

ProBio SAP

Science-based probiotics; high dose, multistrain in an enteric capsule

Probiotics are dietary microbial mixtures that beneficially affect the host by improving intestinal microbial balance. Although large numbers of microbes normally inhabit the human intestine, certain strains of bacteria are believed to alleviate the symptoms of lactose intolerance, increase natural resistance to infectious diseases of the intestinal tract, improve digestion, maintain healthy cholesterol levels, reduce risk of cancer, and stimulate gastrointestinal immunity.

ACTIVE INGREDIENTS

Each enteric vegetable capsule contains:

<i>Lactocaseibacillus rhamnosus</i> R0011	4.4 billion CFU
<i>Lactocaseibacillus rhamnosus</i> R1039	3.905 billion CFU
<i>Lactobacillus helveticus</i> R0052	550 million CFU
<i>Lactiplantibacillus plantarum</i> R1012	440 million CFU
<i>Lactocaseibacillus casei</i> R0215	440 million CFU
<i>Bifidobacterium longum</i> R0175	330 million CFU
<i>Bifidobacterium infantis</i> R0033	330 million CFU
<i>Bifidobacterium breve</i> R0070	330 million CFU
<i>Streptococcus salivarius</i> ssp. <i>thermophilus</i> R0083	220 million CFU
<i>Lactobacillus delbrueckii</i> ssp. <i>bulgaricus</i> R9001	55 million CFU

Other ingredients: Vegetable magnesium stearate, ascorbic acid, inulin, arabinogalactan, potato starch, saccharose (sucrose), skim milk, maltodextrin, yeast extract (peptone), trehalose and sodium ascorbate, in a capsule composed of hypromellose (vegetable carbohydrate gum), hypromellose acetate succinate, and purified water.

This product is non-GMO and vegetarian friendly.

Contains no: Gluten, wheat, eggs, citrus, preservatives, artificial flavour or colour.

Made from 10 specific strains of live cells, chicory root and larch tree (prebiotics).

ProBio SAP (probiotics) contains 90 or 180 enteric capsules per bottle.

Keep refrigerated.

DIRECTIONS FOR USE

Adults, adolescents, and children ≥ 6 years old: Take 1–2 capsules daily with water or juice or as directed by your healthcare practitioner.

1 capsule provides 11 billion live probiotic cells.

INDICATIONS

Supplementing 1 **ProBio SAP** capsule daily provides doses of live probiotic cells scientifically supported to effectively reduce risk of diarrhea, enhance the immune system, prevent infections, and maintain a good balance of intestinal microorganisms (colon health). **ProBio SAP** may help in management of symptoms of depression and improvement of blood serum lipids.

FEATURES

- **ProBio SAP** supplies a compatible and complementary blend of 10 probiotic strains to address a wide spectrum of gastrointestinal health benefits.
- Enteric-coated vegetable capsule ensures 100% delivery of live microbial cells to the intestine, and is resistant to gastric and bile acids.
- Fructooligosaccharides and arabinogalactan are prebiotics included in **ProBio SAP** to enhance *Bifidobacterium* and *Lactobacillus* proliferation and implantation, stimulate mineral (calcium and magnesium) absorption, and enhance production of short-chain fatty acids.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for all **ProBio SAP** lot numbers have been tested by a third-party laboratory for identity, potency, and purity.

Scientific Advisory Panel (SAP):
adding nutraceutical research
to achieve optimum health



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WHAT ARE PROBIOTICS?

Probiotics can be defined as cultures of living micro-organisms in mized strain or single strain form, which when administered in certain amount can ameliorate gut microbiota and provide beneficial effects to the host beyond their nutritional potential.^[1] *Lactobacillus* and *Bifidobacterium* are two main probiotic bacteria which have shown several health benefits when administered in the required amounts.^[2]

WHAT ARE PREBIOTICS?

Prebiotics are food or supplements that contain indigestible fibres that enhance the growth and proliferation of probiotic bacteria. Examples of prebiotics include fructo-oligosaccharides, large polysaccharides such as resistant starches and inulin, lactulose etc. A combination of probiotics and prebiotics is known as synbiotics, which are used for their synergistic effect in providing and proliferating healthy gut microbes. A more beneficial effect has been observed with the use of mixed strain bacteria rather than use of single strains.^[1]

PROBIOTICS — GENERAL DOSE AND DURATION

Numerous studies that have evaluated the use of probiotics on physiological effects in humans, such as in the treatment of lactose intolerance, diarrhea, and colon cancer biomarkers, recommend ingesting a daily dose of 10⁹–10¹⁰ live bacteria. Most ingested probiotics are transient, pass through the intestinal tract in 3–30 days, and do not permanently adhere to the intestinal wall. These probiotics exert their effects as they proliferate and metabolize while in the small intestine and colon. Probiotics must be supplemented regularly to maintain their effectiveness. Different strains of probiotic bacteria exert different effects on human health. Thus, proven effects of one strain or species cannot be transferred to others.^[3] As a result, it is best to supplement with a high-dose multistrain probiotic to provide an optimal range of health benefits as well as suit the needs of different individuals.

SAFETY OF PROBIOTICS SUPPLEMENTATION

The safety record of probiotics is excellent, with *Lactobacilli* and *Bifidobacteria* designated as generally recognized as safe (GRAS).^[1] The lack of pathogenicity with probiotic use extends to all age groups and to immunocompromised individuals.^[5] While theoretically, as living organisms, probiotics may be responsible for side effects in susceptible individuals including infections, deleterious metabolic activities, excessive immune stimulation and gene transfer,^[6] *Lactobacilli* and *Bifidobacteria* probiotics are extremely rare causes of infections in humans and have not led to an increase in such opportunistic infections in consumers. On these bases, probiotics are considered safe for human consumption.

PROBIOTICS AND NUTRITION RESEARCH

Mechanisms of Action^[7]

Several studies have characterized the mechanism of action of probiotics. Some of these mechanisms include competitive exclusion of enteric pathogens (via adhesion sites and nutrients), inhibition of pathogen growth by producing lactic acid, butyric acid, bacteriocins, hydrogen peroxide etc., triggering cytokine synthesis from enterocytes by attaching to their surface, restoration of the normal intestinal flora and immunomodulation.^[7]

Enhancement of the Immune System

Recent meta analysis of clinical trials conducted have shed better light on the role of probiotics in immunomodulation. Systematic meta analysis of 19 clinical trials supports evidence that probiotic supplementation during pregnancy and lactation may reduce risk of eczema and development of immune-mediated diseases in the child.^[8] A similar meta analysis of 8 clinical trials indicates probiotic supplementation may reduce the occurrence of respiratory tract diseases, some of which used specific strains such as *Lactococcus casei* and strains of *Bifidobacterium*.^[9] Recent evidence also suggests probiotics can help in management of HIV-1 infection by combating bacterial vaginosis in HIV-1 positive women, stabilizing CD4+ T cell counts and enhancing growth in HIV-1 positive children and infants. Probiotics also showed potential with anti-inflammatory and immunomodulatory effects on the gastrointestinal immune system.^[10]

Promotion of Gut Health

The role of probiotics in gut health has been well established, and recent

studies have strengthened this understanding by shedding light on the impact of probiotics on specific gut disorders. Meta analysis of randomized clinical trials revealed 3 clinical trials that showed significant positive association between probiotics and inflammatory bowel disease in children (IBD). The same analysis also revealed an overview of 18 clinical trials showed beneficial effects of probiotic supplementation in patients with ulcerative colitis (UC), specifically combination of *Lactobacillus*.^[11] The far-reaching effects of probiotic supplementation beyond the gut are being explored as well. A summary of clinical studies points to potential benefits of probiotics in the treatment of halitosis, periodontitis, and reduced incidence of dental caries.^[12] It has been observed that probiotics through gut microbiota modulation, may show therapeutic potential against chronic liver diseases such as non-alcoholic fatty liver disease (NAFLD), fibrosis progression and liver cirrhosis.^[13] Probiotic supplementation could also help alleviate symptoms of lactose intolerance.^[14]

Effect on Depression

Growing evidence points to the importance of probiotic supplementation and their role in management of gut-brain relationship. A recent meta-analysis summarizing the results of clinical randomized clinical trials showed that probiotics significantly reduced the depression scale score in participants.^[15]

Effect on cysts and tumor growth

Numerous animal and in vitro studies support the use of probiotics as an adjuvant therapy for treatment of tumor growths and different cancers, however further research via clinical trials will be required to strengthen this evidence and understand the mechanism behind it.^[16] A randomized, double-blind, placebo controlled trial conducted with polycystic ovary syndrome (PCOS) showed that probiotic supplementation for 12 weeks significantly increased serum sex hormone binding globulin (SHBG) and had beneficial effects on plasma total antioxidant capacity, serum testosterone, C-reactive protein, and plasma malondialdehyde concentrations (n=30).^[17] A combination of fiber and probiotics was significantly effective in treatment of diarrhea associated with enteral nutrition in gastric cancer patients.^[18]

Modulation of serum lipids

A systematic meta-analysis of randomized controlled trials has revealed probiotic supplementation can significantly reduce serum total cholesterol.^[19] A meta-analysis of 12 clinical trials looking at the effect of probiotics on type 2 diabetes patients has shown significant effect of probiotics in lowering serum total cholesterol, triglycerides, as well as elevation of HDL-C. The meta-analysis also showed an improvement in glucose control via reduced fasting blood glucose and serum insulin concentration.^[20]

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