



GENESTRA
BRANDS®

HMF Immune

PROBIOTIC FORMULA

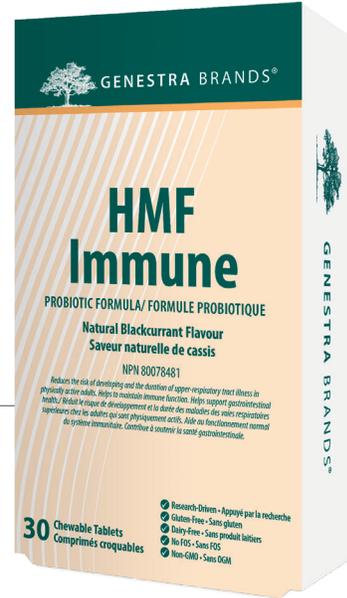
Great-tasting upper respiratory support formula

- Reduces the risk of developing and the duration of upper respiratory tract illness in physically active adults
- Offers 30 billion CFU per dose from a combination of five proprietary strains, plus vitamins C and D
- Once-daily chewable tablet available in a delicious natural blackcurrant flavour

Genestra HMF Immune combines proprietary probiotics with vitamins C and D to provide targeted support for the immune system. Each convenient, once-daily chewable tablet provides a blend of five research-driven probiotic strains from both the *Lactobacillus* and *Bifidobacterium* genera. As nearly 80% of the body's immunologically active cells are located in gut-associated lymphoid tissue, an important connection has been demonstrated between the intestines and the immune system.¹ In addition to supporting gastrointestinal health, HMF Immune provides BI-04, a strain that has been shown in a clinical trial to reduce the risk of developing and the duration of upper respiratory tract illness in physically active adults.² Similarly, it offers CUL-60, CUL-21, CUL-34 and CUL-20, which were demonstrated in a clinical trial to support upper respiratory tract health when combined with vitamin C.³ To further help maintain immune function, HMF Immune contains vitamins C and D. Vitamin C supports the immune system by regulating lymphocyte proliferation, natural killer cell activity and immunoglobulin production, while vitamin D helps control T cell activation, cytokine release and phagocytosis in macrophages.⁴ Research demonstrates that vitamins C and D may be especially effective in maintaining immune function in the respiratory tract.^{5,6}

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EACH TABLET CONTAINS:

Vitamin C (ascorbic acid) 100 mg
 Vitamin D₃ (cholecalciferol) 25 mcg / 1000 IU
Probiotic Consortium 30 billion CFU
Lactobacillus acidophilus (CUL-60 & CUL-21) 20 billion CFU
Bifidobacterium animalis subsp. *lactis* (CUL-34)
 & *Bifidobacterium bifidum* (CUL-20) 5 billion CFU
Bifidobacterium animalis subsp. *lactis* (BI-04) 5 billion CFU

Non-Medicinal Ingredients: Xylitol, blackcurrant fruit extract, sorbitol, natural blackcurrant flavour, silica, magnesium stearate

Recommended Dose

Adults: Chew one tablet daily with a meal, at least two to three hours before or after taking antibiotics, or as recommended by your healthcare practitioner.

Size	Product Code
30 Chewable Tablets	10365

NPN 80078481



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HMF Immune

Scientific Rationale:

The human intestinal tract contains more than 400 bacterial species.¹ This microflora composition can be altered by a number of factors, including diet, stress, antibiotic use, digestive disorders, aging and travel.¹ These factors may cause an imbalance in the intestines, wiping out the beneficial bacteria and allowing pathogenic bacteria to multiply.¹ This can lead to common gastrointestinal complaints, including bloating and gas.²

Probiotics are live microorganisms that support gastrointestinal health and contribute to a healthy microflora composition.¹ Studies have shown that they support the growth of beneficial bacteria in the intestines, while limiting the proliferation of pathogenic bacteria.¹ They prevent pathogenic bacteria from colonizing the gastrointestinal tract by reducing the pH and stimulating the production of antimicrobial peptides in the intestine.³ In addition to decreasing bacterial survival, probiotics strengthen the epithelial barrier.³ They mediate the integrity of tight junctions and increase mucin release, which in turn regulates permeability and prevents pathogens from adhering to cells.^{3,4} This course of action decreases the movement of bacteria from the intestines into circulation.⁵

Additionally, approximately 80% of the body's immunologically active cells are located in gut-associated lymphoid tissue, demonstrating an important interaction between the intestines and the immune system.⁶ Preclinical research has suggested that probiotics may have a role in supporting immune function.⁷ Oral administration of probiotic bacteria in animals has been shown to increase the proliferation of T and B cells, promote natural killer cell and macrophage activity, and regulate cytokine and antibody production.⁷ However, not all probiotic strains may offer beneficial effects on the immune system.⁷

Bifidobacterium animalis subsp. *lactis* (BI-04) is a proprietary probiotic strain that was investigated in a randomized, double-blind, placebo-controlled trial for its effects on immune health.⁸ Physically active adults were randomized to consume a placebo or probiotic supplement (containing 2.0×10^9 CFU of BI-04) daily for 150 days.⁸ Participants recorded their physical activity and respiratory health throughout the study via a web-based questionnaire.⁸ Upper respiratory tract infection (URTI) incidence was characterized by the presence of two or more symptoms (scratchy or sore throat, sneezing, stuffy nose or runny nose) for three or more consecutive days.⁸ When compared to the placebo, daily supplementation with BI-04 significantly

reduced the risk of developing URTI by 27%.⁸ Probiotic supplementation was also associated with a delay in the time to URTI by approximately 0.7 of a month.⁸ Therefore, daily supplementation with BI-04 can help decrease the risk of URTI in physically active adults.⁸ Similarly, the probiotic strains CUL-60, CUL-21, CUL-34 and CUL-20 were demonstrated in a clinical trial to support upper respiratory tract health when combined with vitamin C.⁹

Vitamin C is the most effective water-soluble antioxidant in the plasma and cellular fluid.¹⁰ It directly scavenges reactive oxygen and nitrogen species, which can damage cells and disrupt normal cellular function.¹¹ Vitamin C further protects cells by regenerating other antioxidants, such as glutathione and vitamin E.¹¹ It supports the immune system by regulating lymphocyte proliferation, natural killer cell activity, immunoglobulin production and histamine release.¹¹ In addition, neutrophils contain vitamin C to protect against reactive oxygen species produced during phagocytosis.¹¹

The vitamin D receptor is found on most immune cells, including T cells, B cells and macrophages, demonstrating an important interaction between vitamin D and the immune system.¹² Vitamin D levels vary depending on the season, with highest levels present during summer and lowest levels present during winter; this pattern also resembles the seasonal variation in immune system health.¹² Low vitamin D status has been associated with decreased upper respiratory immune function, while vitamin D supplementation has been shown to have beneficial effects on the function of a variety of immune cells.¹³⁻¹⁵ Research demonstrates that vitamin D mediates the proliferation of T and B cells, increases the phagocytic activity of macrophages, and regulates the production of cytokines.¹⁶ One controlled clinical trial reported that daily supplementation with 1000 IU of vitamin D for 3 months significantly increased plasma vitamin D levels and regulated the production of IL-2, IL-4, IL-6, and IFN- γ .¹⁷

HMF Immune was specifically formulated to support the immune system. Each convenient, once-daily chewable tablet provides a blend of five proprietary probiotic strains from both the *Lactobacillus* and *Bifidobacterium* genera. Clinical trials have demonstrated the beneficial effects of these strains in supporting upper respiratory tract health.^{8,9} To further help maintain immune function, HMF Immune also provides vitamins C and D.

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