

Children's ProBio SAP

Science-based probiotics for immune and gastrointestinal health

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 have been shown to assist with various conditions. Certain strains have demonstrated the ability to alleviate acute diarrhea, inflammatory bowel diseases, and irritable bowel syndrome, as well as being able to increase the body's natural resistance to infectious diseases of the intestinal tract and upper respiratory tract. Probiotics can also be used to help prevent atopic dermatitis in children.

ACTIVE INGREDIENTS

Each 2 scoops (250 mg) contain 10 billion CFU:

<i>Lactacaseibacillus rhamnosus</i> R1011.....	3.569 billion CFU
<i>Lactacaseibacillus rhamnosus</i> R1039	2.677 billion CFU
<i>Bifidobacterium infantis</i> R0033.....	1.345 billion CFU
<i>Lactobacillus helveticus</i> R0052	0.446 billion CFU
<i>Lactacaseibacillus casei</i> R0215.....	0.357 billion CFU
<i>Lactiplantibacillus plantarum</i> R1012	0.357 billion CFU
<i>Bifidobacterium breve</i> R0070.....	0.268 billion CFU
<i>Bifidobacterium longum</i> R0175	0.268 billion CFU
<i>Streptococcus salivarius</i> ssp. <i>thermophilus</i> R0083	0.178 billion CFU
<i>Lactobacillus delbrueckii</i> ssp. <i>bulgaricus</i> R9001	0.045 billion CFU

Other ingredients: Potato starch, ascorbic acid, inulin (chicory root) (7.5 mg), arabinogalactan (larch tree) (7.5 mg), saccharose(sucrose), skim milk, maltodextrin, yeast extract (peptone), trehalose, sodium ascorbate, and vegetable magnesium stearate.

This product is non-GMO.

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

This product has come into contact with milk and soy. If you have a milk or soy allergy, do not use this product.

DIRECTIONS FOR USE

Children 1 year and older: Take 2 scoops daily (250 mg) in cold food and consume immediately or as directed by your healthcare practitioner. If you are taking antibiotics, take this product at least 2–3 hours before or after them. **For younger children:** Consult a healthcare practitioner for directions.

INDICATIONS

Children's ProBio SAP:

- Helps reduce the risk of infectious and antibiotic-associated diarrhea.
- Assists in enhancing and supporting the immune system.
- Can be used to regulate digestion, including concerns such as constipation, diarrhea, irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD).
- May help reduce the risk of developing eczema in childhood.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for all **Children's 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



351, Rue Joseph-Carrier, Vaudreuil-Dorion, Quebec, J7V 5V5
T 1 866 510 3123 • F 1 866 510 3130 • nfh.ca

WHAT ARE PROBIOTICS?

Probiotics can be defined as living microorganisms which, when ingested in adequate amounts, have beneficial effects on host health by improving intestinal microbial balance, as well as by modulating mucosal and systemic immunity. The most commonly used and studied probiotics are *Lactobacillus*, *Bifidobacterium* and *Streptococcus* species, which belong to the lactic acid bacteria group. *Lactobacilli* and *Bifidobacteria* are normal inhabitants of the human colonic flora, thus giving a rationale for their use as a component of functional foods and supplements.^[1]

WHAT ARE PREBIOTICS?

A prebiotic is a nondigestible food ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or more bacterial species in the colon, and thus improves host health.^[2] Specifically, prebiotics (i.e. fructooligosaccharides [FOS] and arabinogalactan) promote growth of *Bifidobacteria* and *Lactobacilli*, decrease intestinal pH, produce short-chain fatty acids, and improve mineral absorption.^[2, 3] The term "synbiotic" (not to be confused with "symbiotic") describes a product that blends probiotics and prebiotics to synergistically enhance host health.^[4]

PROBIOTICS — GENERAL DOSE AND DURATION

Numerous studies that have evaluated the use 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 10^9 – 10^{10} 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.^[4] 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.

ACUTE DIARRHEA

In a double-blind, placebo-controlled study, researchers used a combination of *Streptococcus thermophilus*, *Lactobacillus rhamnosus*, *Lactobacillus acidophilus*, *Bifidobacterium lactis*, *Bifidobacterium infantis* and fructooligosaccharides for the treatment of acute diarrhea on children.^[5] Researchers looked at the duration of diarrhea as well as the number of children that had a normalized stool consistency. Researchers found that mean duration of diarrhea was 3 days in the treatment group versus 4 days in the placebo group.^[5] They also found that stool consistency was improved in 50% of children in the treatment group on days 2 and 3 versus 24% in the placebo group. The treatment group also required less additional medications such as antipyretics, antiemetics and antibiotics versus the placebo group.^[5]

In another study, researchers looked at the effect of *Bifidobacterium longum* ssp. *infantis* (*B. infantis*) and its effectiveness against *Rotavirus*.^[6] *Rotavirus* is the leading cause of severe acute gastroenteritis in children worldwide. It was demonstrated that *B. infantis* was indeed able to inhibit *Rotavirus* infections. Moreover, *B. infantis* has the properties necessary for it to be deemed an effective probiotic, including adhesion to the gastrointestinal mucosa, as well as resistance to gastrointestinal juices, biliary salts and low pH.^[6]

ATOPIC DERMATITIS (ECZEMA)

An increased rate of allergic disease has been seen in children in industrialized countries. Initial results from clinical studies have shown that endogenous intestinal flora can stimulate the immune system of infants.^[7] Infants who were at risk for developing atopy that received a probiotic for the first 6 months of life had 50% less atopic dermatitis than the control group of infants who did not receive any probiotics.^[7] This demonstrates that probiotics may be a tool used to help prevent atopic dermatitis in children.

ENHANCEMENT OF THE IMMUNE SYSTEM

Probiotics have been shown to influence some aspects of host immune function by involving one or several components of an immune response, e.g. humoral, cellular or nonspecific immunity. Although specific results have varied, generally probiotics enhance IgA production and antibody response, and nonspecifically influence immune responses by enhancing phagocytosis of pathogens as well as modifying cytokine production, such as tumour necrosis factor and interleukin 6.^[8, 9]

PROMOTION OF GUT HEALTH

In addition to immune function, there are many ways that probiotics may act to promote gut health. Infectious diarrheas and GI disorders, such as irritable bowel syndrome, are conditions associated with altered microbial balance, favoring the development of harmful or pathogenic species. Probiotics may aid in restoring microbial balance through competition with pathogenic microorganisms for nutrients and binding sites on epithelial cells. As well, by producing bacteriocins (antimicrobial substances), organic acids and hydrogen peroxide, probiotics may inhibit the growth of pathogenic bacteria.^[1, 9, 10] Probiotics may also aid in the recovery of intestinal permeability as well as aid in providing nutrition to the colonocytes by forming short-chain fatty acids and some amino acids, stimulating proliferation of colonocytes, and participating in the regulation of intestinal functions.^[11]

In a study looking at the effectiveness of probiotic supplementation in children with ulcerative colitis, researchers used a combination of 8 bacteria strain doses based on patients weight. The strains used were *B. breve*, *B. longum*, *B. infantis*, *L. acidophilus*, *L. plantarum*, *L. paracasei*, *L. bulgaricus*, *S. thermophilus* or placebo in combination with steroid induction and mesalamine maintenance treatment.^[12] Children were then evaluated four times at 1 month, 2 months, 6 months and 12 months or at time of relapse using endoscopy and histology. Results found that 92.8% of patients in the probiotic group achieved remission, whereas 36.4% of patients in the placebo group achieved remission. Researchers also found that endoscopic and histological scores were significantly lower in the probiotic group versus the placebo group, and there were no clinical adverse events noted related to the probiotics. This demonstrates that probiotics can play a role in reducing active ulcerative colitis as well as a role in maintenance of remission.^[12]

SAFETY OF PROBIOTICS SUPPLEMENTATION

The safety record of probiotics is excellent, with *Lactobacilli* and *Bifidobacteria* designated as generally recognized as safe (GRAS).^[11] In a study looking specifically at the safety of probiotics in infants, researchers performed a randomized placebo-controlled study where mothers took a combination of 4 strains of probiotics or placebo for the last 4 weeks of pregnancy, and then administered the same strains or placebo to their infants until 6 months of age.^[13] Follow-up was performed at 3, 6, 12 and 24 months of age. There were no differences noted in morbidity or serious adverse events, but during the 6-month intervention, antibiotics were prescribed less frequently in the treatment group and over the 24-month follow-up period, the treatment group had less respiratory infections than the placebo group.^[13] The conclusion made by researchers was that feeding newborn infants probiotics was safe and increased their resistance to respiratory infections during the first 2 years of life.^[13] On these bases, probiotics are considered safe for human consumption.

REFERENCES

- Saarela, M., et al. "Gut bacteria and health foods — the European perspective." *International Journal of Food Microbiology* Vol. 78, Issues 1–2 (2002): 99–117.
- Gibson, G.R. and M.B. Roberfroid. "Dietary modulation of the human colonic microbiota: introducing the concept of prebiotics." *The Journal of Nutrition* Vol. 125, No. 6 (1995): 1401–1412.
- Robinson, R.R., J. Feirtag, and J.L. Slavin. "Effects of dietary arabinogalactan on gastrointestinal and blood parameters in healthy human subjects." *Journal of the American College of Nutrition* Vol. 20, No. 4 (2001): 279–285.
- Schrezenmeir, J. and M. de Vrese. "Probiotics, prebiotics, and synbiotics — approaching a definition." *The American Journal of Clinical Nutrition* Vol. 73, No. 2 (2001): 361S–364S.
- Vandenplas, Y. and S.G. De Hert; PROBIOTICAL-study group. "Randomised clinical trial: the synbiotic food supplement Probiotal vs. placebo for acute gastroenteritis in children." *Alimentary Pharmacology & Therapeutics* Vol. 34, No. 8 (2011): 862–867.
- Muñoz, J.A., et al. "Novel probiotic *Bifidobacterium longum* subsp. *infantis* CECT 7210 strain active against rotavirus infections." *Applied and Environmental Microbiology* Vol. 77, No. 24 (2011): 8775–8783.
- Hauer, A. "[Probiotics in allergic diseases of childhood]" (article in German). *MMW Fortschritte der Medizin* Vol. 148, No. 35–36 (2006): 34–36.
- Isolauri, E., et al. "Probiotics: effects on immunity." *The American Journal of Clinical Nutrition* Vol. 73, No. 2 (2001): 444S–450S.
- Mombelli, B. and M.R. Gismondo. "The use of probiotics in medical practice." *International Journal of Antimicrobial Agents* Vol. 16, No. 4 (2000): 531–536.
- de Roos, N.M. and M.B. Katan. "Effects of probiotic bacteria on diarrhea, lipid metabolism, and carcinogenesis: a review of papers published between 1988 and 1998." *The American Journal of Clinical Nutrition* Vol. 71, No. 2 (2000): 405–411.
- Frič, P. "Probiotika in der Gastroenterologie" [article in German]. *Zeitschrift für Gastroenterologie* Vol. 40, No. 3 (2002): 197–201.
- Miele, E., et al. "Effect of a probiotic preparation (VSL#3) on induction and maintenance of remission in children with ulcerative colitis." *The American Journal of Gastroenterology* Vol. 104, No. 2 (2009): 437–443.
- Kukkonen, K., et al. "Long-term safety and impact on infection rates of postnatal probiotic and prebiotic (synbiotic) treatment: randomized, double-blind, placebo-controlled trial." *Pediatrics* Vol. 122, No. 1 (2008): 8–12.