

Guest Seminar - Karrow Lab

Contact information: Ran Xu, PhD candidate, rxu02@uoguelph.ca; Advisor: Dr. Niel Karrow

Title: The gut microbiota induces Peyer's patch-dependent secretion of maternal IgA into milk

Speaker: Dr. Tomonori Nochi, Ph.D. Graduate School of Agricultural Science, Tohoku University

Proposed Date/time: 1:30 – 2:30 pm, July 21st, 2022

Location: ANNU 141 as well as Microsoft Teams

Abstract: The evolutionary strategy of transferring maternal antibodies via milk profoundly impacts the survival, lifelong health and wellbeing of all neonates, including a pronounced impact on human breastfeeding success and infant development. While there has been increased recognition that interorgan connectivity influences the quality of a mother's milk, potentially to personalize it for her offspring, the underlying bases for these processes have been left unresolved. Here we define an essential role for the Peyer's patches (PP), a secondary lymphoid tissue in the small intestine, for the generation of plasma cells that secrete maternal IgA into milk. Our metagenomic screen identified that *Bacteroides acidifaciens* and *Prevotella buccalis*, both belonging to Bacteroidales, were essential bacteria within the gastrointestinal tract for the programming of maternal IgA synthesis prior to lactational transfer. Our data provide important insights into how the microbiome of the maternal gastrointestinal environment can communicate to the next generation via milk.

Speaker Biography:

Tomonori Nochi received his PhD degree on mucosal immunology from Graduate School of Agricultural Science, Tohoku University in 2005. I was affiliated with Institute of Medical Science in the University of Tokyo from 2005 to 2009, and Center for AIDS Research in the University of North Carolina from 2009 to 2013 as a post-doctoral fellow. I was promoted to associate professor at Graduate School of Agricultural Science, Tohoku University, and to professor from 2021. I have also served as the International Education and Research Center for Food and Agricultural Immunology (CFAI) in Tohoku University Graduate School of Agricultural Science as a vice director from 2019. Since 2022, I have hold adjunct professor positions in the University of Tokyo and the University of Guelph.

