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Summary

Sialic acid is an important nutrient for infant brain development. It is important to supplement infant formulas with a suitable source of sialic acid. Egg white ovomucin is a source of sialic acid which can be potentially implemented in infant formulas.

Background

Human milk is a rich source of **oligosaccharides** that are functionally important for infant's health and development:

Promote growth of positive microorganisms (bifidobacteria) and prevent bacterial infection
Rich in <u>sialic acid (Neu5Ac)</u> – a nine – carbon sugar important for infant brain development

Infant formulas based on bovine milk:

Lower content of sialic acid than in human milk
Bovine milk contains higher levels of Neu5Gc type of sialic acid in comparison to human milk

•Formula fed infants have lower levels of bifidobacteria than breastfed infants

It is important to supplement infant formulas with the "right" type of sialic acid (Neu5Ac) and promote bifidobacteria growth in the intestine

Ovomucin – a glycoprotein from egg white, responsible for the viscosity of egg white

- •Contains high levels of sialic acid
- •Can bind to pathogenic bacteria

Potential source of sialylated peptides (that contain sialic acid) for incorporation in infant formulas

Goals

To determine:

- Sialic acid types present in ovomucin
- Anti-adhesive activity of ovomucin against pathogensInfluence of ovomucin on bifidobacteria growth

Our approach



Expected Results

- 1. Sialic acid content and profile of ovomucin will be determined
- 2. Bifidobacteria growth-promotion and anti-adhesive activity against pathogens will be determined

What does this mean?

If added to infant formulas, egg white ovomucin can function as a source of developmentally important sialic acid and have desired microbiological effect.

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