

Special Issue

Glycobiology of Human Milk in Shaping Infant Gut Function and Immunity

Message from the Guest Editor

The principal glycans in human milk are oligosaccharides (HMOS), while glycoproteins and glycolipids also play roles. Over 100 distinct oligosaccharides have been identified. As the third largest milk component, they represent ~10% of maternal caloric intake but are largely indigestible by infants, suggesting other functions. Specific HMOS mimic intestinal glycans used by pathogens as receptors, competitively inhibiting infection. They also modulate immune responses, especially by inhibiting pro-inflammatory signaling pathways. Human milk glycans constitute an innate immune system, conferring clinically significant protection to the nursing infant. HMOS promote growth of mutualist gut microbiota. A transcellular signaling pathway mediates communication between microbiota and intestinal epithelial cells via FUT2, promoting mucosal homeostasis and resilience to infection, physical, and immunologic insult. This prebiotic effect indirectly reduces gut inflammation. In vivo, these phenomena overlap, are confounded, and data are incomplete. This Special Issue would include studies on mechanisms whereby human milk promotes infant health and development and counters environmental insults.

Guest Editor

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Nutrients is an on-line open access journal that was first published in 2009. *Nutrients* adheres to rigorous peer-review and editorial processes and publishes only high quality manuscripts that address important issues related to the impacts of nutrients on human health. The Impact Factor of *Nutrients* has risen rapidly since its establishment and it is now ranked in the first quartile of journals publishing in the field of nutrition and dietetics research.

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