

**Pro-Recovery** is our highest potency probiotic with 120 billion CFUs. It is characterised by 20 probiotic strains, of which 13 are of human origin, 2 of plant origin and 5 of dairy origin. The enteric-coated GPS™ capsule offers optimal protection against acid secretions in the stomach.

**Ingredients:** Potato starch, bacterial culture (120 billion live active, healthy cells per capsule, see nutritional information), anti-caking agents (silicon dioxide and magnesium salts of fatty acids), antioxidant (L-ascorbic acid), inulin (from chicory root, *Cichorium intybus*), arabinogalactan (from *Larix laricina*), GPS™ enteric coated vegetable capsule (glazing agent: hydroxypropylmethylcellulose; aqueous entericcoating solution; purified water).

#### Nutritional information:

#### 1 capsule (996 mg)

<i>Lactobacillus rhamnosus</i> UB5115**	30 billion CFU
<i>Lactobacillus casei</i> UB1499**	20 billion CFU
<i>Bifidobacterium bifidum</i> UB4280**	4 billion CFU
<i>Bifidobacterium breve</i> UB8674**	4 billion CFU
<i>Bifidobacterium longum</i> ssp. <i>infantis</i> UB9214**	4 billion CFU
<i>Bifidobacterium longum</i> ssp. <i>longum</i> UB7691**	4 billion CFU
<i>Lactobacillus acidophilus</i> UB5997**	2,2 billion CFU
<i>Bifidobacterium animalis</i> ssp. <i>lactis</i> UB3963**	1 billion CFU
<i>Lactobacillus acidophilus</i> LA-14**	200 million CFU
<i>Lactobacillus crispatus</i> UB4719**	200 million CFU
<i>Lactobacillus gasseri</i> UB8141**	200 million CFU
<i>Lactobacillus rhamnosus</i> GG**	200 million CFU
<i>Lactobacillus fermentum</i> UB9735**	200 million CFU
<i>Lactobacillus plantarum</i> UB2783***	40 billion CFU
<i>Lactobacillus brevis</i> UB1214***	200 million CFU
<i>Lactobacillus paracasei</i> UB1978*	8,3 billion CFU
<i>Lactobacillus reuteri</i> UB2419*	700 million CFU
<i>Bifidobacterium animalis</i> ssp. <i>lactis</i> HN19*	200 million CFU
<i>Lactobacillus helveticus</i> UB7229*	200 million CFU
<i>Lactobacillus johnsonii</i> UB3394*	200 million CFU
Inulin	5 mg
Arabinogalactan (AOS)	5 mg

Source of strains: \*dairy / \*\*human / \*\*\*plant.

#### Size and format:

30 GPS™ enteric coated vegetable capsules

#### Recommended daily dose:

1 capsule per day. 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 in a cool and dry place (preferably refrigerated).

#### Indications and uses:

- Prolonged and multiple antibiotic treatments.
- Intestinal dysbiosis.
- Strengthening of the immune system.

#### Cautions:

Professional advice should be sought before taking this product if you have nausea, fever, vomiting, bloody diarrhoea or severe abdominal pain; have special medical conditions; or if you have a compromised immune system (e.g. lymphoma or AIDS). Discontinue use if symptoms of digestive discomfort persist for more than 3 days.

**Pro-Recovery** is designed to re-establish the dominance of beneficial strains throughout the intestinal tract that may have been severely depleted by the frequent use of antibiotics.

Our unique formula restores a healthy, balanced microflora, which is essential for nutrient assimilation and vitamin synthesis. PRO-RECOVERY colonises the entire intestinal tract, where its multiple therapeutic strains are inserted into the mucosal lining to soothe the intestines and enhance immune performance. This can be essential in the recovery process for people exposed to multiple and prolonged courses of antibiotics.

The enteric coating of the capsule protects the product from gastric juices and ensures 100% potency.

**LACTOBACILLUS RHAMNOSUS**: it contains two beneficial human strains belonging to this species: UB5115 and GG. It is one of the most widely researched probiotic species due to its tolerance to acidic conditions. This product contains more than 30.2 billion colony-forming units (CFUs) from this species.

It colonises the intestinal membranes, providing numerous health benefits: it increases lactic acid production, actively suppressing the growth of harmful bacteria such as *Salmonella* <sup>(1)</sup>. It is effective in preventing antibiotic-associated diarrhoea <sup>(2)</sup> and *Clostridium difficile*-associated diarrhoea <sup>(3)</sup>. It strengthens the immune system and is a good coadjuvant for the influenza vaccine <sup>(4)</sup>. It improves intestinal barrier function for the relief of autoimmune diseases such as arthritis <sup>(5)</sup> and allergies <sup>(6)</sup>. It improves the blood lipid profile <sup>(7)</sup> and reduces cholesterol <sup>(8)</sup>. It may prevent or relieve symptoms of postpartum depression and anxiety <sup>(9)</sup>, regenerate the vaginal flora in women by reducing colonisation by oral bacteria and fungi <sup>(10)</sup>, and may reduce the prevalence of gestational diabetes mellitus <sup>(11)</sup>. In children, it reduces the frequency and duration of diarrhoea and vomiting <sup>(12)</sup>, rotavirus diarrhoea <sup>(13)</sup>, and antibiotic-associated diarrhoea <sup>(14)</sup>. It reduces the incidence of atopic dermatitis <sup>(15, 16)</sup>. Drinking milk supplemented with *L. rhamnosus* reduces the risk of tooth decay in children <sup>(17)</sup>.

**L. rhamnosus GG strain**: one of the most studied probiotic strains in the world. Its benefits have been reported in childhood diarrhoea <sup>(18)</sup>, respiratory infections <sup>(19)</sup>, antibiotic-associated diarrhoea <sup>(20)</sup>, *Clostridium difficile*-associated infectious diarrhoea <sup>(21)</sup>, inflammatory bowel diseases such as Irritable Bowel Syndrome <sup>(22)</sup>, and improvement of gastrointestinal function after pancreatic surgery <sup>(23)</sup>.

**LACTOBACILLUS CASEI**: this product contains the UB1499 human strain. It reduces the duration and incidence of infections such as bronchitis, pneumonia and rhinopharyngitis <sup>(24-26)</sup>. Regarding intestinal infections, it boosts immunity against bacterial infections (e.g. *Escherichia coli*) and viral infections (e.g. influenza vaccinations) <sup>(27-30)</sup>.

In children, it improves allergic rhinitis symptoms <sup>(31)</sup>, helps eradicate *Helicobacter pylori* in conjunction with antibiotic therapy <sup>(32)</sup>, is effective against viral diarrhoea <sup>(33)</sup>, and reduces the general incidence of infections <sup>(34)</sup>.

**BIFIDOBACTERIUM LONGUM subsp. LONGUM**: this product contains the UB7691 human strain. A protein factor produced by *B. longum* inhibits the adhesion of the enterotoxigenic strain of *Escherichia coli* <sup>(35)</sup>. It has anti-inflammatory properties and is indicated for gastrointestinal disorders such as ulcerative colitis <sup>(36)</sup>, antibiotic-associated diarrhoea <sup>(37, 38)</sup>, Irritable Bowel Syndrome <sup>(39)</sup>, and seasonal allergies <sup>(40, 41)</sup>. It aids the formation of lactic acid and formic acid, lowering the pH of the intestines and preventing the proliferation of harmful bacteria <sup>(42)</sup>. It is also a significant producer of B vitamins <sup>(43)</sup>.

**BIFIDOBACTERIUM LONGUM subsp. INFANTIS**: this product contains the UB9214 human strain. It is the dominant probiotic inhabiting the distal part of the small bowel and colon. It is one of the first species to colonise the infant gastrointestinal tract <sup>(44)</sup> and is critical in adults for intestinal health and immune system function <sup>(45)</sup>. It is extremely good at surviving stomach and bile acids <sup>(46)</sup> and is typically able to adhere to intestinal tissues <sup>(47)</sup>. It produces acetic acid and inhibits pathogenic bacteria <sup>(48)</sup>. It produces bacteriocins, which act against *Salmonella*, *Shigella*, and *E. coli* <sup>(49, 50)</sup>. It relieves many symptoms of Irritable Bowel Syndrome (IBS) (e.g. pain, bloating), normalises bowel movements, and regulates the IL-10/IL-12 ratio <sup>(51-53)</sup>. It reduces systemic pro-inflammatory biomarkers in chronic inflammatory diseases such as ulcerative colitis, chronic fatigue syndrome, and psoriasis, demonstrating that the immunomodulatory effects of microbiota are not limited to the mucosa but encompass the systemic immune system <sup>(54)</sup>. It can alleviate symptoms of untreated coeliac disease <sup>(55)</sup>.

**BIFIDOBACTERIUM BIFIDUM**: this product contains the UB4280 human strain. They are found in the mucosal lining of the last part of the small bowel and are the predominant strains that colonise the large bowel and support bowel health, hygiene, and functionality. They reduce serum cholesterol and dissolve bile salts <sup>(56, 57)</sup>. *B. bifidum* has been shown to exert antibacterial activity against *Helicobacter pylori* <sup>(58, 59)</sup>, reduce apoptosis in the intestinal epithelium of children with necrotising enterocolitis <sup>(60)</sup>, regulate the immune system response <sup>(61-63)</sup>, reduce the duration and severity of colds <sup>(62)</sup>, provide anti-inflammatory activity in chronic diseases of the large bowel (e.g. irritable bowel syndrome) <sup>(64, 65)</sup>, and reduce the incidence of radiotherapy-induced diarrhoea in cervical cancer patients <sup>(66)</sup>.

**BIFIDOBACTERIUM BREVE**: this product contains the UB8674 human strain. It maintains colon homeostasis by reducing inflammation through induction of intestinal IL-10-producing Tr1 cells <sup>(67)</sup>. It protects colon function, relieves constipation, and reduces gas, bloating, and diarrhoea <sup>(67, 68)</sup>. It improves ulcerative colitis symptoms <sup>(69)</sup>. In addition, it stimulates the immune system <sup>(68, 70)</sup>, inhibits *Escherichia Coli* <sup>(71)</sup> and suppresses the *Candida* fungus <sup>(72)</sup>. It reduces fat, liver function, and systemic inflammation in people prone to obesity <sup>(73)</sup>. In neonates, it improves gastrointestinal

problems by stabilising the intestinal flora <sup>(74)</sup> and reduces the incidence of necrotising enterocolitis <sup>(75)</sup>. In children with coeliac disease, it reduces the pro-inflammatory cytokine TNF-alpha <sup>(76)</sup>. It improves adverse effects in chemotherapy patients, such as fever, infections, and intestinal disorders <sup>(77)</sup>.

**LACTOBACILLUS ACIDOPHILUS:** this product contains the UB5997 and LA-14 human strains. It improves the general symptoms of patients with Irritable Bowel Syndrome <sup>(78)</sup>. It helps to maintain an acidic environment in the intestinal tract by preventing the growth of harmful bacteria and reduces antibiotic-associated diarrhoea <sup>(79)</sup>. It reduces total plasma cholesterol and low-density lipoprotein (LDL) cholesterol <sup>(80, 81)</sup>. It helps to improve digestive health by maintaining the intestinal barrier, restoring intestinal flora, improving digestion, boosting the immune system, and supporting beneficial bacteria that thrive in the colon <sup>(82)</sup>. It helps to improve symptoms of allergic rhinitis <sup>(83)</sup>, hay fever <sup>(84)</sup>, and atopic dermatitis <sup>(85)</sup>. When used in conjunction with *B. bifidum*, it reduces the incidence of radiotherapy-induced diarrhoea in cervical cancer patients <sup>(86)</sup>.

**L. acidophilus LA-14 strain:** it is well known for its effects on proper vaginal health. They colonise the vagina after one week of oral consumption <sup>(87)</sup>. In addition, they have microbicidal activity against different pathogens responsible for bacterial vaginosis and aerobic vaginitis <sup>(88)</sup>. Preliminary studies also indicate that it may promote kidney health <sup>(89)</sup>. Its effect on immunity by increasing IgG levels has also been studied <sup>(90)</sup>. In addition, this strain has been found to be resistant to a number of antimicrobials and produces a bacteriocin with antimicrobial activity against *Listeria monocytogenes* <sup>(91)</sup>. A recent study shows that it may have benefits in preventing liver damage <sup>(92)</sup>.

**BIFIDOBACTERIUM LONGUM subsp. LACTIS:** this product contains the UB4719 human strain and the HN19 dairy strain. It helps reduce constipation and bloating in children and adolescents with irritable bowel syndrome <sup>(93)</sup>. It boosts the immune system by increasing levels of NK (natural killer) cells and polymorphonuclear leukocytes <sup>(94)</sup>. It helps to repair the permeability of the intestinal barrier by enhancing apical junction proteins and goblet cell population <sup>(95)</sup>. It reduces abdominal visceral fat in overweight people with metabolic disorders and has beneficial effects on weight control and metabolic health <sup>(96, 97)</sup>. It also improves glucose intolerance in animals <sup>(98)</sup>.

**LACTOBACILLUS CRISPATUS:** this product contains the UB4719 human strain. Numerous studies have shown its considerable potential for maintaining the health of the female reproductive system, helping to prevent recurrent urinary tract infections, as well as bacterial vaginosis and candidiasis <sup>(99-101)</sup>. It is also able to modulate the immune system <sup>(102)</sup> and reduce allergic symptoms in mice <sup>(103)</sup>.

**LACTOBACILLUS GASSERI:** this product contains the UB8141 human strain. It improves functional dyspepsia by improving gastric microbiota by helping to suppress *Helicobacter pylori* in the stomach <sup>(104)</sup>. It is also a predominant species in the vaginal flora, inhibits the adherence of pathogenic bacteria and helps in the prevention and treatment of bacterial vaginosis <sup>(105)</sup>. It has antimicrobial activity through the production of bacteriocins <sup>(106, 107)</sup>, improves symptoms such as diarrhoea in Irritable Bowel Syndrome <sup>(108, 109)</sup>, helps boost the immune system <sup>(110)</sup> and may help regulate allergic response <sup>(111)</sup>. Its effect on weight control has been studied in recent years. It has a reducing effect on abdominal adiposity, body weight and other measures of obesity and helps to regulate blood lipids (triglycerides, cholesterol), suggesting its beneficial impact on metabolic disorders <sup>(112-114)</sup>.

**LACTOBACILLUS FERMENTUM:** this product contains the UB9735 human strain. Combined oral use of *L. rhamnosus* and *L. fermentum* may reduce colonisation of the vaginal mucosa by pathogenic bacteria or fungi <sup>(115-117)</sup>. It is helpful in infectious mastitis during lactation, as well as its prevention <sup>(118, 119)</sup>. It may be helpful in the treatment of cholesterol reduction <sup>(120)</sup>, blood lipoproteins, oxidative stress and inflammatory profile <sup>(121)</sup>.

**LACTOBACILLUS PLANTARUM:** this product contains the UB2783 plant strain. It acts against unwanted bacteria by improving the symptoms of Irritable Bowel Syndrome, such as excessive gas, bloating and abdominal discomfort <sup>(122-126)</sup>, and ulcerative colitis <sup>(127, 128)</sup>. It regulates immune response and is beneficial in the treatment of atopic dermatitis in children <sup>(129)</sup>. It has immunostimulatory effects in the elderly, reducing the number of infections <sup>(130)</sup>. It improves gastrointestinal symptoms during antibiotic therapy <sup>(131)</sup>. It reduces cardiovascular risk factors and may be useful as a protective agent in the primary prevention of atherosclerosis in smokers <sup>(132)</sup>. In adults with hypercholesterolaemia, it lowers cholesterol and high blood pressure, which, as a result, may reduce the risk of cardiovascular diseases <sup>(133)</sup>. It improves symptoms of lactose intolerance, such as diarrhoea and flatulence, in combination with another probiotic <sup>(134)</sup>. Together with other Lactobacillus species, it can restore the vaginal flora by improving the pH and diagnosis of bacterial vaginosis when administered orally <sup>(135)</sup>.

**LACTOBACILLUS BREVIS**: this product contains the UB1214 plant strain. It is a probiotic that resists gastric juices well, stimulates the immune system<sup>(136)</sup> and improves intestinal health<sup>(137)</sup>. It also reduces intestinal inflammation<sup>(138)</sup>, may reduce the incidence of influenza in children<sup>(139)</sup> and has antimicrobial activity<sup>(140)</sup>. It is one of the predominant bacteria in the vaginal flora<sup>(141)</sup> and, among others, is responsible for the prevention of genitourinary diseases. Their effectiveness in defending against pathogens resides in their ability to produce bactericidal compounds such as hydrogen peroxide and to inhibit pathogen adhesion<sup>(142)</sup>.

**LACTOBACILLUS PARACASEI**: this product contains the UB1978 dairy strain. It significantly enhances the specific immune response in healthy people who have received the influenza vaccine<sup>(143)</sup>. It improves digestive function<sup>(144)</sup> and symptoms (especially eye symptoms) in patients with allergic rhinitis treated with oral antihistamines<sup>(145)</sup>. It is also effective against *Staphylococcus aureus*, *Escherichia coli*, and *Salmonella* infections<sup>(146-148)</sup>. It relieves the frequency and duration of acute diarrhoea in children<sup>(149)</sup>. It improves neurocognitive function in patients with chronic fatigue syndrome when used in combination with other probiotics<sup>(150)</sup>.

**LACTOBACILLUS REUTERI**: this product contains the UB2419 dairy strain. It prevents necrotising enterocolitis in neonates<sup>(151)</sup>, improves symptoms of infantile colic<sup>(152, 153)</sup>, improves digestive health in children by being effective in acute infantile diarrhoea<sup>(154)</sup> and antibiotic-associated diarrhoea<sup>(155)</sup>, is able to reduce the adverse effects of anti-*Helicobacter pylori* treatment in children<sup>(156)</sup> and is effective against infantile constipation<sup>(157)</sup>. It reduces the side effects of antibiotic-associated diarrhoea<sup>(158)</sup>, lowers cholesterol due to its action on intestinal absorption<sup>(159)</sup>, improves intestinal transit in adults with constipation<sup>(160)</sup>, and is effective against inflammatory diseases such as gingivitis<sup>(161)</sup> and periodontitis<sup>(162)</sup>. It decreases the activity of pathogenic bacteria such as *Helicobacter pylori* without affecting the microflora balance<sup>(163, 164)</sup>. *L. reuteri*, together with *L. rhamnosus*, is able to restore vaginal flora when administered orally<sup>(165)</sup> and, together with antibiotic therapy (metronidazole), improves its efficacy against bacterial vaginosis<sup>(166)</sup>.

**LACTOBACILLUS HELVETICUS**: this product contains the UB7229 dairy strain. It protects the gastrointestinal tract, strengthening the systemic humoral and intestinal mucosal immune response in elite athletes<sup>(167)</sup>. It has been shown to cause an antidepressant effect in animals, probably due to the microbiota-gut-brain axis connection<sup>(168)</sup>. Fermented milk with *L. helveticus* improves cognitive function<sup>(169)</sup> and lowers blood pressure<sup>(170)</sup>. In animals, it increases bone density and bone mineral content<sup>(171)</sup>, and in postmenopausal women, it has a positive effect on calcium metabolism<sup>(172)</sup>. It controls unwanted intestinal microorganisms and bacteria (*Salmonella enteritidis*, *Campylobacter jejuni*, *Escherichia coli*, *Candida albicans*, etc.), regulates immune response and reduces lactose intolerance<sup>(173)</sup>.

**LACTOBACILLUS JOHNSONII**: this product contains the UB3394 dairy strain. It has several benefits, such as in *Helicobacter pylori* gastritis<sup>(174)</sup>, regulates immune response<sup>(175)</sup>, may help in the control of diabetes<sup>(176)</sup>, is helpful against vaginal infections<sup>(177)</sup>, and improves allergic rhinitis in children<sup>(178)</sup>.

**INULIN**: It is a fructooligosaccharide (FOS) of plant origin, extracted from the root of chicory (*Cichorium intybus*). It acts as a prebiotic, creating the right environment for probiotics or beneficial microorganisms to reproduce faster and in greater numbers<sup>(111-113)</sup>. It increases the population of *Bifidobacterium* probiotics in the colon and reduces toxic metabolites and harmful enzymes. It prevents pathogenic and autogenous diarrhoea and constipation and protects liver function<sup>(114)</sup>.

**ARABINOGLACTAN**: it is an arabino-oligosaccharide (AOS) of plant origin from the larch tree (*Larix laricina*). It is an excellent prebiotic that increases the production of short-chain fatty acids (mainly butyrate), which acts as an energy substrate for the epithelial cells of the colon and protects the intestinal mucosa. It activates the immune response and selectively stimulates the growth and activity of probiotic bacteria<sup>(115)</sup>. It is useful in fighting infections due to its ability to decrease bacterial adherence<sup>(116, 117)</sup>. In addition, it lowers the intestinal pH and improves mineral absorption<sup>(117-120)</sup>.

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