

### 1. Why is it beneficial to take all three products in the GI-Biome System?

Modern medicine is just beginning to understand the implications of the unhealthy stressors that target the body's sensitive digestive system. Scientific research is finding that poor nutrition, alcohol, smoking, certain medications, and other unhealthy habits lead to a poor environment for essential microbes found in our body.

To properly support the complex digestive system and overall microbiome, it takes a comprehensive three step approach that supports a strong, healthy microbial environment.\*

- GI-Defense® capsules are formulated to soothe the intestinal wall by promoting an environment that encourages the body to help repair itself through supporting butyrate production.\* Butyrate is a beneficial short chain fatty acid that acts as a soothing internal balm to promote a healthy gut environment, allowing for healthy microbes to flourish.\*
- GI-ProBalance® slimsticks offer a blend of probiotics to increase the number of good bacteria within the digestive tract, and prebiotics to feed and nurture the probiotics for longer lasting health benefits.\*
- GI-Zyme® capsules provide an array of beneficial enzymes that allow the nutrients ingested to be utilized and absorbed into the body.\*

### 2. What is a microbiome and why is it important?

Your microbiome consists of 100 trillion microbes that live on and in your body. Unseen by the naked eye, these microbes work continuously to form your innate and adaptive immune system, break down your food for digestion and even influence how much you weigh. Your health is affected by the life and vibrancy of your microbiome.

When working properly, our microbiome adjusts to achieve balance after it is exposed to foreign bacteria. However, today's modern lifestyle including diet, stress, and exposure to certain chemicals, can take a toll on the beneficial bacteria in your gut microbiome and how well it adjusts to these conditions. This may lead to a weakened immune system, poor mood and contribute to various digestive issues, including what is known as a Leaky Gut, all of which can ultimately affect your overall health.

### 3. What is meant by the Gut-Brain Axis?

While the concept might sound unusual, science has proven your gut and brain actually communicate biochemically. The bidirectional signaling that takes place between the gastrointestinal tract and the central nervous system is referred to as the gut-brain axis (GBA).<sup>1</sup>

Using the vagus nerve, the gut microbiota signals the central nervous system, influencing bodily functions like mood, immune response, digestion and heart rate.<sup>2</sup> This "linking" of gastrointestinal tract and the central nervous system helps explain why healthy intestinal function is so important. The condition of your GI tract can affect your physical, mental and emotional health.

### 4. Why are Glycans important for digestion?

Glycans contain prebiotic fibers, which are important for supporting the life and growth of probiotics.\* Together prebiotics and probiotics support healthy digestion and a healthy microbiome.\*

<sup>1</sup>Carabotti, Marilia, Sciocco, Annunziata. "The gut-brain axis: interactions between enteric microbiota, central and enteric nervous systems." *Annals of Gastroenterology*: 2016; 29(2):240.

<sup>2</sup>Breit Sigrid, Kupferberg Aleksandra, Rogler Gerhard, Hasler Gregor. "Vagus Nerve as Modulator of the Brain-Gut Axis in Psychiatric and Inflammatory Disorders." *Frontiers in Psychiatry*. March 13, 2018.

## GI-Defense capsules

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### 5. What are the key benefits of taking GI-Defense?

GI-Defense capsules are formulated with the Glycobiome and Butyrate Support Blend, which supports your body's ability to naturally replenish butyrates.\* These short-chain fatty acids are crucial to help strengthen and nourish the intestinal lining.\* A strong gut lining provides the stability needed for beneficial microbes to thrive and supports vital gut-brain signaling, also known as the "Gut-Brain Axis" needed for good health.\*

GI-Defense capsules are formulated to:

- Help strengthen and support gut barrier function and integrity.\*
- Support healthy intestinal permeability and environment.\*
- Help purify the gut and balance beneficial bacteria.\*
- Support short chain fatty acid (SCFA) production, especially butyrate production.\*
- Support healthy functioning of the digestive and immune systems.\*
- Help comfort typical feelings of gas and bloating.\*

### 6. GI-Defense contains butyrates. What exactly are butyrates and why are they important?

Your microbiome supports microbial fermentation of dietary fibers in the lower intestine and manufactures butyrate, a short chain fatty acid. Butyrate provides fuel for cells in your gut lining, supports immune system functions of the colon wall and helps to protect the digestive tract.\*

### 7. What is the Glycobiome and Butyrate Support Blend and why is it so important?

The Glycobiome and Butyrate Support Blend refers to a natural citrus flavonoid (phytonutrient) complex combined with Glyconutrients designed to support the gut and immune health.\* This natural citrus flavonoid complex in GI-Defense has been scientifically shown to help strengthen and support gut barrier function.\* Mannatech's proprietary formulation provides safe, natural and effective support for healthy gut barrier function.\*

### 8. GI-Defense contains flavonoids. What are flavonoids?

Flavonoids are a diverse group of phytonutrients (plant chemicals) found in almost all fruits and vegetables. They are responsible for the vivid colors in fruits and vegetables. Flavonoids are the largest group of phytonutrients, with more than 6,000 types. Flavonoids have been shown to support many crucial processes in the body including a healthy microbiome and digestive system.

### 9. Why did we include flavonoids in GI-Defense?

Flavonoids can promote proliferation of certain classes of beneficial bacteria and can strengthen the gut barrier.\* This results in support for a healthier digestive system and immune system.\*

When flavonoids are metabolized in the colon two actions occur:

1. Gut Microbiome Modulation – Supports the increase of short chain fatty acids (such as butyrate), helping to calm and strengthen gut lining integrity.\*
2. Enhances Effects of Active Flavonoids – Flavonoids effect the antioxidant activity and help release metabolites.

### 10. Why is it so important that the gut lining be strong and healthy?

When working properly, your gastrointestinal digestive tract (GI) breaks down food, absorbs nutrients and protects your body from harmful substances while efficiently eliminating waste. When you consider that 70% of our immune system lives within our digestive tract, you can begin understanding how valuable it is to keep our GI tract healthy and working properly.

Our extensive intestinal lining covers more than 4,000 square feet of surface area. When working properly, our intestinal wall acts as a barrier, controlling what enters our blood stream. Small gaps in the intestinal wall's "tight junctions" allow water and beneficial nutrients to enter while blocking out harmful substances. However, when the gut lining is stressed and unhealthy, it develops widening gaps that can allow partially digested food particles or toxins to pass into the bloodstream, which may lead to a variety of health issues.

### 11. What is meant by "Leaky Gut"?

An unhealthy gut lining may have increased permeability in the intestinal wall, resulting in "Leaky Gut." This may trigger changes in the gut bacteria or allow partially digested food particles or toxins to pass into the bloodstream. GI-Defense capsules can help strengthen and soothe the intestinal wall by providing a calming blend of natural and scientifically studied ingredients, designed to balance beneficial bacteria, purify the gut, and help strengthen gut barrier integrity.\*

### 12. What are the causes of "Leaky Gut"?

The condition known as "Leaky Gut" can be caused by a number of wide varieties of lifestyle choices such as excessive sugar intake, excessive alcohol intake, chronic stress, yeast overgrowth, nutrient deficiencies, among others.

### 13. What are some of the features GI-Defense offers?

Our formula is free of MSG, soy, dairy, artificial flavors, colors, preservatives, and sweeteners. Our formula is low glycemic and vegetarian friendly.

### 14. Who is the GI-Defense supplement ideal for?

For adults who wishes to support their gut health including helping to strengthen the gut barrier function and nourishing the cells by helping to promote butyrate production.\*

### 15. Is GI-Defense suitable for children?

Children age 12 and older can take this product if approved by a health care provider. If you have questions for use beyond the directions indicated on the label, you should speak to a qualified healthcare professional.

### 16. How often should I take GI-Defense?

For optimal results adults take two capsules daily, or up to two capsules twice daily if needed.

### 17. When is it best to take GI-Defense?

We recommend taking once daily with food and water.

### 18. Why was licorice root chosen for the GI-Defense formula?

Licorice root is used to soothe gastrointestinal tract, support stomach lining and restore a healthy digestive balance.\*

### 19. Why was clove chosen for the GI-Defense?

Cloves can increase the production of gastric mucus which functions as a barrier between the stomach lining and digestive acids.\*

## GI-ProBalance slimsticks

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### 20. What are probiotics and prebiotics?

Probiotics, also known as good or friendly bacteria, are live microorganisms that are very similar to beneficial microorganisms found in the human gut. Probiotics can provide health benefits when consumed in adequate amounts.\* Prebiotics are nondigestible nutrients that stimulate the growth and/or activity of good bacteria in the digestive system.\* Prebiotics are typically dietary fibers.

### 21. What is the importance of the amount of CFUs a probiotic supplement contains? What make's Mannatech's GI-ProBalance slimsticks special?

The potency of probiotics is measured in colony forming units (CFU). CFUs are determined by allowing the organism to grow under controlled conditions, and then counting the number of colonies present. Not all the bacteria (live organisms) will remain viable when they arrive at their intended destination in the gut and that is why GI-ProBalance was specifically formulated to begin with 50 Billion CFU and to end at 8.5 Billion at time of expiration. Often other probiotic supplements may not list the guaranteed potency at expiration meaning all strains could be dead by the time they are consumed.

## 22. What are the different probiotic strains and their CFU amounts that are included in the MannaBiotic™ Blend?

The MannaBiotic Blend includes the following 8 strains of probiotics and prebiotic fibers:

Probiotic Strains	(Input at time of manufacturing CFU/stick)
Lactobacillus plantarum	27,120,000,000
Bifidobacterium lactis	18,695,000,000
Streptococcus thermophilus	2,500,000,000
Lactobacillus acidophilus	750,000,000
Bifidobacterium longum	625,000,000
Lactobacillus casei	125,000,000
Bifidobacterium breve	125,000,000
Lactobacillus rhamnosus	60,000,000
Total	50,000,000,000

## 23. How does GI-ProBalance powder enhance the benefits of Ambrotose® products?

In vitro research suggests there may be an additive effect when GI-ProBalance powder is combined with Ambrotose powders.\* The arabinogalactan in the Ambrotose products may be broken down and utilized by specific bacteria present in GI-ProBalance powder.\* At the same time, arabinogalactan is a prebiotic that has been shown to support the growth and proliferation of specific bacteria found in our GI-ProBalance product.\* The expected result is enhanced support from both products.\*

## 24. Why do GI-ProBalance slimsticks contain soy?

While soy is not an ingredient in the product, it was a part of the source medium in which the bacteria strains are grown; therefore, the product may contain trace amounts of soy.

## 25. Does GI-ProBalance need to be refrigerated?

GI-ProBalance is shelf stable and does not require refrigeration. However, we do recommend storing it in a cool, dry place.

## GI-Zyme capsules

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### 26. What are the key benefits of taking GI-Zyme?

Through a powerful blend of broad-spectrum digestive enzymes and natural botanical ingredients, combined to target an array of problematic foods, this product is designed to both help improve digestion and the absorption of nutrients from food, while reducing typical discomfort that can be caused by normal eating.\*

### 27. What makes GI-Zyme unique?

Unlike most enzyme supplements, GI-Zyme capsules offer a blend of enzymes with different pH levels designed to support the breakdown of many types of foods, all throughout the different stages of digestion. As a result, GI-Zyme supports a more complete digestion in order to help with maximum nutrient absorption.\*

### 28. Who is the GI-Zyme supplement ideal for?

If you want support digesting food, you may benefit from using GI-Zyme.\* GI-Zyme supplements natural digestive enzyme levels due to normal aging, diet or other digestive needs for support.\* GI-Zyme supports the optimal break down of food and allows for maximum nutrient absorption.\*

### 29. What are enzymes and why are they important?

Enzymes are both proteins and biological catalysts that set off chemical reactions in the body. The specific enzymes in GI-Zyme capsules can help break down complex molecules, such as proteins, fats, fibers, vegetables and lactose and carbohydrates.\*

### 30. What is the benefit to having a formula with 8 different enzymes?

We included enzymes to help digest nearly every type of food. In addition, we include enzymes to address different stages throughout the digestion process. This allows for more complete digestion of food allowing your body to absorb more nutrients and maximize the benefits you will get from the foods you eat.\*

### 31. What are amylase, lactase, alpha galactosidase, invertase, bromelain, protease, lipase, and cellulase, and why are they important?

- Amylase is an enzyme that breaks down starch.\*
- Lactase is an enzyme that breaks down lactose.\*
- Alpha-galactosidase and invertase are enzymes that breaks down carbohydrates.\*
- Bromelain and protease are enzymes that breaks down proteins.\*
- Lipase is an enzyme that breaks down fat.\*
- Cellulase is an enzyme that breaks down cellulose found in vegetables.\*

The enzymes in GI-Zyme capsules are formulated to help support normal, healthy digestion.\*

### 32. Can children take GI-Zyme?

As with any product, Mannatech recommends that GI-Zyme be used only as directed. Young adults to adults should take one capsule twice daily before a meal. Please speak with your qualified healthcare provider prior to use for children.

### 33. How often should I take GI-Zyme?

For optimal results, adults may take one capsule before each large meal, up to three meals per day. Do not exceed three capsules.

### 34. When is it best to take GI-Zyme?

You can benefit from taking GI-Zyme any time of the day, but for optimal results, we recommend taking just before a meal.

### 35. Why are Glycans important for a digestive enzyme supplement?

Glycans contain prebiotic fibers, which are important for supporting the life and growth of probiotics. Together prebiotics, probiotics and digestive enzymes are all necessary to support healthy digestion and maximum nutrient absorption.\*

### 36. Why was ginger root chosen for the GI-Zyme formula?

Ginger is a superfood loaded with nutrients and bioactive compounds. It can provide powerful benefits that have been shown to ease normal digestive discomfort.\*

### 37. Why was peppermint leaf chosen for the GI-Zyme?

An aromatic herb native to Europe and Asia known for beneficial digestive health.\*

### 38. What are some of the features GI-Zyme offers?

Our formula is free of MSG, preservatives, soy, dairy, artificial flavors and sweeteners. It is vegetarian, vegan, keto and low carb friendly. Our formula is low glycemic.

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