Human milk contains bioactive components that confer protection on the newborn. These include complex carbohydrates called Human Milk Oligosaccharides (HMOs). Research is revealing the full extent of the beneficial properties of HMOs.

**The benefits of Human Milk Oligosaccharides on immunity**

The immune system of the infant is functionally immature and naive.

HMOs give newborns multiple layers of protection:
- Protect against pathogenic infections
- Stimulate the maturation of the immune system
- Promote the development of the intestine
- Help establish the gut microbiota
- Prevent against pathogenic infections

Through their actions on the gut, HMOs positively influence the infant’s mucosal and systemic immunity.

HMOs are a predominant component of human milk with the potential to modulate the immune function of the infant.

**HMO content in milk and colostrum:**
- Mature milk: 1–10 g/L
- Colostrum: 15–32 g/L – more than twice the level of mature milk

**HMO content in mature milk:**
- Sialylated: ~35–50%
- Fucosylated: ~12–14%
- Nonfucosylated: ~42–55%

**HMO content in milk of other species:**
- Mammal milk: ~35–50%
- Nonruminant milk: ~12–14%
- Ruminant milk: ~42–55%

**Human milk oligosaccharides influence neonatal mucosal and systemic immunity**

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