



Molecular Genetics  
UNIVERSITY OF TORONTO

# FACULTY CANDIDATE SEMINAR

## Dr. Damian Dudka

Postdoctoral Research Associate,  
University of Pennsylvania

CANDIDATE FOR  
ASSISTANT PROFESSOR,  
MOLECULAR BIOLOGY &  
GENETICS

Thurs, March 6,  
2025

11:00 AM -  
12:00 PM

### Red Seminar Room

Donnelly CCBR  
160 College Street

## Unraveling the Mysteries of Chromosome Segregation Through the Lens of Rapid Evolution

Chromosome segregation is a fundamental process. Despite its conserved nature, computational analyses indicate that the chromosome segregation machinery evolves rapidly. However, the impact of this rapid evolution remains unknown as we lack evolution-guided experimental systems. The challenge in developing them lies in integrating computational molecular evolution analyses with evolution-guided biological models to distinguish recent evolutionary effects from conserved functions. I will establish such systems to address a long-standing mystery: How do chromosomes segregate faithfully amid the rapid evolution of the chromosome segregation machinery? Evolution-guided experimental approaches will deepen our understanding of fundamental processes like chromosome segregation and uncover vulnerabilities compromising their fidelity.

**HOST** Timothy Hughes