**Goblet Cell And Mucins: Role in Host Defense in Enteric Infections**

**Abstract**

The gastrointestinal (GI) tract is constantly exposed to large numbers of food and water borne pathogens, as well as an endogenous microbiota adapted to symbiotic living within the gut. Despite this challenge, however, the GI tract is rarely overwhelmed by microbial pathogens, suggesting that it has effective innate and systemic defense systems. The mucin containing mucus layer coating the GI epithelium layer is the front line of innate host defense. Goblet cells reside throughout the GI tract and are responsible for the production and preservation this mucus blanket by synthesizing and secreting high molecular weight glycoproteins known as mucins. Mucins are likely to be the first molecules that invading pathogens interact with at the cell surface and thus, can limit binding to other glycoproteins and neutralize the pathogen. An association with an alteration of goblet cell response and mucin production is observed in various enteric infections caused by bacteria, viruses, and parasites. In addition, quantitative and qualitative alterations in mucins are observed in other GI diseases such as ulcerative colitis, colon carcinoma and coeliac disease. Taken together, there is now abundant evidence to suggest an important role of goblet cells and mucins in various GI disorders, necessitating precise understanding of goblet cell biology and function of mucins in pathology, pathophysiology, and host defense within the GI tract. We are working on goblet cell biology and role of mucins in host resistance utilizing models of enteric parasitic infections. After a brief overview on intestinal goblet cell biology and on goblet cell response in various enteric infections, the talk will provide an update on the regulatory networks that mediate intestinal goblet cell function and mucin production and on the role of mucins in host defense in various enteric infections.

**Selected Publications**