

YOU ARE INVITED TO ATTEND THE
DEFENSE OF THE DOCTORAL
DISSERTATION

**“A Role for Intestinal Epithelial Cell Adenosine Signaling in
Driving Type 2 Immunity and Host Protective Responses
Against Helminths”**

by
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Tuesday, June 21st, 2022
11:00 A.M.

Join in person: Cancer Center, G1196 – Space limited

Join Zoom presentation

<https://rutgers.zoom.us/j/93035194310?pwd=UVc4RWdzeitVOEtzZGZoLzJOUDBXdz09>

Meeting ID: 930 3519 4310
Password: 984585

ABSTRACT

Multicellular intestinal nematode parasites can cross the epithelial barrier, potentially causing tissue damage and release of danger-associated molecular patterns (DAMPs) that may promote type 2 responses and host protective immunity. We investigated whether adenosine specifically binding the A_{2B} adenosine receptor on epithelial cells played an important role in driving intestinal immunity. Specific blockade of epithelial cell A_{2B} adenosine receptor inhibited the host protective memory response to the enteric helminth, *Heligmosomoides polygyrus bakeri* (*Hpb*), including disruption of granuloma development at the host: parasite interface during the transient tissue dwelling larval stage. Memory T cell development was blocked during the primary response, and transcriptional analyses revealed profound impairment of epithelial cell activation and reduced type 2 markers by 24 hours after inoculation. Extracellular ATP was visualized 24 hours after inoculation and shown in CD39 deficient mice to be critical for the adenosine production mediating the initiation of type 2 immunity. Our studies indicate a potent adenosine-mediated epithelial cell pathway that, along with the tuft cell circuit, is critical for the activation of type 2 immunity.