



Probiotic

This product has been formulated using a blend of select prebiotics with a wide array of probiotics, designed to naturally strengthen the immune system. The organisms in this formula are synergistic with one another, each with specialized roles and a preferred food supply. The friendly bacteria that have been added assist the good gastrointestinal flora. The prebiotic fructooligosaccharides (FOS) have been added to provide food to the friendly bacteria.

Prebiotics:

Prebiotics consist of special nutritive factors, called fructooligosaccharides (FOS), which are not metabolized by the human system but instead provide nutritive support to the natural flora of the intestines. Frutafit® Inulin IQ (FOS) is one of the best know prebiotics. It has been included as a fructooligosaccharide source to help support the growth of beneficial microorganisms. Due to the nature of the human digestive tract, the availability of food for microorganisms in the large intestine is quite limited. Therefore, the input of fermentable carbohydrates into the colon is of great importance to colonic metabolism. Supplementing FOS, which is fermentable by the Bifidobacteria, can greatly increase the metabolic activity in the colon. Studies have shown that FOS supplementation can significantly increase the population of Bifidobacteria in the colon, help relieve constipation, improve blood lipids in hyperlipidemia and reduce production of intestinal putrefactive substances. In addition, FOS has been shown to strongly inhibit growth of the pathogenic bacteria *Clostridium perfringens*.



Supplement Facts

Serving Size: 1 Capsule
 Servings Per Container: 90

Amount Per Serving	% DV
Proprietary Probiotic Blend	121 mg
<i>Bifidobacterium bifidum</i>	400 mil c.f.u. *
<i>Lactobacillus acidophilus</i>	1 bil c.f.u. *
<i>Bifidobacterium infantis</i>	100 mil c.f.u. *
<i>Bifidobacterium longum</i>	100 mil c.f.u. *
<i>Lactobacillus bulgaricus</i>	100 mil c.f.u. *
<i>Lactobacillus lactis</i>	100 mil c.f.u. *
<i>Lactobacillus plantarum</i>	100 mil c.f.u. *
<i>Lactobacillus salivarius</i>	100 mil c.f.u. *
<i>Lactobacillus casei</i>	100 mil c.f.u. *
<i>Lactobacillus rhamnosis</i>	100 mil c.f.u. *
Fructo-oligosaccharides	100 mg *

*Daily Value not established

Other Ingredients: Rice bran, vegetable cellulose and water



Probiotics:

Probiotics are naturally found in the mouth, lower intestine and vagina of healthy individuals. These microorganisms help defend the body against invading pathogenic bacteria. Probiotics contribute to gastrointestinal health by providing tonifying and health-promoting activity. They produce lactic acid and keep the colon environment slightly acidic to aid in preventing the growth of harmful organisms. In addition, lactobacilli are known to produce several antibiotic compounds to further inhibit the growth of pathogenic organisms. Due to the prevalence of broad-spectrum antibiotic treatment (which kills the beneficial organisms as well as harmful bacteria), many people are lacking healthy intestinal flora. Supplemental replenishment of probiotics quickly returns the flora balances to normal. Some of the benefits of the individual probiotics are outlined below.

The *Lactobacilli* (*casei*, *acidophilus*, *ramnosus*, and *plantarum*) produce lactic acid, which creates an acidic environment that is unfriendly to some harmful bacteria. Their by-products, called bacteriscins, can manifest antimicrobial properties and inhibit the growth of some pathogens. The *Lactobacilli*, as well as *Bifidobacterium* also help minimize the symptoms of dairy intolerance.

Lactobacillus acidophilus is known to thwart the growth of pathogenic microorganisms, including *Candida Albicans*, by producing both lactic acid and antibiotic compounds. Lactic bacteria produced by *L. acidophilus* act to block the receptors or adhesion sites of pathogens, creating a barrier against infectious organisms. They also prevent production of toxic amines by putrefactive bacteria, thus

helping to prevent and treat hepatic encephalopathy.

Lactobacillus casei can decrease the duration of diarrhea.

Lactobacillus acidophilus, *Bifidobacterium bifidum* and *longum*, and *Lactobacillus casei* have also been shown in human clinical studies to reduce the levels of some colonic enzymes (such as β -glucuronidase) which are implicated in the conversion of procarcinogens to carcinogens.

Lactic bacteria produced by *L. acidophilus* and *L. rhamnosus* act to block the receptors or adhesion sites of pathogens, creating a barrier against infectious organisms. They also prevent production of toxic amines by putrefactive bacteria, thus helping to prevent and treat hepatic encephalopathy.

L. rhamnosus has also been shown to accelerate the evacuation of excrement.

Lactobacillus plantarum produces a high percentage of lactic acid which acts to inhibit harmful microorganisms.

Lactobacillus salivarius has been shown to produce alpha-galactosidase, which can help reduce flatulence. In addition, *L. salivarius* has been shown to be highly resistant to tetracycline and chloramphenicol antibiotics.

L. bulgaricus is in transit in the human intestine, yet important as it passes through by creating the acidic environment helpful in inhibiting harmful bacteria (such as *e. coli*) and other microorganisms. *L. bulgaricus* works alongside the other lactic bacteria in producing small amounts of hydrogen peroxide, and in producing lactic acid, thereby creating a more





acidic environment, inhibitory to undesirable microorganisms.

Research studies on *L. lactis* have shown that it has a beneficial effect in inhibiting the growth of *Salmonella* spp. and *e-coli*. This effect is most likely a result of its acid producing capabilities. This probiotic has also been shown to be effective in treating maldigestion.

The *Bifidobacterium* (*bifidum*, *infantis*, and *longum*) inhibit the growth of pathogenic organisms, in particular. Research shows that nitrite-producing organisms are specifically inhibited by this probiotic.

B. infantis is a natural inhabitant of the intestines of human infants, but also occurs in small numbers in the human vagina. Like the other bifidobacterium, *B. infantis* aids in the

production of acetic and lactic acids which increase the acidity of the intestines and thereby inhibit undesirable bacteria. It also assists in nitrogen retention and weight gain in infants and contributes to the production of B vitamins.

Several investigators, who have studied anti-tumoral activity and production of immunity, have reported an increase in immunity by lactic bacteria.

Another benefit of probiotics is their ability to regulate bowel movements and halt diarrhea. They have also been shown to prevent side effects associated with antibiotic treatment and eliminate bad breath due to intestinal imbalances.





References:

Brochu E. "Special Behavior of Lactic Bacteria and their relation to nutrition and Health" (Rosell Institute Inc: Lecture, August 10, 1986).

Collins B and Hardt P. "Inhibition of *Candida albicans* by *Lactobacillus acidophilus*." *J Dairy Sci* 63:830-2 1980.

Conway PL, Gorbach SL and Goldin BR. "Survival of Lactic Acid Bacteria in the Human Stomach and adhesion to Intestinal Cells." *Journal of Dairy Science* 70:1-12 1987.

Cummings JH and Englyst HN. "Fermentation in the human large intestine and the available substrates." *Am J Clin Nutr* 45:1243-55 1987.

Dash SK. "How to Select an *Acidophilus* Supplement." *Nutrition* pp 36-40 1989.

Faure JC, Schellenger DA, Bexter A and Wuerzuer HP. "Barrier effect of *Bifidobacterium longum* on a pathogenic *Echerichia coli* strain by gut colonization in the germ-free rat." *Z Ernahrungswiss* 23:41-44 1984.

Fishbein L, Kaplan M and Gough M. "Fructooligosaccharides: a review." *Vet Hum Toxicol* 30(2):104-7 1988.

Gilliland SE. "Beneficial interrelationships between certain microorganisms and humans: candidate microorganisms for use as dietary adjuncts." *J Food Protection* 42:146-67 1979.

Hidaka H et al. "Effects of Fructooligosaccharides on Intestinal Flora and Human Health." *Bifidobacteria Microflora* 5(1):37-50 1986.

Homma N. "Bifidobacteria as a resistance factor in human beings." *Bifidobact Microflora* 7(1):35-43 1988.

Hoover DG. "Bifidobacteria: activity and potential benefits." *Food Tech* pp 120-124, June 1993.

Hughes D and Hoover D. "Bifidobacteria: their potential for use in American dairy products." *Food Tech* 45(1): 74-83.

Kim HS (PhD). "Beneficial Microorganisms as Dietary Adjuncts: Lactobacilli and Bifidobacteria." *Miles Analecta* 7-11.

Kato I, Yokokura T and Mutai M. "Augmentation of mouse natural killer cell activity by *Lactobacillus casei* and its surface antigens." *Microbiol Immunol* 27(2):209-217 1989.

Kvasnikov EI, Shishlevskaya TN and Kovalenko NK. "Antagonistic activity of lactic-acid bacteria with respect to agents of intestinal disease in poultry." *Mikrobiol Z*45(5):27-32 1983.

Michaud S. "Etude comparative de differents produits laitiers dans la malabsorption du lactose." Univ. Nantes, Fac. Medecine (thesis), pp 13-57 1993. (*L. lactis*)





Mital BK, Shallenberger RS and Steinkraus KH. "alpha-Galactosidase activity of lactobacilli." *Appl Microbiol* 26(5):783-8 1973.

Mitsuoka T. "Recent Trends in Research on Intestinal Flora: Taxonomy and Ecology of Bifidobacteria." *Bifidobact Microflora* 1:3-24 1982.

Rasic JL. "Bifidobacteria and diarrhea control in infants and young children." *Intl Clin Nutr Rev* 112(1):27-9 1992.

Speck ML. "Interactions Among Lactobacilli and Man." *Journal of Dairy Science* 59:338-343.

Vanderbergh PA. "Lactic acid bacteria, their metabolic products and interference with microbial growth." *Fems Microbio Reviews* 12:221-38 1993.

