

Current study provides evidence for the allergy-preventive effect of a hydrolysed infant formula

Original title: Freidl R et al. (2023) Extensively Hydrolyzed Hypoallergenic Infant Formula with Retained T Cell Reactivity. *Nutrients* 15(1):111.

Scanning the QR code will take you directly to the original study



Background

Cow's milk allergy (CMA) is one of the most common food allergies in infants and young children. Up to three percent of children are allergic to milk protein, which in the worst case can trigger life-threatening anaphylaxis.

Infant formulae based on hydrolysed (i.e. broken down) cow's milk protein are a suitable option for allergy risk reduction due to the destruction of IgE epitopes.

In this context, the degree of hydrolysis is crucial, as protein fragments (peptides) that are too long can lead to IgE sensitisation or allergic reactions, while peptides that are too short may fail to induce T-cell tolerance.

Objective of the study

The aim of this in vitro study was to assess an extensively hydrolysed whey-based infant formula (eHF), fortified with galacto-oligosaccharides (GOS) and *Limosilactobacillus fermentum* CECT5716 (LF), for its suitability in preventing cow's milk allergy (CMA). For this purpose, the allergenic potential of the infant formula, as well as its effects on T-cell proliferation and cytokine secretion, were examined.

Study design

Design: in vitro study

Sample materials: Sera from children with diagnosed cow's milk allergy (n=49) and children without cow's milk allergy (n=10) as control group

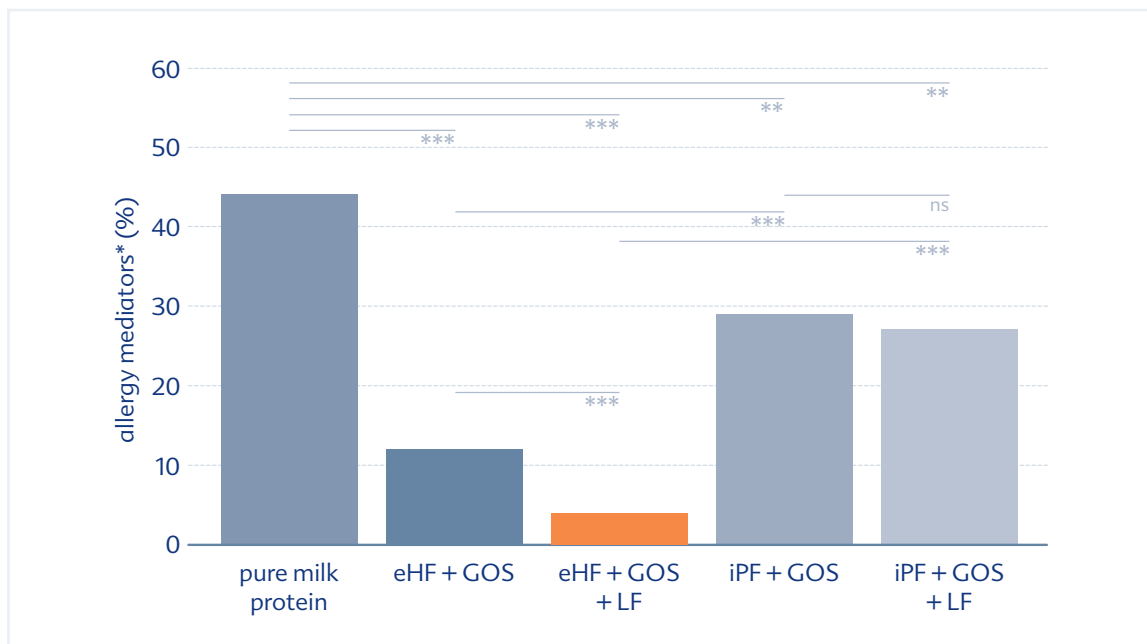
Infant formulae studied: extensively hydrolysed infant formula (eHF) with GOS, eHF with GOS and LF; infant milk formula based on intact cow's milk protein (iPF) with GOS; iPF with GOS and LF

Positive control: pure milk protein

Methods: immune dot blots, basophil degranulation assays, CFSE dilution assays, xMAP Luminex assays

Results

- The examined formula based on extensively hydrolysed whey protein with GOS and *L. fermentum* (eHF + GOS + LF)
 - lacks intact cow's milk allergens, which is why it showed almost no IgE reactivity in the sera of children with CMA (in vitro analysis).
 - **no sensitisation of the mast cells**
 - significantly reduced allergenic potential
 - **lowest release of allergy mediators** (see figure)
- When combined with GOS, eHF significantly reduce the secretion of pro-inflammatory cytokines (IL-17, IL-4, IL-5, IL-13), while maintaining a comparable level of the tolerogenic cytokine IL-10, as compared to formula containing intact cow's milk protein.
 - **possible induction of immunological tolerance**



significance level
** p ≤ 0,01
*** p ≤ 0,001
ns = not significant

eHF = extensively hydrolysed formula
iPF = formula with intact protein
GOS = galacto-oligosaccharides
LF = *L. fermentum*

*detected via the release of β -hexosaminidase

Conclusion

HiPP HA COMBIOTIC® (extensively hydrolysed formula with GOS and *L. fermentum* CECT5716) has a **very low allergenicity** while preserving T-cell epitopes for possible tolerance induction. According to the authors, HiPP HA COMBIOTIC® could therefore be suitable for the **prevention and therapy of cow's milk protein allergy**.



Watch our webinar on “New insights into preventing food allergies by improving gut health” **on our HiPP HCP website**.

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