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RÉUNIS
Réseau une seule santé sur la
modélisation des infections

Super Spreader Seminar Series 2025

Featured Speaker:
Dr. Chapin S. Korosec

Seminar #29

Modelling the immune system response to vaccination

ABSTRACT: Following a vaccine inoculation or disease exposure an immune response develops in time, where the description of its time evolution poses an interesting problem in dynamical systems. The principal goal of theoretical immunology is to construct models capable of describing long term immunological trends from the properties and interactions of its elementary components. In this talk I will give a brief description of the human immune system and introduce a simplified version of its elementary components. I will then discuss our contributions to the field achieved through my postdoctoral work with Dr. Jane Heffernan at York University. I will focus on our mechanistic modelling work describing vaccine-generated SARS-CoV-2 immunity and applications of our work towards understanding vaccination responses in people living with HIV. Finally, I will discuss our on-going work towards developing a machine learning public health platform capable of predicting immune response outcomes from repeated-dose immunological data.

Moderated by:

Prof. Jane Heffernan

Expert in disease
modelling and
mathematical
epidemiology and
immunology

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FEB. 27

10:30-11:30 EST

REGISTER HERE

Hybrid Seminar - Zoom & In Person

York University, Keele Campus

Petrie Science & Engineering Building, Room 018, 140 Campus Walk



Dr. Chapin S. Korosec is an accomplished researcher in immunology, epidemiological modeling, and machine learning applications in public health. Currently a postdoctoral researcher at York University, he has made significant contributions to understanding vaccine immunogenicity, with a focus on COVID-19 and HIV. He has published 21 peer-reviewed papers, including high-impact studies on SARS-CoV-2 immunity and protein-based molecular motors (from his time as a physicist). His work has earned him prestigious accolades, such as the Michelson Postdoctoral Prized Lectureship and the AI4PH Postdoctoral Award. Dr. Korosec's research integrates statistical analysis, within-host modeling, and machine learning to uncover key immunological patterns that inform vaccine strategies and viral dynamics.



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