Join us for an informal science talk

Monday, August 27 at 4:00 pm
Jacobs School of Medicine and Biomedical Sciences
955 Main St., Room 2220A

“‘Omics’ approaches to the study of carbohydrates”

Glycomics is the study of carbohydrates (e.g., glycans, glycoproteins, or glycolipids) in cell or tissue. Glycans are of interest since they participate in almost every biological process and abnormal glycosylation is associated with a variety of diseases — cancer, diabetes, or cardiovascular disease. While glycosylation is a major post-translational modification (PTM) that alters the structure of most human proteins, relatively little is known about the functional diversity imparted by this modification. Unlike other PTMs like phosphorylation which are single step events, glycan biosynthesis is more complex since it involves the concerted action of a family of ~200 enzymes called glycosyltransferases (% of the human genome). Mass spectrometry has emerged as one of the most powerful tools for the structural elucidation of glycans due to its sensitivity of detection and its ability to analyze complex mixtures. However, the study of carbohydrates is a challenge from the analytical perspective as glycan species should be identified and quantified in an unambiguously manner. Thus, our goal is to develop LC/MSn experimental and computational methods to analyze glycans in cells or clinical samples which will lead us to better understanding glycan diverse structures as well as to shed light on the glycosylation processes.

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