NEBRASKA FOOD FOR HEALTH CENTER at the University of Nebraska

Food For Health Seminar Series

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Complex Glycan Metabolism: New insights and Enabling Technologies

Carbohydrates are among the most essential biomolecules on Earth, alongside DNA, proteins and lipids. They range from simple molecules like glucose to highly branched and heterogeneous structures known as complex glycans. Found across virtually all life forms, complex glycans exhibit remarkable structural diversity and complexity, enabling them to participate in a wide range of vital physiological and pathological processes, such as cell signalling, growth, development, immunity, nutrition and infection. Glycan research has led to the development of several high-value biologicals, including therapeutics, vaccines, diagnostics and drug-delivery systems. Beyond healthcare, glycans underpin numerous commercial products such as gelling and thickening agents, animal feeds and biofuels. Glycan research, however, is hampered by several factors, including their structural complexity, limited understanding of the genetic and molecular mechanisms governing their metabolism, and access to enabling tools. These, in turn, limit our ability to exploit their full potential. In this presentation, I will highlight major progress we have made in addressing these important limitations, including recent work unraveling the genetic and molecular basis of complex glycan metabolism by human colonic bacteria, the discovery of several novel carbohydrate-active enzymes, and the development of new glycan production and analytical tools. Together, these advances will facilitate future studies and the exploitation of complex glycans for plant, microbial and human health benefit.

Thursday Dec. 11th, 2025

Reception: 11:30 am

Seminar: Noon-12:55 pm

Food Innovation Center (FIC): Room 277

Zoom : https://unl.zoom.us/j/93875698434?pwd=ak1NOWxkbkYrcnNva2RKUk80UmFiQT09

Meeting ID: 938 7569 8434

Password: NFHC