



Gut  
health

## A closer look: the exciting gut health benefits of Biotis™ GOS, developed by FrieslandCampina Ingredients

Right now, increasing numbers of consumers around the globe are experiencing functional digestive issues, which means the search is on for safe, effective and science-based solutions.

At the same time, with more knowledge at their fingertips, consumers are coming to understand how different health areas are connected to each other. Driven by a desire to take more control of their health and well-being rather than rely primarily on medication, they increasingly prioritise naturally-derived, clean-label supplements and functional foods and drinks which leverage these connections.

### Prebiotic<sup>1</sup> power

Diet can play a significant role in tackling a myriad of digestive health issues. Specifically, as substrates that cannot be digested by host enzymes and are instead fermented in the GI tract, prebiotics selectively stimulate the gut microbiota and metabolic activity<sup>1</sup>. Modulating the microbiota with prebiotics to reduce the risk of or correct dysbiosis and achieve a desired bacterial balance has shown convincing results among diverse populations (e.g.<sup>2</sup>).



The efficacy of prebiotics is attributed to their multiple mechanisms of action<sup>1</sup>:

- Bifidogenic effect, resulting in the production of beneficial short-chain fatty acids (SCFA)
- Strengthening of the barrier function
- Improvement of mineral absorption
- Reduction of luminal pH, which suppresses the growth of pathogenic bacteria

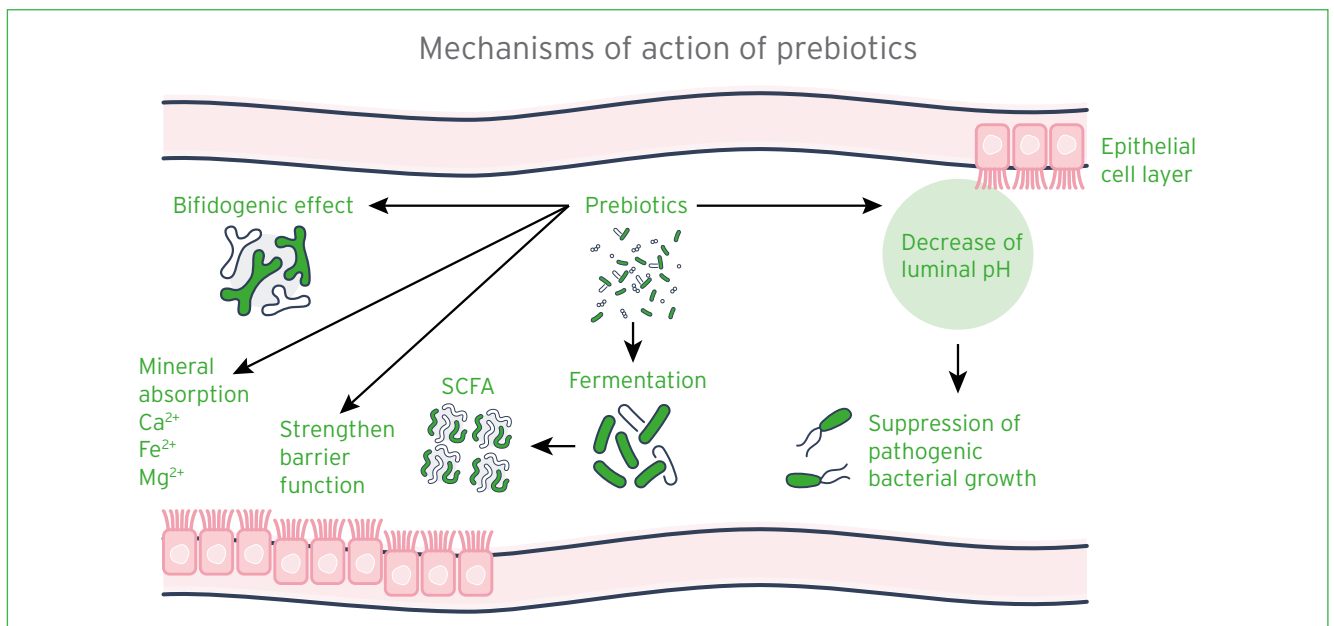


Figure 1: Mechanisms of action of prebiotics. Adapted from: Cerdo et al., 2019 <sup>3</sup>.

With a large and still growing bank of studies demonstrating the value of prebiotics in nurturing digestive health, the question then arises, “which prebiotic to choose?”

## The goodness of GOS

Galacto-oligosaccharides (often abbreviated to GOS) are well-known prebiotics whose potential to counter adult digestive health issues is highly promising<sup>2,4</sup>. As such, when it comes to developing functional foods with a digestive health position, these particular prebiotics are leading the way.

GOS are a complex mixture of over 100 oligosaccharide structures that are derived from lactose in cow's milk using an enzyme called beta-galactosidase<sup>5</sup>. In production for decades, GOS are widely considered an important component of infant milk formula. As a long-standing linchpin in FrieslandCampina Ingredients' portfolio for early life nutrition, this company's GOS are the most studied in the world.

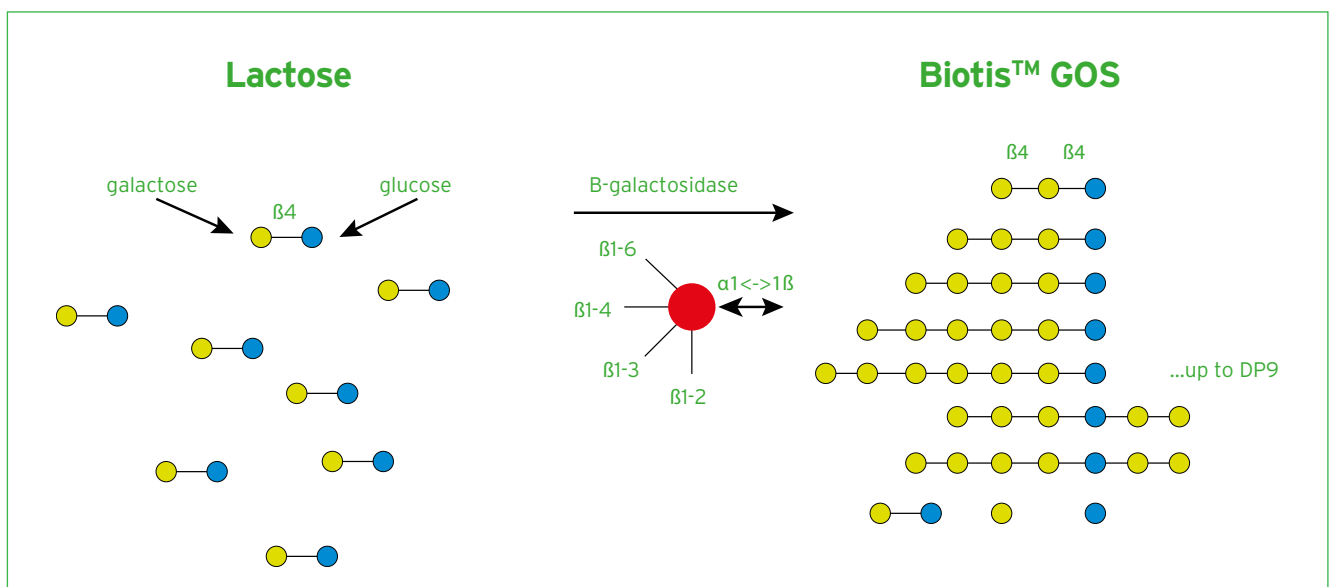


Figure 2: GOS are enzymatically produced from lactose.

## Reading the research

A number of studies have shown that FrieslandCampina Ingredients' Biotis™ GOS positively influences the microbiota<sup>2, 6, 7, 8</sup>, leading to gastrointestinal health benefits demonstrating increased gut comfort, i.e. constipation reduction<sup>4, 9</sup>. Even more in-depth research on gut comfort is already in progress, with results pending.

As well as numerous studies investigating the influence of FrieslandCampina Ingredients' Biotis™ GOS on the microbiota itself, additional studies have shown they enhance microbiota resilience<sup>7</sup>, increase mineral absorption<sup>6, 10</sup>, and promote gut barrier function<sup>2</sup>.

In a clinical study with elderly adults, participants were given 9g/Biotis™ GOS per day in a yoghurt, with a placebo group consuming yoghurt without added GOS. Over the two week trial period, Biotis™ GOS was demonstrated to increase defecation frequency and to ease the defecation process in comparison to the control group<sup>4</sup>.

A later study reinforces the effects of Biotis™ GOS on constipation in elderly adults: participants with self-reported constipation were randomised to receive either a placebo or a Biotis™ GOS dose of 12g/day in a yoghurt with prunes and linseeds. Consumption of Biotis™ GOS-supplemented yoghurt was shown to reduce the severity of constipation<sup>9</sup>.

GOS has further been shown to hold potential benefits for sufferers of Irritable Bowel Syndrome (IBS). A meta-analysis of 11 studies investigated the impact of prebiotics on gastrointestinal symptoms in adults with IBS or functional bowel disorders. This revealed that non-inulin type fructans such as GOS can potentially reduce flatulence and bloating<sup>11</sup>.



Biotis™ GOS was shown to **increase defecation frequency** and to **ease the defecation process**<sup>4</sup>

## Experience Biotis™ GOS

There is still much to discover about the human microbiota composition and activity, but the progress so far shows exciting potential for new ways of understanding human health, uncovering potential interventions that not only improve health but also align with consumer ideals. This is where Biotis™ GOS comes in: a robust science-backed solution to support GI health, taking advantage of the latest science to deliver a good gut feeling, naturally.

To discover how Biotis™ GOS can enhance your digestive health portfolio, get in touch with the FrieslandCampina Ingredients team today via email at [info@biotis.com](mailto:info@biotis.com).

*Biotis™ GOS is FrieslandCampina's recently launched food grade galacto-oligosaccharide (GOS) ingredient. Until recently, clinical studies in adults were performed with the infant nutrition grade ingredient Vivinal® GOS. The galacto-oligosaccharide composition and fingerprint of Vivinal® GOS and Biotis™ GOS is the same.*

## References

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