

Lactation for Infant Feeding Expertise (LIFE) – Focus on HMOs



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Key message

Nestle Research has been investigating human milk since 1960s. Our human milk research initiative called LIFE (Lactation for Infant Feeding Expertise) is one of the biggest efforts on characterization of HM and association of its components to infant and maternal variables.

Human milk oligosaccharides (HMOs) are the third most abundant component of human milk excluding water. Its concentration ranges from 5 to 15 g/L in mothers' milk and has implications in wide-ranging health outcomes of the new-born.

Our data from 8 cohorts executed in 15 countries and employing approximately 3,600 human milk samples indicate that maternal genetics, BMI, stage of lactation, preterm birth and mode of delivery are important drivers of oligosaccharide concentration in mothers' milk.

Abstract:

Human milk (HM) is ideal food for infants and ensures optimal growth and development⁽¹⁾. The composition of human milk is very dynamic and complex and varies

with multitude of factors⁽²⁾. We, at Nestle Research, have been investigating human milk since 1960s⁽³⁾. Our human milk research initiative called LIFE (Lactation for Infant Feeding Expertise) is one of the biggest efforts on characterization of HM and association of its components to infant and maternal variables. Human milk oligosaccharides (HMOs) are the third most abundant component of human milk by dry mass. Its concentration ranges from 5 to 15 g/L in mothers' milk and has implications in wide-ranging health outcomes of the neonate. To date approximately 200 HMOs have been detected, approximately 160 identified and around 30 quantified. LIFE team have characterized HMOs from 8 cohorts, executed in 15 countries and using approximately 3,600 human milk samples. The most abundant HMOs are 2'fucosyllactose (2'FL) and lacto-N-tetraose (LNT). Even though there are many HMOs identified, a combination of 2'FL, LNT, DFL, 3'SL, 6'SL constitutes approximately 50% of HMOs by weight. Exploratively, our data also indicates that maternal genetics, BMI, stage of lactation, preterm birth and mode of delivery are important drivers of oligosaccharide concentration in mothers' milk^(4,5). While we have done many studies on characterization of HMOs and their association to developmental outcomes of the infants, we plan to continue our exploration of human milk oligosaccharides.

References:

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