

## EFFECTS OF A NEW PREBIOTIC MIXTURE ON FAECAL GUT MICROBIOTA AND THE MUCOSAL IMMUNE SYSTEM IN HEALTHY INFANTS

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**Background and aims:** It has recently been shown that a specific mixture of neutral (scGOS/lcFOS) and acidic oligosaccharides (pAOS) can prevent the onset of atopic dermatitis (AD) in healthy infants (Gruber et al., 2010). The intestinal microbiota plays a crucial role in the maturation of the gut, therefore we investigated the effect of this mixture on gut microbiota parameters and faecal SIgA.

**Methods:** In a randomised double-blind placebo controlled multi-centre study, 1187 healthy term infants received either a formula supplemented with scGOS/lcFOS/pAOS (prebiotic), a standard formula (control) or breast milk (reference). Microbial composition, short chain fatty acids (SCFA), lactate, pH and SIgA were analysed in 239 infants at 2, 4 and 12 months. In a subset, the microbial diversity was assessed by phylogenetic arrays.

**Results:** The microbiota composition of prebiotic formula fed infants resembles that of breastfed infants with significantly lower pH; higher proportion of acetate and lower proportion of butyrate, propionate; and the branched SCFA when compared to the control group. Faecal SIgA levels in the prebiotic group were significantly higher than the control group at 4 and 12 months and similar to the breastfed infant at both time points. The array data show the microbiota dynamics and allows a more detailed comparison in the first year of life.

**Conclusions:** These findings show an infant formula supplemented with scGOS/lcFOS/pAOS has beneficial effects on AD prevention, which can be linked to an effect on faecal microbiota composition; metabolic activity and the mucosal immune system comparable to human milk.