**Mucosal tissue barrier functions – from early-life development to immunity to infection**

Mucosal tissue such as lung or gut have several important but somewhat conflicting functions. For example, our intestine is tasked both with the uptake of nutrients while also providing protection from pathogens or food allergens. Thus, it is being a selective barrier. These functions are accomplished through an interplay between epithelium, immune cells, and the commensal microbiota. Specifically, commensal microbiota breaks down hard-to-digest food so that epithelium can take up the nutrients, while immune cells display tolerance to the commensal microbiota (*i.e.* immune cells don’t perceive the microbiota as ‘foreign’ and do not attack them). Early in life, in the first year or so, this delicate balance is set up while massive changes are occurring. The microbiota changes from a few pioneering species to a complex ecosystem, epithelium matures so that it can handle the change from milk to solids, and immune cells are educated by the microbiota to provide tolerance throughout life. Me and my team are specifically interested in the role of the epithelium in these processes. Indeed, we study how epithelium develops in this early-life stage, and what factors are responsible for this transition. In addition, we are very interested in how epithelium changes upon an infection where, in concert with immune cells, they provide protection by producing effector molecules such as antimicrobial proteins. In this presentation, I will provide an overview of these processes while also highlighting our work within this rapidly evolving and exciting field of science.