Analytical Seminar

Thursday

March 16

12:15 pm

1315 Chem

Prof. Ronghu Wu

Georgia Institute of Technology

"Effective Chemical and Enzymatic Methods to Globally Characterize Protein Glycosylation"

Protein glycosylation is ubiquitous in biological systems and essential for cell survival. Aberrant protein glycosylation is directly related to human disease, including cancer and infectious diseases, and glycoproteins contain a wealth of information related to cellular developmental and disease statuses. However, due to the low abundance of many glycoproteins and heterogeneity of glycans, it is extraordinarily challenging to comprehensively analyze glycoproteins in complex biological samples. Based on the common features of glycans, we have developed chemical and enzymatic methods to globally analyze protein glycosylation by mass spectrometry (MS). Glycoproteins located on the cell surface are especially interesting because they frequently regulate extracellular events. In our lab, we specifically tagged surface glycoproteins for global and site-specific analysis. In combination with multiplexed proteomics, we quantified the dynamics of surface glycoproteins and measured their half-lives. Global analysis of protein glycosylation leads to a better understanding of glycoprotein functions and the identification of glycoproteins as disease biomarkers and drug targets.