



# About GI-ProBalance™ Slimsticks



## Insights from Mannatech's R&D Department

### What Are GI-ProBalance Slimsticks?

A synbiotic dietary supplement, GI-ProBalance slimsticks contain a mixture of probiotic bacteria and prebiotics that can positively affect health by improving the survival and growth of beneficial bacteria in the gastrointestinal (GI) tract.\* Probiotics are live bacteria that, when consumed in adequate amounts, help promote GI health, aid digestion and assist in nutrient absorption (1,2). Prebiotics are nondigestible food ingredients, typically complex carbohydrates or saccharides, which provide nutrients to help support the growth and metabolism of beneficial bacteria in the colon. A synbiotic is a product that contains a synergistic blend of probiotics and prebiotics (1,2); the prebiotics selectively support the growth of the probiotic bacteria. Each GI-ProBalance slimstick, which contains 15 billion colony forming units (CFU) of probiotic(1,2) bacteria at time of manufacture (at least 1.5 billion CFU guaranteed at the time of expiration), consists of the species *Bifidobacterium longum*, *B. breve*, *Lactobacillus acidophilus*, *L. rhamnosus*, *L. plantarum* and *Streptococcus thermophilus*. GI-ProBalance slimsticks include the prebiotics fructo-oligosaccharides and gum acacia.

### Why Are Intestinal Bacteria Important?

In 2012, the National Institutes of Health (NIH) Human Microbiome Project (3) explained that there are trillions of microorganisms in the human body, outnumbering human cells 10:1; however, current research, as reported by Sender et al (2016) in PLOS (4), worked out a systematic calculation of the total cell number of the human body as well as single organs to conclude a closer 1:1 ratio, while at the same time realizing there is diversity in microbiome metabolic capabilities as an outcome. Certain species, mainly belonging to the genera *Bifidobacterium* or *Lactobacillus*, are beneficial, or "friendly," bacteria, because they promote gastrointestinal health. With over 70% of immune cells located in the digestive tract, a healthy gut can also help maintain a healthy immune system. Unfortunately, a number of factors can result in an imbalance of beneficial bacteria such as stress, aging and consumption of an unhealthy diet that is low in fiber and high in fat. Daily supplementation with GI-ProBalance slimsticks can help normalize the delicate balance of intestinal bacteria required to keep your digestive tract healthy, which in turn can help keep your whole body healthy.\*

### What Safety Information Is Available for GI-ProBalance Slimsticks?

Probiotics and prebiotics, in general, are regarded as safe for healthy individuals, with very few adverse effects reported. *S. thermophilus* is an ingredient found in yogurt. Each species of lactobacilli and bifidobacteria in GI-ProBalance slimsticks is naturally found in the human GI tract. In the thousands of human and animal studies looking at the effects of lactobacilli and bifidobacteria, no serious adverse reactions have been associated with consumption of these bacteria.

### Why Does Mannatech Recommend that Ambrotose® Products Be Taken with GI-ProBalance Slimsticks?

GI-ProBalance slimsticks were designed to enhance the effectiveness of Ambrotose products. Ambrotose complex and Advanced Ambrotose® products contain plant polysaccharides that have been shown to have prebiotic effects. In a state-of-the-art simulation of the human gastrointestinal tract, Ambrotose products were fermented by colonic bacteria and helped promote growth of the beneficial bifidobacteria (5). Additional *in vitro* studies suggest the arabinogalactan in Ambrotose products may be broken down and utilized by specific species of bacteria found in GI-ProBalance slimsticks, *Lactobacillus plantarum* and *Bifidobacterium longum* (6,7). Together, these studies suggest an additive effect when consuming GI-ProBalance slimsticks with Ambrotose products, resulting in enhanced health benefits from both products.\*

#### Reference List

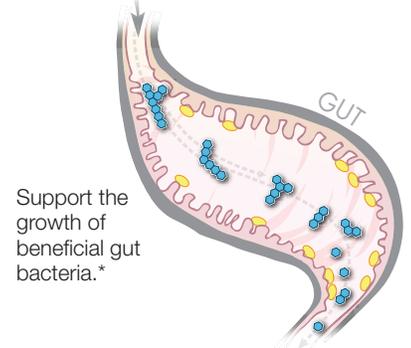
- (1) U.S. Department of Health and Human Services (HHS). National Institutes of Health (NIH). Office of Dietary Supplements (ODS). Health Information. Probiotics. Fact Sheet for Health Professionals. Updated 6/26/2019. <https://ods.od.nih.gov/factsheets/Probiotics-HealthProfessional/>
- (2) Hutkins RW, Krumbach JA, Bindels LB., et al. Prebiotics: why definitions matter. *Curr Opin Biotechnol* 2016, 37: 1-7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4744122/> or <https://doi.org/10.1016/j.copbio.2015.09.001>
- (3) National Institutes of Health (NIH). News releases. NIH Human Microbiome Project defines normal bacterial makeup of the body. 6/13/2012. <https://www.nih.gov/news-events/news-releases/nih-human-microbiome-project-defines-normal-bacterial-make-up-body>
- (4) Sender R, Fuchs S, Milo R (2016) Revised Estimates for the Number of Human and Bacteria Cells in the Body. *PLoS Biol* 14(8): e1002533. <https://doi.org/10.1371/journal.pbio.1002533>
- (5) Marzorati M, Verhelst A, Luta G, et al. *In vitro* modulation of the human gastrointestinal microbial community by plant-derived polysaccharide-rich dietary supplements. *Int J Food Microbiol* 2010;139:168-76.†
- (6) Degnan BA, Macfarlane GT. Arabinogalactan utilization in continuous cultures of *Bifidobacterium longum*: Effect of co-culture with *Bacteroides thetaiotaomicron*. *Anaerobe*. 1995;1:103-12.
- (7) Sinnott RA, Ramberg J, Boyd S. The prebiotic effects of larch arabinogalactan and a mixed saccharide dietary supplement *in vitro*. Poster presented at the 8th Jenner Glycobiology and Medicine Symposium, October 21-23, Dublin, Ireland 2007.†

**\* These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.**

† These studies were completely or partially funded by Mannatech, Incorporated.

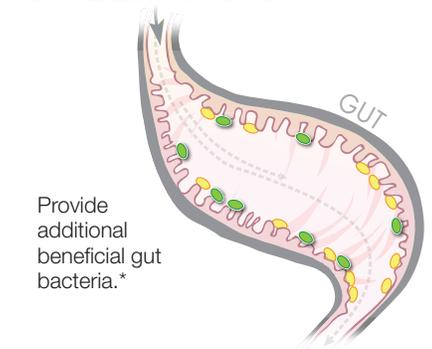
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### Ambrotose Prebiotics



Support the growth of beneficial gut bacteria.\*

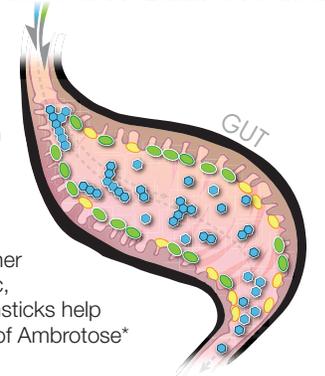
### GI-ProBalance Probiotics



Provide additional beneficial gut bacteria.\*

### Ambrotose Prebiotics + GI-ProBalance Probiotics

When taken together, Ambrotose prebiotics help support the growth of helpful live bacteria supplied by GI-ProBalance probiotic strains, and working together then as a symbiotic, GI-ProBalance slimsticks help with the utilization of Ambrotose\*



- Ambrotose Prebiotics
- GI-ProBalance Probiotics
- Gut Bacteria
- Ambrotose Breakdown Products