

GIT ImmunoBiotic

Gastrointestinal Health and Immune Function Support

A low-excipient, gastrointestinal-focused formula combined with 5 billion colony forming units (CFU) *Saccharomyces boulardii* per 5g dose.

Orthoplex White GIT ImmunoBiotic is a low-excipient, FODMAP-friendly gastrointestinal formula containing Glutamine, Slippery elm, Pectin, and a clinical dose of 5 billion CFU of *Saccharomyces boulardii* per 5g serve. This formulation has been carefully selected to support gastrointestinal health both in general and whilst travelling. Additional benefits include supporting immune function and soothing minor irritations of the gastrointestinal tract.



- Gluten Free
- Lactose Free
- Vegan
- Vegetarian

AUST L 213046

Pack Size: 150g and 300g oral powder

Recommended Dose: Mix 5g (approximately 1½ level 5mL metric teaspoons) into water and consume immediately. Take once or twice daily, or as recommended by your registered healthcare practitioner.

Storage: Store at 2°C to 8°C (Refrigerate. Do not freeze).



Full disclosure of excipients in every formulation

Indications

- Glutamine supports the integrity and healthy growth of intestinal cells
- Glutamine is an important fuel for immune cells
- *Saccharomyces cerevisiae* (*Boulardii*) may assist in maintaining and stabilising healthy gut microflora
- *Saccharomyces cerevisiae* (*Boulardii*) supports the health and function of the immune system
- *Saccharomyces cerevisiae* (*Boulardii*) supports the health and function of the gastrointestinal tract
- *Saccharomyces cerevisiae* (*Boulardii*) supports GIT health while travelling
- Slippery elm is traditionally used in herbal medicine as a demulcent to help soothe minor irritations of the gastrointestinal tract

Excipients

Glycine, *Stevia rebaudiana* leaf extract, colloidal anhydrous silica.

Warnings

If symptoms persist, seek the advice of a healthcare professional.

Each 5g (approximately 1½ level 5mL metric teaspoons) Contains

Glutamine	2g
<i>Ulmus rubra</i> stem bark inner powder	500mg
Pectin	100mg
<i>Saccharomyces cerevisiae</i> (<i>Boulardii</i>)	5 billion CFU (250mg)

Technical Information

May Help to Protect and Repair the Intestinal Mucosa

The non-essential amino acid L-Glutamine is needed for the synthesis of proteins, neurotransmitters, glycoproteins and glycans. Glutamine is utilised as a source of energy and as a substrate for nucleotide synthesis by all rapidly dividing cells, such as the cells of the intestinal lining and the immune cells thymocytes, lymphocytes and macrophages.¹ High concentrations of Glutamine are found in skeletal muscle, lung, liver, brain and gastrointestinal tissues. Enterocytes, lymphocytes and macrophages use Glutamine as a preferred respiratory fuel. During times of stress, Glutamine is released into circulation and transported to the site of injury. Under conditions of trauma, injury, wound healing, infection and inflammation, intracellular Glutamine concentrations have been shown to reduce by up to 50 percent.² Glutamine supplementation helps maintain healthy levels in plasma and intracellular pools, as well as prevent derangement of normal intestinal permeability, in turn reducing the risk of microbial translocation.

A significant body of evidence indicates that Glutamine preserves the gut barrier function and prevents its permeability to toxins and pathogens – restricting the movement of these toxins and pathogens from the gut lumen into the mucosal tissue and then into the circulation. Recent studies have demonstrated that Glutamine exerts protective effects on the gut mucosa by preserving epithelial tight junction integrity,³ enhancing microcirculation in the colon wall,⁴ improving barrier function of the colon lining, preventing nutrient and water loss and inhibiting the migration of endotoxins. Additionally, Glutamine maintains the structural integrity of the intestinal lining, supporting its quick turnover. The integrity of the tight junctions between enterocytes is also enhanced by *Saccharomyces boulardii* (*S. boulardii*) via an interference of one of the transduction pathways, which therefore preserves the functionality and integrity of the intestinal tract.⁵

Clinical Trial: Garcia Vilelea et al enrolled 34 patients who were in remission from intestinal inflammation. All patients maintained the use of their medications (including mesalamine and azathioprine) throughout the trial. Patients were randomised to receive either *S. boulardii* (2×10^9 CFUs/day) (2 billion CFUs/day) or placebo for three months. Those treated with *S. boulardii* were found to have a significant reduction in colonic permeability compared with those given placebo, which in turn reduced the risk of bacterial translocation in these patients.⁶

May Help to Decrease the Inflammatory Mediators in the Digestive Tract

Glutamine enhances the gut's immune function, in part by increasing the production of secretory immunoglobulin A (IgA), thus preventing the translocation of microbes and their toxins, especially Gram-negative bacteria, from the large intestine.⁷

Slippery elm, a demulcent and emollient, provides soothing protection for the mucous membranes of the intestinal tract. It is the inner bark of mature Slippery elm, rich in mucilage that has been known to decrease local irritation in the stomach. Traditionally, Slippery elm bark has been appreciated for its demulcent properties applied to a wide range of inflammatory conditions including digestive, respiratory and urinary disorders. Topically, Slippery elm has also been widely used for inflammatory skin conditions and wound healing. One preliminary study found that Slippery elm had antioxidant and anti-inflammatory effects on inflamed cells from human colon mucosa.⁸

Mucilages have traditionally been utilised for demulcent activity particularly in inflammatory conditions of the gastrointestinal tract. They may provide a direct soothing effect and provide a protective barrier against gastric acid on the digestive mucosa. Mucilages also have topical emollient properties, and a drawing and healing effect on wounds and lesions.⁹

S. boulardii is a probiotic yeast that decreases intestinal permeability. Like Glutamine, this beneficial yeast exerts its protective effect on the gastrointestinal tract by increasing the production of IgA⁹ and activating the reticuloendothelial system via a non-specific response. *S. boulardii* plays a vital role in gut inflammation through its ability to both activate the expression of peroxisome proliferator-activated receptor- γ (PPAR- γ) as well as reduce the secretion of the proinflammatory cytokine interleukin-8 (IL-8) via inhibition of the NF- κ B and MAPK signalling pathways.^{5,10} *S. boulardii* has also been shown to increase brush border enzyme activity of lactase, alpha-glucosidase, and alkaline phosphatase, thereby improving normal enterocyte maturation.¹¹

May Help to Relieve the Symptoms of Bloating, Digestive Discomfort, Diarrhoea and Dysbiosis

Bloating, diarrhoea, digestive discomfort and dysbiosis are common symptoms associated with acute and chronic gastrointestinal diseases. The causative factors of these symptoms are commonly understood to be exposure to bacteria or parasites through ingestion, medications such as antibiotics or the sequelae of a variety of other gastrointestinal disorders. *S. boulardii* may interfere with the pathogenesis of these conditions within the intestinal lumen by several mechanisms: either by blocking pathogen toxin receptor sites and acting as a decoy receptor for the pathogenic toxin, or by direct destruction of the pathogenic toxin.¹²

As a probiotic, *S. boulardii* has been demonstrated to be effective against these symptoms both prophylactically and therapeutically, by regulating intestinal homeostasis and mediating responses resembling healthy gut flora. *S. boulardii* is also understood to interfere with the colonisation of pathogens which would otherwise destabilise the function of the gastrointestinal barrier and mucosa through their production of noxious stimuli (See Figure 1).¹³

References available upon request.

Technical Information

Figure 1: The protective effects of *Saccharomyces boulardii* in the gastrointestinal tract

