



## **Prebiotics: A Consumer Guide for Making Smart Choices** Developed by the International Scientific Association for Probiotics and Prebiotics ([www.isapp.net](http://www.isapp.net))

Prebiotics are selectively fermented, dietary ingredients that result in specific changes in the composition and/or activity of the gastrointestinal microbiota, thus conferring benefit(s) upon host health. Unlike probiotics, a prebiotic targets the microbiota already present within the ecosystem, acting as a 'food' for the target microbes with beneficial consequences for host. Prebiotics are currently being discussed by working parties of international scientific organizations such as the Food and Agriculture Organization of the WHO and the International Life Sciences Institute and changes to the definition and concept may follow in time. For now, their use as food ingredients or supplements is currently popular and gaining momentum. As such, the International Scientific Association for Probiotics and Prebiotics (ISAPP) has developed this information sheet to help guide consumers.

**Why look for products with prebiotics?** Certain prebiotics, when used in adequate amounts, have been shown to provide health benefits including improved digestive function and intestinal environment, positive modulation of immunity and metabolism, improved lipid metabolism and improved absorption of dietary minerals. Prebiotics can complement probiotic functions.

### **What makes a good prebiotic?**

Currently 3 criteria are required for a prebiotic effect:

- Resistance of the prebiotic to degradation by stomach acid, mammalian enzymes or hydrolysis;
- Fermentation (breakdown, metabolism) of the prebiotic by intestinal microbes; and
- Selective stimulation of the growth and/or activity of beneficial microorganisms in the gut.

Obviously, safety of the ingredient is a must and good sensory properties desirable. Good prebiotics are stable under heat and when dried, and can be stored at room temperature for months. A daily dose of 5-8g/d fructooligosaccharides (FOS) or galactooligosaccharides (GOS) has a prebiotic effect in adults.

**Which prebiotics are in the marketplace?** As the main reason for using a prebiotic is to provide benefits through gut bacteria, the most tested prebiotics are directed towards bifidobacteria and (to a lesser extent) lactobacilli. Future prebiotics may promote other beneficial gut organisms (for example, eubacteria, propionibacteria or roseburia). The most widely accepted prebiotics are FOS and GOS. To confirm prebiotic effects, well conducted human trials are required. These should be replicated in different labs. Consumers should look for the labels FOS, inulin (a type of FOS), GOS or TOS (*trans*GOS). There is a growing list of *candidate* prebiotics such as polydextrose, soybean oligosaccharides, isomalto-oligosaccharides, gluco-oligosaccharides, xylo-oligosaccharides, palatinose, gentio-oligosaccharides and sugar alcohols (such as lactitol, sorbitol and maltitol). However, the evidence for these, especially in humans, is not as well advanced as it is for FOS and GOS.

### **When is an ingredient NOT a prebiotic?**

- When it is degraded by stomach acid or human/animal processes in the gut.
- When it is fermented but not selectively so. To be selectively fermented, only a small number of beneficial bacteria should ferment the prebiotic – not a large number of microbes with ill-defined health effects.
- When it has only been tested in the lab, or in animals, and not in humans.
- When it is not adequately defined chemically and may contain impurities that are not part of its prebiotic properties
- When it is not administered in sufficient amount to confer a measurable benefit.

Many food ingredients are being touted as prebiotics when in reality they are not.

**Are prebiotics dietary fibre?** Both fibre and prebiotics are typically non-digestible carbohydrates, and both are typically fermented by gut bacteria. However, a prebiotic differs from fibre in that it needs to be *selectively* used in the gut – by only beneficial members of the gut microbial community. Historically, prebiotics are tied more closely to the probiotic concept than the fibre one. But some manufacturers refer to prebiotics as fibre, because the latter is more familiar to consumers.

**What foods can I find them in?** Some prebiotics occur naturally in foods such as leek, asparagus, chicory, Jerusalem artichoke, garlic, artichoke, onion, wheat and oat, as well as soybean. However, it would take a large quantity of these foods for their active oligosaccharides to exert a useful prebiotic effect. A more realistic method involves fortifying popular foodstuffs with defined amounts of prebiotics. Thus, you will find that prebiotic compounds are added to many foods including yogurts, cereals, breads, biscuits, milk desserts, nutritional supplement bars, ice-creams, spreads, drinks, water, infant formula, as well as to some animal foods.