2015. Structural rearrangements preceding dioxygen formation by the water oxidation complex of photosystem II, *Proc. Natl. Acad. Sci. USA* 112, E6139-47
5. **Bao H.** Dilbeck PL, Burnap RL. 2013. Proton transport facilitating water-oxidation: the role of second sphere ligands surrounding the catalytic metal cluster, *Photosynth. Res.* 116, 215-229
6. **Bao H.** Wei T, Meng H, Liu B. 2012. Surface plasmon resonance sensor for supersensitive detection of clenbuterol using molecularly imprinted film, *Chem. Lett.* 41, 237-239
7. **Bao H.** Wei T. 2012. Detection of TNT by a molecularly imprinted polymer film-based surface plasmon resonance sensor, *Chin. Sci. Bull.* 57, 2102-2105
8. **Bao H.** Zhang C, Ren Y, Zhao J. 2010. Low-temperature electron transfer suggests two types of Q_A in intact photosystem II, *Biochim. Biophys. Acta* 1797, 339-346
9. **Bao H.** Zhang C, Ren Y, Zhao J. 2010. Methanol as a probe to investigate the relationship between the secondary electron donor Tyr_z and the substrate water molecules in active photosystem II, *Chin. Sci. Bull.* 55, 809-813
10. **Bao H.** Zhang C, Kawakami K, Ren Y, Shen JR, Zhao J. 2008. Acceptor side effects on the electron transfer at cryogenic temperatures in intact photosystem II, *Biochim. Biophys. Acta* 1777, 1109-1115

Co-author papers:

11. Gurchick JK, **Bao H.** Dominguez-Martin MA, McGovern SE, Marquardt CE, Roscioli JD, Ghosh S, Kerfeld CA, Beck

- WF. Fluorescence and Excited State Conformational Dynamics of the Orange Carotenoid Protein, *J. Phys. Chem. B.*, just accepted, DOI: 10.1021/acs.jpcc.7b09435
12. Lechno-Yossef S, Melnicki MR, **Bao H**, Kerfeld CA. 2017. Synthetic OCP heterodimers are photoactive and recapitulate the fusion of two primitive carotenoproteins in the evolution of cyanobacterial photoprotection, *Plant J.* 91, 646-656
 13. Meng Z, **Bao H**, Wang J, Jiang C, Zhang M, Zhai J, Jiang L. 2014. Artificial ion channels regulation light-induced ionic currents in photoelectrical conversion systems, *Adv Mater.* 26, 2329-2334
 14. Zhang Q, **Bao H**, Zhao F, Bao S, Wei T, Zhang P, Cui H. 2014. Surface plasmon resonance sensor based on molecularly imprinted films for the detection of pentaerythritol tetranitrate (PETN), *Journal of Beijing Institute of Technology*, 23, 126-130
 15. Dilbeck PL, **Bao H**, Neveu CL, Burnap RL. 2013. Perturbing the water cavity surrounding the manganese cluster by mutating the residue D1-Valine 185 has a strong effect on the water oxidation mechanism of photosystem II, *Biochemistry* 52, 6824-6833
 16. Ren Y, Zhang C, **Bao H**, Zhao J. 2009. Probing Tyrosine Z oxidation in photosystem II core complex isolated from spinach by EPR at liquid helium temperatures, *Photosynth. Res.* 99, 127-138
 17. Ling Y, Li H, Yang X, **Bao H**, Qiu L, Chen F. 2007. Design, synthesis and biological activity of 5-oxo-3 (2H)-pyridazinone derivatives, *Chin. J. Org. Chem.* 27, 763-767

Conference Papers and Presentations

- 1) Zhang C, **Bao H**, Zhao J, Conference Paper, "Relationship between Tyr_Z and Mn-cluster in active photosystem", 3rd Asian and Oceanian Conference on Photobiology, November 2006
- 2) **Bao H**, Burnap RL, Oral Presentation, "Mutations perturbing the water cavity surrounding the Mn cluster have a strong effect on the water oxidation mechanism of PSII", 38th Annual Midwest/Southeast Photosynthesis Meeting, October 2012
- 3) **Bao H**, Burnap RL, Poster Presentation, "Second sphere ligands of the Mn cluster control the reactivity of water oxidation", 11th Workshop on Cyanobacteria, August 2013
- 4) **Bao H**, Burnap RL, Poster Presentation, "Second sphere ligands of the Mn cluster control the reactivity of water oxidation", 16th International Congress on Photosynthesis Research, August 2013
- 5) **Bao H**, Burnap RL, Oral Presentation, "Role of D1-Val185 as a second sphere ligand of the Mn cluster in control of the reactivity of water oxidation", Oral Presentation, 39th Annual Midwest/Southeast Photosynthesis Meeting, November 2013
- 6) **Bao H**, Burnap RL, Poster Presentation, "Mutations disturbing water cluster alter the kinetics of the final steps of water oxidation", Gordon Research Conference on Photosynthesis, August 2014
- 7) **Bao H**, Burnap RL, Oral Presentation, "Mutation disturbing water cluster alter the kinetics of the final steps of water oxidation", 40th Annual Midwest/Southeast Photosynthesis Meeting, October 2014
- 8) **Bao H**, Burnap RL, Poster Presentation, "Mutations on second sphere ligands of Mn cluster alter the water oxidation", Gordon Research Conference on Photosynthesis, June 2015
- 9) **Bao H**, Burnap RL, Invited to give Oral Presentation, "Mutations disturbing water cluster alter the kinetics of the final steps of water oxidation in PSII", 17th International Congress on Photosynthesis Research, August, 2016
- 10) **Bao H**, Kerfeld CA, Oral and Poster Presentation, "Functional Characterization of a New Family of Orange Carotenoid Proteins", Gordon Research Seminar on Photosynthesis, July 2017
- 11) **Bao H**, Kerfeld CA, Oral and Poster Presentation, "Functional Characterization of a New Family of Orange Carotenoid Proteins", Gordon Research Conference on Photosynthesis, July 2017