Children'sPro

10 billion live active healthy cells per serving

Code: FE1821 – 20 g

CHILDREN'S PRO is an exclusive formula based on 12 probiotic strains aimed at maintaining gastrointestinal health in children from the first stages of life. Each dose contains 10 billion viable microorganisms with a significant presence of species that colonize children's intestinal tracts early on, and have shown the most positive contribution to children's health, favouring balanced digestive health and supporting the immune system in its protective function against pathogenic microorganisms.

Ingredients: Bacterial culture (10 billion live active healthy cells per serving; see nutritional information), inulin (from chicory root, *Cichorium intybus*), arabinogalactan (from *Larix laricina*), potato starch, anticaking agent: vegetable magnesium stearate, antioxidant: ascorbic acid, potato maltodextrin.

Nutritional information:	**2 rounded scoops (0,3 g)**
Lactobacillus rhamnosus R0011*	4 644 billion CFU
Lactobacillus rhamnosus R1039*	2 121 billion CFU
Bifidobacterium infantis R0033, UB9214**	1 000 billion CFU
Lactobacillus acidophilus R0418**	388 millon CFU
Lactobacillus helveticus R0052*	353 millon CFU
Lactobacillus reuteri HA188**	350 millon CFU
Lactobacillus plantarum R1012***	282 millon CFU
Lactobacillus casei R0215*	282 millon CFU
Bifidobacterium breve R0070**	212 millon CFU
Bifidobacterium longum R0175**	212 millon CFU
Streptococcus salivarius spp. *thermophilus* R0083*	141 millon CFU
Lactobacillus delbrueckii spp. *bulgaricus* R9001*	35 millon CFU
Inulin	26,2 mg
Arabinogalactan (AOS)	7,7 mg

Source of strains: * dairy / ** human / *** plant
CFU: Colony-Forming Unit Cells

Contains no: Preservatives, artificial flavours or colours, wheat.

Contains traces of milk and soy

Size and format:

20 g

Recommended daily dose:

2 rounded scoops (approx. 0,3 g) daily with cold, high-fat food (like yogurt or ice-cream). If you are taking antibiotics, take this product at least 2–3 hours before or after.

Do not exceed the stated recommended daily dose

Store preferably refrigerated.

Cautions:
At the beginning of the treatment some intestinal discomfort can occur which usually disappear within a few days.

Indications and uses:
Different studies have shown that the ingredients in CHILDRENS'S PRO can be helpful for:
Digestive alterations (acute gastroenteritis, dysbiosis, antibiotic associated diarrhoea, inflammatory intestinal disease, irritable bowel syndrome (IBS), colic in babies, constipation, and celiac disease), digestive support (improving nutrient absorption and assimilation), allergies (dermatitis/atopic eczema, lactose intolerance, allergic rhinitis, asthma) and reinforcement of the immune system (respiratory and urinary tract infections).

PROBIOTICS: Probiotics are non-pathogenic microorganisms which when administered in determined amounts produce beneficial effects on human health, balancing intestinal microbiota and strengthening the immune system (they increase the number of beneficial anaerobic bacteria and decrease the population of potentially pathogenic microorganisms through antagonism/competition). In recent years, numerous studies have highlighted their importance for children. The intestinal mucosa makes up the largest surface of the human body exposed to the outside, and its immune cells must face infinite pathogens entering through the mouth. Intestinal colonization with certain bacteria strongly influences the immune response from an early age and can have a significant role in the development of chronic diseases. Not all probiotic microorganisms induce the same type of effect on host immune response: the most common species that have been shown to contribute positively to health include *Bifidobacterium* and *Lactobacillus*[4,5,6,16,17].

***Lactobacillus rhamnosus*:** This has traditionally been used in the treatment and prevention of infectious diarrhoea from rotavirus and other viral diseases in babies and children. Its barrier effect modifies antigen response, increasing the secretion of specific IgA (Immunoglobulin A) and producing hydrolytic enzymes that decrease inflammation and symptoms at little over 1 day of administration. In a study in which 124 children with acute diarrhoea were assessed, those who were treated with *L. rhamnosus* presented fewer episodes of repetition and had improved intestinal permeability. *L. rhamnosus* has been shown to obtain the best results in immune response in children with allergies and infections, and in treatment for acute gastritis. There is evidence that this microorganism prevents intestinal wall lesions provoked by enterohemolytic pathogens such as E.Coli 0157:H7 which means it is a therapeutic alternative to antibiotics for reducing the risk of systemic complications associated

with this pathogen. *L. rhamnosus* has also been proven effective in children with irritable bowel syndrome, easing the abdominal pain associated with this disorder. Another recent trial shows that the composition of intestinal microbiota can significantly contribute to the development of certain chronic pathologies such as type 1, or young-onset diabetes, and that the immune reactivity provoked by *L. rhamnosus* is proposed as a determining protective factor against this pathology. In children with serious malnutrition, *L. rhamnosus* reduces recovery time and favours optimal immune cell response during rehabilitation. Recently, the molecule p40 GG *L. rhamnosus* has been identified as immune-modulating and responsible for the preventive effect on eczema and atopic dermatitis among babies[1,2,3,7,8].

***Bifidobacterium infantis*:** This microorganism is predominant in the intestinal flora of babies, especially in those who are breastfed. High concentrations of *B. infantis* have been shown to increase children's natural resistance to infection by *Shigella*, reducing the rate of severe diarrhoea caused by this germ; once weaned, however, levels of this bacteria decrease progressively down to very small amounts. It has also been effective at treating IBS (Irritable Bowel Syndrome), administered every 24 hours for 4 weeks[4,10].

Lactobacillus acidophilus: This helps maintain an acidic environment in the intestinal tract, preventing the growth of harmful bacteria. It's been used for many years to treat and prevent oral yeast infections, urinary tract infections and diarrhoea caused by antibiotic use. Today, a study involving 89 patients has proven its efficacy[11].

Lactobacillus helveticus: Studies have proven that this strain prevents gastrointestinal infection, improves protection against pathogens and modulates immune response. The specific enzymatic activities of the strain may improve nutrient bioavailability, the elimination of allergens and food toxins, and the production of bioactive peptides in protein digestion[12].

Lactobacillus reuteri: This microorganism is present in mother's milk. Studies show its efficacy at reducing colic in babies by helping regulate digestion, reducing constipation and the intensity and frequency of abdominal pain[2,6].

Lactobacillus plantarum: A study on 214 patients has shown a reduction in gastrointestinal symptoms in inflammatory intestine syndrome after 4 weeks of daily treatment, especially in abdominal pain and bloating[13].

Lactobacillus casei: A study on 251 children has shown a reduced duration and a 20% lower incidence of bronchitis, pneumonia and fatigue after 20 weeks of daily treatment[14].

***Bifidobacterium breve*:** Early administration of this microorganism decreases the volume of air aspiration from the stomach, reducing bloating and abdominal pain. It also contributes to the growth of low birth-weight babies[15].

***Bifidobacterium longum*:** Diverse studies have shown its efficacy when combined with other probiotics at preventing antibiotic associated diarrhoea (AAD) by restoring a child's intestinal microflora, as well as treating IBS[5,6].

Streptococcus salivarius* spp. *thermophilus: A study carried out on 50 babies with colic showed that a combination of probiotics including this strain significantly improved symptoms when compared to placebo[16,17].

Lactobacillus delbrueckii* spp. *bulgaricus: Used in the production of fermented dairy products, this strain seems to possess immune potentiating activity which exerts an antiviral effect, specifically on the flu virus[16,17].

References:
1) Sevilla Paz Soldan, R., Zalles Cueto, L., Eróstegui Revilla, C., Olguín, A. M., & Sevilla Encinas, G. (2011). Efecto del Lactobacillus rhamnosus GG en la recuperación inmunonutricional de niños desnutridos graves. *Gaceta Médica Boliviana*, *34*(2), 71-75.
2) Gawrońska, A., Dziechciarz, P., Horvath, A., & Szajewska, H. (2007). A randomized double-blind placebo-controlled trial of Lactobacillus GG for abdominal pain disorders in children. *Alimentary pharmacology & therapeutics*, *25*(2), 177-184.
3) Johnson-Henry, K. C., Donato, K. A., Shen-Tu, G., Gordanpour, M., & Sherman, P. M. (2008). Lactobacillus rhamnosus strain GG prevents enterohemorrhagic Escherichia coli O157: H7-induced changes in epithelial barrier function. *Infection and Immunity*, *76*(4), 1340-1348.
4 Talja, I., Kubo, A. L., Veijola, R., Knip, M., Simell, O., Ilonen, J., ... & Uibo, R. (2014). Antibodies to Lactobacilli and Bifidobacteria in young children with different propensity to develop islet autoimmunity. *Journal of immunology research*, *2014*.
5) Szajewska, H., Guarino, A., Hojsak, I., Indrio, F., Kolacek, S., Shamir, R., ... & Weizman, Z. (2014). Use of probiotics for management of acute gastroenteritis: a position paper by the ESPGHAN Working Group for Probiotics and Prebiotics. *Journal of pediatric gastroenterology and nutrition*, *58*(4), 531-539.
6) Guandalini, S. (2008). Probiotics for children with diarrhea: an update. *Journal of clinical gastroenterology*, *42*, S53-S57.
7) Sindhu, K. N., Sowmyanarayanan, T. V., Paul, A., Babji, S., Ajjampur, S. S., Priyadarshini, S., ... & Kang, G. (2014). Immune response and intestinal permeability in children with acute gastroenteritis treated with Lactobacillus rhamnosus GG: a randomized, double-blind, placebo-controlled trial. *Clinical infectious diseases*, *58*(8), 1107-1115.
8) Vong L, Lorentz RJ, Assa A, Glogauer M, Sherman PM. Probiotic *Lactobacillus rhamnosus* inhibits the formation of neutrophil extracellular traps. J Immunol. 2014 Feb 15;192(4):1870-7
9) Foolad, N., & Armstrong, A. W. (2014). Prebiotics and probiotics: the prevention and reduction in severity of atopic dermatitis in children. *Beneficial microbes*, *5*(2), 151-160.
10) Whorwell, P. J., Altringer, L., Morel, J., Bond, Y., Charbonneau, D., O'mahony, L., ... & Quigley, E. M. (2006). Efficacy of an encapsulated probiotic Bifidobacterium infantis 35624 in women with irritable bowel syndrome. *The American journal of gastroenterology*, *101*(7), 1581-1590.
11) Beausoleil, M., Fortier, N., Guénette, S., L'Ecuyer, A., Savoie, M., Franco, M., ... & Weiss, K. (2007). Effect of a fermented milk combining Lactobacillus acidophilus Cl1285 and Lactobacillus casei in the prevention of antibiotic-associated diarrhea: a randomized, double-blind, placebo-controlled trial. *Canadian Journal of Gastroenterology and Hepatology*, *21*(11), 732-736.12) Taverniti V, Guglielmetti S. Health-Promoting Properties of *Lactobacillus helveticus*. Front Microbiol. 2012; 3: 392.
13) Ducrotté, P., Sawant, P., & Jayanthi, V. (2012). Clinical trial: Lactobacillus plantarum 299v (DSM 9843) improves symptoms of irritable bowel syndrome. *World J Gastroenterol*, *18*(30), 4012-8.
14) Cobo Sanz, J., Mateos, J. A., & Muñoz Conejo, A. (2006). Efecto de Lactobacillus casei sobre la incidencia de procesos infecciosos en niños/as. *Nutrición Hospitalaria*, *21*(4), 547-551.
15) Kitajima, H., Sumida, Y., Tanaka, R., Yuki, N., Takayama, H., & Fujimura, M. (1997). Early administration of Bifidobacterium breve to preterm infants: randomised controlled trial. *Archives of Disease in Childhood-Fetal and Neonatal Edition*, *76*(2), F101-F107.
16) Johnston B, Goldenberg J, Vandvik P, Sun X, Guyatt G. (2011). Probióticos para la prevención de la diarrea asociada con antibióticos en niños (Revision Cochrane traducida). *Cochrane Database of Systematic Reviews* Issue 11. Art. No.: CD004827.
17) Kianifar, H., Ahanchian, H., Grover, Z., Jafari, S., Noorbakhsh, Z., Khakshour, A., ... & Kiani, M. (2014). Synbiotic in the management of infantile colic: a randomised controlled trial. *Journal of paediatrics and child health*, *50*(10), 801-805.