

Learnings from the last decade of clinical evidence on HMOs



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Key message

2'FL and LNnT are among the most studied HMOs with clinical evidence to support immunity and the developing microbiome. Latest research on additional HMOs in human milk & beyond show promise in expanded benefits on gut, immune, brain and bone health.

Abstract

Breast milk is recognized as the gold standard to provide the best nutrition to an infant from the start of life. It is well established that human milk influences the establishment of the gut microbiota, intestinal development and maturation of the gut mucosal and systemic immune systems. Among the bioactive components in breast milk modulating these processes are human milk oligosaccharides (HMOs), with their composition, structure and function unique to human milk. Recent decades of human milk research and advances in glycobiology and technologies, made it possible to include some of the key HMOs in infant formulae. 2FL is the most studied HMO to date. 2FL and LNnT were assessed in a clinical study and demonstrated support for immune health by reducing antibiotic use and lowering respiratory tract illnesses, as well shifting gut microbiota towards that seen in breastfed infants in the first months of life^(1,2).

Another clinical study, performed recently has shown that higher levels of 2'FL in infant formula, as found in breast milk, is associated with a lower abundance of pathogenic bacteria such *Clostridium difficile* and *Klebsiella pneumoniae* at certain periods during early infancy⁽³⁾. Latest Nestlé research contributes to enrich the knowledge beyond 2'FL and LNnT to other members of the HMO's families, including LNT, DFL, and two sialylated HMOs 3'SL and 6'SL, which shows expanded benefits on gut, immune health and new benefits on brain and bone health⁽⁴⁾. Pre-clinical data indicate that these HMOs may help to protect and support healthy development of a child during the critical first stages of life. These findings warrant confirmation through a clinical study, which is currently ongoing. This clinical trial aims to evaluate in infants and toddlers the safety, growth and tolerance of a unique HMO complex added to infant formula, as well as its efficacy on the developing microbiome, immunity, brain and bone health.

References:

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3. Alliet P et al. Term infant formula supplemented with 2'fucosyllactose reduces the abundance of pathogenic bacteria during early infancy. Abstract accepted at the 6th WCPGHAN, June 2020, Copenhagen, Denmark.
4. Nestlé Research on Human Milk Oligosaccharides: Latest Update. Abstracts accepted at WCPGHAN Congress 2020 available at Nestlé Nutrition Institute website: www.nestlenutrition-institute.org