

# Seminar



Monday, November 6, 2017

11:00 AM – 206 Furnas Hall

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## **Extracting Insights from Biological Data using Network Analysis**

Extracting novel mechanistic and actionable insights from data is a major task in biological research. Even with - and especially because of - technological advances in interrogating cells at greater precision and coverage, this task often requires advanced computational algorithms for data analysis. In order to go beyond analyzing only trends and patterns, my group has been employing network models that capture the interactions among the species in the cell, when interpreting cellular data. In this talk, I will present the findings from two recent research projects on the topic of protein glycosylation analysis and protein target inference. In the first part of the talk, I will discuss some caveats in the commonly used metabolic network analysis caused by model misspecifications, and offer ways to detect and resolve them. I will also present the development of a new type of network analysis for analyzing protein glycosylation, and its application to Chinese hamster ovary cell culture production of monoclonal antibody immunoglobulin G. Finally, I will describe a novel network-based analytical method for inferring protein targets and mechanisms of action of drugs and diseases from gene transcriptional profiles.

Refreshments at 10:45



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