



Chemical & Physical Sciences

UNIVERSITY OF TORONTO

MISSISSAUGA

Colloquium Seminar Series

Wednesday, January 27, 2021

3:10pm via Zoom

<https://utoronto.zoom.us/j/82818772109>

PROF. XIN ZHANG

Department of Chemistry
Pennsylvania State University

Chemical Biology of Protein Aggregation in Membraneless Organelles and the Stressed Proteome

Protein aggregation is a multiple step process that involves misfolded soluble and insoluble aggregates. These molecular events have been associated with a variety of diseases that are termed as protein misfolding diseases. To meet this need, I will present a novel AggTag (Aggregation Tag) imaging method and two types of fluorogenic AggTag small molecule probes, with a goal to directly monitor the entire protein aggregation process in live cells, in particular the intermediate misfolded oligomers. The AggTag method and probes have been applied to reveal folding states of RNA-binding proteins in membraneless granules during their formation and maturation, providing new mechanisms underlying how cells use these granules to manage proteins in stressed conditions. This work potentiates future studies on chemical biology of protein aggregation in various types of membraneless organelles and stressed proteome.



Prof. Xin Zhang is the Paul Berg Early Career Professor and associate professor of chemistry and of biochemistry and molecular biology at Penn State. Prior to joining the faculty at Penn State in 2015, Zhang was a Helen Hay Whitney postdoctoral fellow at the Scripps Research Institute, California. He earned a doctoral degree at the California Institute of Technology in 2010, a master's degree at the Dalian Institute of Chemical Physics of the Chinese Academy of Sciences in 2004, and a bachelor's degree at the University of Science and Technology of China in 2001. Zhang's independent work at Penn State has received multiple honors and awards, including CAPA distinguished junior faculty award, NSF CAREER award, NIGMS MIRA, Pew Scholar in the Biomedical Sciences, Scialog Fellowship, Sloan Research Fellowship, the Lloyd and Dottie Huck Early Career Award, the Burroughs Wellcome Fund Career Award at the Scientific Interface.