



HMF Multi Strain 50

PROBIOTIC SUPPLEMENT

15-strain probiotic combination*

- Helps to reduce intestinal transit time*
- Helps support a healthy immune system*
- May enhance aspects of cellular immunity*
- Supports gastrointestinal health*
- Supports a favorable gut flora*

HMF Multi Strain 50 capsules include 50 billion CFU from a combination of 15 probiotic strains. These research-driven strains were selected based on their ability to support both gastrointestinal and immune health. HMF Multi Strain 50's probiotic consortium contains proprietary human-sourced strains, and includes 8 strains of Lactobacilli and 6 strains of Bifidobacteria. *Saccharomyces cerevisiae* subsp. *boulardii* (CNCM-I-1079) live yeast cells are also provided for additional microflora support.

In a recent placebo-controlled clinical trial, daily supplementation with HN019 for two weeks significantly reduced intestinal transit time; following supplementation, intestinal transit time was decreased by approximately 30%, which was associated with an approximate 35.8% reduction in occasional constipation. BL-04 and NCFM™ support year-round immune health and may enhance certain aspects of cellular immunity, such as cytokine-dependent cellular signaling. Two recent, placebo-controlled human clinical trials have found that these strains provide support for seasonal immune health in healthy participants. As well, supplementation with a combination of CUL-60, CUL-21, CUL-31 and CUL-20 may help to enhance certain aspects of cellular immunity in healthy individuals.*



Supplement Facts

Serving Size 1 Capsule/ Servings per Container 30

Each Capsule Contains Probiotic Consortium	50 Billion CFU*
<i>Lactobacillus acidophilus</i> (CUL-60)	
<i>Lactobacillus acidophilus</i> (CUL-21)	
<i>Bifidobacterium animalis</i> subsp. <i>lactis</i> (CUL-34)	
<i>Bifidobacterium bifidum</i> (CUL-20)	
<i>Bifidobacterium animalis</i> subsp. <i>lactis</i> (HN019)	
<i>Bifidobacterium animalis</i> subsp. <i>lactis</i> (BL-04)	
<i>Lactobacillus salivarius</i> (CUL-61)	
<i>Lactobacillus paracasei</i> (CUL-08)	
<i>Lactobacillus casei</i> (CUL-06)	
<i>Lactobacillus gasseri</i> (CUL-09)	
<i>Bifidobacterium breve</i> (CUL-74)	
<i>Lactobacillus plantarum</i> (CUL-66)	
<i>Lactobacillus acidophilus</i> (NCFM®)	
<i>Bifidobacterium animalis</i> subsp. <i>lactis</i> (CUL-62)	
<i>Saccharomyces cerevisiae</i> subsp. <i>boulardii</i> (CNCM-I-1079)	

† Daily Value not established
Other ingredients: Cellulose, hypromellose, silica

Recommended Dose: Take one capsule daily or as recommended by your healthcare practitioner.

Product Size: 30 Vegetable Capsules

Product Code: 10498



REFERENCES

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2. West NP, Horn PL, Pyne DB, Gebiski VJ, Lahtinen SJ, Fricker PA, Cripps AW. Probiotic supplementation in healthy physically active individuals. *Clinical Nutrition*. 2014; 33: 581–587
3. Ouwehand AC, Nemes M, Collado MC, Rautonen N, Salminen S, Isolauri E. *World J Gastroenterol*. 2009; 15(26): 3261–3268
4. Hepburn NJ, Garaiova I, Williams EA, Michael DR, Plummer S. Probiotic supplement consumption alters cytokine production from peripheral blood mononuclear cells: a preliminary study using healthy individuals. *Beneficial Microbes*. 2013; 4(4): 313–317

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PROBIOTIC SUPPLEMENT

Scientific Rationale:

Intestinal Transit Time:

In a placebo-controlled clinical trial, daily supplementation with HN019 for 2 weeks significantly improved whole gut transit time and reduced occasional gastrointestinal symptoms (WGTT). Fifty four adult participants (aged 25-65) were randomized to either the placebo or the probiotic capsule supplementation group (1.8 billion CFU of HN019 per day). WGTT was determined using abdominal X-ray scans - following ingestion of radiopaque markers daily for 6 days - at baseline and after 14 days of supplementation. Probiotic supplementation was associated with a significant improvement in WGTT. Prior to supplementation, mean WGTT in the probiotic group was 59.5 hours: after 2 weeks of supplementation, the probiotic group's WGTT was 41.5 hours, an approximate 30% decrease. Regularity, abdominal pain and flatulence symptoms were also significantly improved after 2 weeks of probiotic supplementation; constipation decreased by 35.8%, abdominal pain decreased by 26.6%, irregular bowel movements decreased by 22.8% and flatulence decreased by 15.3% in the probiotic group.¹

In an 8-week long, double-blind, randomized, placebo-controlled study conducted on 52 participants, supplementation with a combination of four probiotic strains significantly reduced intestinal discomfort. Participants were randomized to either the placebo or the probiotic capsule group (25 billion CFU from *Lactobacillus acidophilus* CUL-60 and CUL-21, *Bifidobacterium animalis* subsp. *lactis* CUL-34, and *Bifidobacterium bifidum* CUL-20). Participants scored their intestinal discomfort (including bloating, satisfaction with bowel habits, and quality of life) at baseline and every 2 weeks during supplementation. In comparison with the placebo group, a significantly greater improvement in intestinal discomfort symptoms was observed in participants in the probiotic treatment group throughout the 8 week supplementation period, including a 32% improvement in satisfaction with bowel habits and an improvement in quality of life scores.²

Immune Health:

In a double-blind, placebo-controlled clinical trial conducted on 47 children, daily supplementation with BL-04 and NCFM™ for 4 months supported immune health during the spring season. Participants were randomized to receive either a placebo capsule or a probiotic capsule containing 5 billion CFU (3.75 billion CFU of

BL-04 and 1.25 billion CFU of NCFM™). At each study visit, nasal smears were taken from each nostril and analyzed to determine the occurrence of eosinophils. Fecal samples were also obtained at each visit and were analyzed to determine total levels of immunoglobulin A (IgA) antibodies, which are involved in mucosal immunity. The number of participants with nasal eosinophils in the probiotics group decreased significantly between the study visit that took place in March (70.8%) and the subsequent May/April visit (57.1%); however, the number of participants with nasal eosinophils increased from 63.6% to 95.0% in the placebo group. IgA levels were also significantly increased in the placebo group, but not in the probiotics group.³

Individuals that participate in regular moderate exercise tend to have lower rates of respiratory illness.^{4,5} Probiotic supplementation may help provide additional support for respiratory immune health: in a double-blind, placebo-controlled clinical trial conducted on 310 healthy physically active participants, probiotic supplementation significantly contributed to immune health. Participants were randomized to receive either a placebo or 2 billion CFU of BL-04 daily for 5 months. Throughout the supplementation period, immune health was significantly better supported in participants that received the probiotic supplement.⁶

In a 6 month long, randomized, double-blind, placebo-controlled study conducted on 57 children, supplementation with a combination of probiotic strains and vitamin C helped to support respiratory immune health. The children were randomized to either a placebo tablet group or a probiotic and vitamin C tablet group (12.5 billion CFU of *Lactobacillus acidophilus* CUL-60 and CUL-21, *Bifidobacterium animalis* subsp. *lactis* CUL-34, *Bifidobacterium bifidum* CUL-20 and 50 mg of vitamin C). Compared with the placebo group, respiratory immune health was significantly better supported in children that received the probiotic and vitamin C supplement.⁷

Cellular Immunity:

Review evidence indicates that multi-strain probiotics may be more effective than single strain supplements in supporting a diverse range of health outcomes.⁸ In a recent double-blind, placebo-controlled clinical trial, supplementation with a multi-strain probiotic was shown to significantly modulate cytokine

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production. For 12 weeks, 20 healthy participants were randomized to receive either a placebo or a probiotic supplement (containing 25 billion CFU from two strains of *Lactobacillus acidophilus* CUL-60 and CUL-21, *Bifidobacterium animalis* subsp. *lactis* CUL-34 and *Bifidobacterium bifidum* CUL-20, plus 2 g of fructooligosaccharides [FOS]). Blood samples were collected at baseline, and again at weeks 6 and 12. Peripheral blood mononuclear cells (PBMCs) were isolated from the blood samples and cultured *ex vivo* alone or in the presence of lipopolysaccharide (which stimulates the activity of macrophages). The cultures were then analyzed to determine

cytokine production. Compared to baseline measurements, IL-10 cytokine levels increased by approximately 3 times in non-stimulated cultures after 12 weeks of probiotic supplementation. When the baseline PBMC *ex vivo* cultures were stimulated with lipopolysaccharide, there was a significant increase in IL-6 and IL-1 β . Following 12 weeks of probiotic supplementation, IL-6 and IL-1 β levels were decreased by approximately 62% and 63%, respectively.⁹

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1. Waller AP, Gopal PK, Leyer GJ, Ouwehand AC, Reifer C, Stewart ME, Miller LE. Dose-response effect of *Bifidobacterium lactis* HN019 on whole gut transit time and functional gastrointestinal symptoms in adults. *Scandinavian Journal of Gastroenterology*. 2011; 46: 1057–1064
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3. Ouwehand AC, Nemes M, Collado MC, Rautonen N, Salminen S, Isolauri E. *World J Gastroenterol*. 2009; 15(26): 3261-3268
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