

# PROBIO 100

- Enhances Immune System Function
- Maintains a Healthy Gut-Immune Barrier
- Maintains Normal Inflammatory Balance
- Supports Digestion and Micronutrient Absorption
- Maintains Gastrointestinal Health



This product is a high-dose probiotic delivering 100 billion active cultures for cases of gastrointestinal (GI) and immune distress. Going beyond the threshold of traditional probiotic support, high-dose probiotics influence GI health and immunity in ways lower-dose probiotics cannot. Shown to activate over 1,700 genes involved in immune and inflammatory signaling, high-dose probiotics improve immune function, maintain a healthy gut-immune barrier, and maintain normal inflammatory balance. Each capsule provides six proven probiotic strains chosen for their ability to survive the harsh GI environment to deliver superior results.

## Overview

The GI tract is a finely balanced environment where roughly 500 different strains of bacteria compete for space and nutrients. When there is a healthy balance (eubiosis), few symptoms exist. However, dysbiosis can occur when an overabundance of potentially harmful organisms prevail. The natural microflora balance can be upset by medications (such as antibiotics, oral contraceptives, etc.), excessive alcohol consumption, or poor dietary intake.

Probiotics have been extensively studied and are characterized as having broad GI and immune benefits, including (1) increasing the population of healthy bacteria following microflora imbalance; (2) supporting healthy bowel function; (3) increasing the production of short-chain fatty acids, which provide energy to the cells of the intestinal lining; (4) strengthening the gut-immune barrier by promoting a healthy gut mucosa; (5) aiding in the digestion of difficult-to-break-

down like lactose and casein; and (6) enhancing detoxification of harmful compounds. Because probiotics are live organisms, there are many challenges associated with manufacturing and distributing probiotic supplements. For a probiotic to be effective, it must be shelf-stable through the expiration date and precisely delivered to the intestinal tract, where it can have maximum benefit. BioShield® technology is an innovative manufacturing process developed to ensure consistent and reliable results. The microorganisms in this product are protected, sealed and freeze dried away from moisture, heat, light and oxygen. This allows the bacteria to remain dormant until they are exposed to moisture in the GI tract. By utilizing advanced encapsulation technology, the probiotic organisms are preserved and released on-target for maximum benefit.

## ***Lactobacillus acidophilus* (La-14)<sup>†</sup>**

*Lactobacillus acidophilus* is a beneficial bacterial strain that is normally found in the intestinal tract and mouth and is commercially used in dairy products for the production of acidophilus-type yogurt. *L. acidophilus* ferments various carbohydrates to produce lactic acid, which increases the absorption and bioavailability of minerals. This includes calcium, copper, magnesium and manganese. The production of lactic acid also promotes health by creating an inhospitable environment for invading microbes.<sup>1</sup> *L. acidophilus* has been shown to protect intestinal cells by competing for adhesion space in the gut against harmful bacteria, such as *E. coli*. The *L. acidophilus* strain in this product has been specifically chosen because of its strong adherence and survival attributes in the GI tract. It has been demonstrated in vitro to tolerate exposure to gastric acid and

bile salts, and has the ability to withstand antibiotics including Ciproflaxin, Polymyxin B and Tetracycline.<sup>2</sup>

### ***Lactobacillus paracasei* (Lpc-37)<sup>†</sup>**

*Lactobacillus paracasei* has been shown to protect against the harmful effects of bacteria such as *Staphylococcus aureus* (*S. aureus*).<sup>3</sup> *L. paracasei* colonizes the intestinal tract by reinforcing defense mechanisms that support an immune response. It does this by supporting T-helper cell production and secreting secretory IgA (sIgA), an antibody critical for supporting intestinal immunity.<sup>4</sup> *L. paracasei* Lpc-37 is a gastric acid-resistant strain and has been shown in vitro to withstand antibiotics such as Ciproflaxin and Vancomycin.<sup>5</sup>

### ***Bifidobacterium bifidum* (Bb-02)<sup>†</sup>**

*Bifidobacterium bifidum* has been shown to effectively compete with harmful bacteria such as *E. coli*, *S. aureus* and *Campylobacter jejuni*, which suggests *B. bifidum's* lactic acid and acetic acid production provides an antagonistic action against pathogens to help maintain microflora balance.<sup>6</sup>

### ***Bifidobacterium lactis* (BI-04)<sup>†</sup>**

*Bifidobacterium lactis* is predominantly found in the colon. A double-blind, randomized placebo-controlled trial on subjects receiving *B. lactis* or placebo for eight weeks found that *B. lactis* supported a balanced immune response in individuals hypersensitive to environmental allergens.<sup>7</sup> Studies examining immune development and dietary supplementation with *B. lactis* have shown that it supports GI health by reducing intestinal permeability.<sup>8</sup>

### ***Lactobacillus plantarum* (Lp-115)<sup>†</sup>**

*Lactobacillus plantarum* is a beneficial bacteria commonly found in fermented foods including sauerkraut, pickles, brined olives and sourdough. *L. plantarum* has been found to compete against strains of *Clostridium difficile* and *Clostridium perfringens*, due to the production of bacteriocins (lethal proteins) that inhibit bacterial growth.<sup>9</sup> Studies have also demonstrated that *L. plantarum* helps boost the immune response by stimulating Th1-mediated immunity.<sup>10</sup>

### ***Lactobacillus rhamnosus* (Lr-32)<sup>†</sup>**

*Lactobacillus rhamnosus* has been proven to have remarkable survivability in the acid and bile environments in the GI tract. *L. rhamnosus* is particularly useful because of its ability to adhere to cells, enhance microflora balance, and inhibit pathogen adherence. *L. rhamnosus* was also found to positively affect inflammatory and immune gene signaling of over 1,700 genes when administered in high doses.<sup>11</sup>

## **Directions**

1 capsule per day or as recommended by your health care professional.

## **Does Not Contain**

Wheat, gluten, soy, corn, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, artificial colors, artificial sweeteners or preservatives.

## **Cautions**

If you are pregnant or nursing, consult your physician before taking this product.

## **Supplement Facts**<sup>V1</sup>

Serving Size 1 Capsule  
Servings Per Container 30

1 capsule contains	Amount Per Serving	% Daily Value
<b>Proprietary Blend</b>	100 Billion CFU**	
<i>Lactobacillus acidophilus</i> (La-14)		*
<i>Bifidobacterium bifidum</i> (Bb-02)		*
<i>Lactobacillus plantarum</i> (Lp-115)		*
<i>Bifidobacterium lactis</i> (BI-04)		*
<i>Lactobacillus rhamnosus</i> (Lr-32)		*
<i>Lactobacillus paracasei</i> (Lpc-37)		*

\* Daily Value not established

## References

1. Lipski E. Digestive Wellness. New Canaan (CT): Keats Publishing; 1996. p. 60-61.
2. Danisco. *Lactobacillus acidophilus* La-14 probiotic identity card.
3. Bendali F, Madi N, Sadoun D. Beneficial effects of a strain of *Lactobacillus paracasei* subsp. *paracasei* in *Staphylococcus aureus*-induced intestinal and colonic injury. Int J Infect Dis. 2011 Nov;15(11):e787-94.
4. Chiang SS, Pan TM. Beneficial effects of *Lactobacillus paracasei* subsp. *paracasei* NTU 101 and its fermented products. Appl Microbiol Biotechnol. 2012 Feb;93(3):903-16.
5. Danisco. *Lactobacillus paracasei* Lpc-37 probiotic identity card.
6. Fooks LJ, Gibson GR. Mixed culture fermentation studies on the effects of synbiotics on the human intestinal pathogens *Campylobacter jejuni* and *Escherichia coli*. Anaerobe. 2003 Oct;9(5):231-42.
7. Singh A, Hacini-Rachinel F, Gosoniu ML, Bourdeau T, Holvoet S, Doucet-Ladeveze R, Beaumont M, Mercenier A, Nutten S. Immune-modulatory effect of probiotic *Bifidobacterium lactis* NCC2818 in individuals suffering from seasonal allergic rhinitis to grass pollen: an exploratory, randomized, placebo-controlled clinical trial. Eur J Clin Nutr. 2013 Feb;67(2):161-7.
8. Lewis MC, Patel DV, Fowler J, Duncker S, Zuercher AW, Mercenier A, Bailey M. Dietary supplementation with *Bifidobacterium lactis* NCC2818 from weaning reduces local immunoglobulin production in lymphoid-associated tissues but increases systemic antibodies in healthy neonates. Br J Nutr. 2013 Oct;110(7):1243-52.
9. Schoster A, Kokotovic B, Permin A, Pedersen PD, Bello FD, Guarabassi L. In vitro inhibition of *Clostridium difficile* and *Clostridium perfringens* by commercial probiotic strains. Anaerobe. 2013 Apr; 20:36-41.
10. Chytilová M, Mudroňová D, Nemcová R, Gancarčíková S, Buleca V, Koščová J, Tkáčiková L. Anti-inflammatory and immunoregulatory effects of flax-seed oil and *Lactobacillus plantarum* - Biocenol™ LP96 in gnotobiotic pigs challenged with enterotoxigenic *Escherichia coli*. Res Vet Sci. 2013 Aug;95(1):103-9.
11. Evard B, Coudeyras S, Dosgilbert A, Charbonnel N, Alamé J, Tridon A, Forestier C. Dose-dependent immunomodulation of human dendritic cells by the probiotic *Lactobacillus rhamnosus* Lcr35. PLoS ONE. 2011 Apr 18;6(4):e18735.