Jiaoyang Jiang

Our group's primary research interest is in protein O-GlcNAcylation, an N-acetylglucosamine (GlcNAc) modification on the serine or threonine residues of thousands of intracellular proteins. This nutrient-responsive modification dynamically regulates protein functions in nearly every aspect of biological processes, including signal transduction, gene expression, and cell cycle1,2. Aberrant O-GlcNAcylation has been detected in many diseases such as cancer, diabetes, and Alzheimer's disease. Our group is utilizing chemical biology, enzymology, mass spectrometry, and X-ray crystallography approaches to elucidate the molecular mechanisms and biological functions of O-GlcNAcylation in the complexity of epigenetic and transcriptional regulation3, which currently remains largely unknown.

References

1. Jiang, J*; Lazarus, MB*; Pasquina, L; Sliz, P; Walker, S. A neutral diphosphate mimic crosslinks the active site of human O-GlcNAc transferase. (*equal contribution) Nature Chemical Biology (2012), 8, 72-7.
1. Lazarus, MB*; Jiang, J*; Kapuria V, Bhuiyan T, Janetzko J, Zandberg WF, Vocadlo DJ, Herr W, Walker S. HCF-1 is cleaved in the active site of O-GlcNAc transferase. (*equal contribution) Science (2013), 342, 1235-9.
1. Lu L, Fan D, Hu CW, Worth M, Ma ZX, Jiang J. Distributive O-GlcNAcylation on the highly repetitive C-terminal domain of RNA polymerase II. Biochemistry (2016) 55, 1149-58.