



McGill University Research Centre on Complex Traits **MRCCT**



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**Title : “Mechanisms of disease tolerance during
intestinal helminth infection”**

Wednesday, December 12, 2018

Karp Amphitheater | Room 501, 12:00 PM

Bellini Bldg - Goodman Cancer Research Centre

“Intestinal helminths infect over two billion people worldwide and can cause significant morbidity. In many cases, however, individuals fail to develop resistance to these tissue-invasive pathogens, indicating that mammalian hosts have evolved unknown strategies to tolerate infection. To investigate the mechanisms underlying host tolerance to helminth infection, we examined the initial tissue invasion stage of *Heligmosomoides polygyrus bakeri* (*Hpb*), a natural parasitic roundworm infection of mice. Unexpectedly, we observed a rapid and robust type 1 inflammatory response that preceded the expected type 2 immune response. This early type 1 response was associated with a gut-specific expansion of IFN γ -producing Eomesodermin⁺ Natural Killer (NK) cells with no increase in other innate lymphoid cell populations. Parabiosis and confocal microscopy studies indicated that Eomes⁺ NK cells are recruited from circulation and surround the larvae in association with the intestinal vasculature. The recruitment of NK cells to the small intestinal lamina propria depends on IFN γ signals and is associated with intestinal expression of CXCL9 and CXCL10. Although depleting NK cells had no impact on worm burden or parasite fitness, it did increase the incidence of intestinal bleeding, suggesting a role for NK cells in promoting intestinal vascular integrity. In summary, our work provides new insight into the cellular dynamics required for protection during intestinal helminth infection and will help inform strategies to maximize host fitness in the context of tissue injury and repair.”

LOCATION: Karp Amphitheater - Room #501, 12:00 PM

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