



HOWARU[®] PROTECT EARLYLIFE

The Safe and Effective Way to Support the Development of Immune Health in Young Children.

A Top Quality, Clinically-Studied Probiotic to Address the Developing Microflora and Immune System Function of Young Children.

During pregnancy, a mother's health is crucial for the development of the child. Healthy maternal nutrition has been shown to have a positive influence on an infant's microbiota and immune health, while balanced development of the immune system is associated with life-long health.

Infant gastrointestinal microflora develops quickly after birth and is linked to development of the immune system. The first exposure for an infant takes place via the mother, who becomes a primary source of bacterial species found in the developing gut microbiota of the infant. Infant nutrition (breast feeding or formula feeding) provides further support for an infant's microbiota growth which continues to develop until 3 years of age. During this period development of infant microbiota helps drive the maturation of the immune system. The disruption of the development of the microbiota and immunity during this critical period has been linked with the development of allergies and eczema. The prevalence of eczema and allergies are increasing world-wide.

Product Attributes

6B CFU

HOWARU[®] *L. rhamnosus* HN001[™]

-  Supports immune health to help build baby's natural defenses
-  Continually supports infant's and child's immune system, year after year
-  Provides increased levels of healthy bacteria in the intestinal tract of infants



Immune Health



Digestive Health

Early Life, Protected

Demand is growing for safe products with proven efficacy to support the immune health of infants. As part of the IFF Health premium ingredient range, HOWARU® Protect EarlyLife contains the probiotic strain HOWARU® *L. rhamnosus* HN001™ and is designed specifically for pregnant women and children (0 to 2 years)*. It is proven to safely support the development of immune health in infants and children.

HOWARU® Protect EarlyLife – Critical Immune System Support

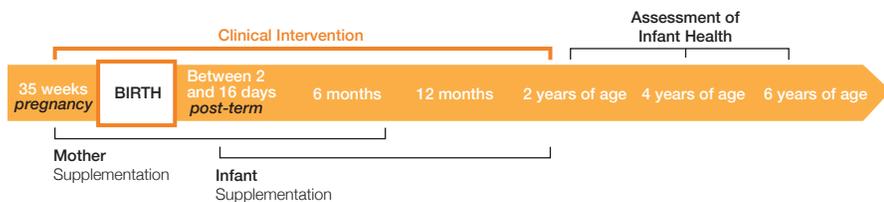
A double-blind randomized placebo controlled clinical study was designed to test the efficacy of HOWARU® *L. rhamnosus* HN001™ on the prevalence of eczema and allergic sensitization. In total, 316 mothers and their infants were divided into placebo and HN001™ groups. Pregnant mothers were supplemented daily from 5 weeks pre-term to 6 months post-term if breastfeeding. Infants were supplemented daily from birth until 2 years old. The probiotic was administered in capsules to mothers and as powder, powder diluted in milk, or sprinkled on top of the food to infants.

At the age-points of 2, 4 and 6 years the prevalence of eczema and allergic sensitization were determined by using clinical diagnosis and skin prick tests respectively (Wickens et al. 2008; Wickens et al. 2012; Wickens et al. 2013).

Addressing an Area of Concern for Caregivers and Children

At the age of two years, the results demonstrated a significant reduction in the cumulative prevalence of eczema in the group supplemented with HOWARU® *L. rhamnosus* HN001™. By using clinical diagnosis criteria, the prevalence of eczema was 49% lower than the placebo group at 2 years of age. At 6 years of age the benefits were still present, when the cumulative prevalence of eczema was 44% lower in the group supplemented with HN001™ versus the placebo group. At the 6-year follow-up study it was found that the group supplemented with HOWARU® *L. rhamnosus* HN001™ showed a significant decrease in the cumulative prevalence of positive skin-prick tests by 31%. Furthermore, at 4 years of age the relative risk of rhinoconjunctivitis (rhinitis and red eyes) was found to be 62% less in the probiotic group.

A range of convenient ready-to-market formats and concentrate available for the sports nutrition, consumer health care, dietary supplements, and food and beverage industries, or as a custom formulation suited to your desired delivery format Patented probiotics* for their immune health properties and shelf-stable stabilization technology

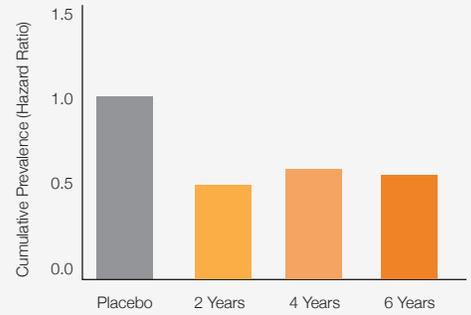


* Probiotic Patent family: WO99010476

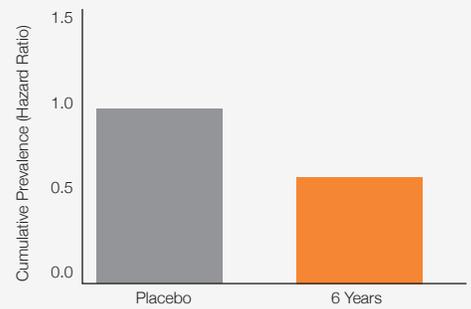
References

1. Wickens K, Stanley TV, Mitchell EA, Barthow C, Fitzharris P, Purdie G, Siebers R, Black PN, Crane J. Early supplementation with *Lactobacillus rhamnosus* HN001 reduces eczema prevalence to 6 years: does it also reduce atopic sensitization? Clin Exp Allergy. 2013 Sep;43(9): 1048-57. HN019 had no significant effect, results not shown.
2. Wickens K, Black, P, Stanley TV, Mitchell E, Barthow C, Fitzharris P, Purdie G and Crane J. 2012. A protective effect of *Lactobacillus rhamnosus* HN001 against eczema in the first 2 years of life persists to age 4 years. Clin Exp Allergy. 42: 1071-1079.
3. Dekker JW, Wickens K, Black PN, Stanley TV, Mitchell EA, Fitzharris P, Tannock GW, Purdie G, Crane J. 2009. Safety aspects of probiotic bacterial strains *Lactobacillus rhamnosus* HN001 and *Bifidobacterium animalis subsp. lactis* HN019 in human infants aged 0-2 years. Int Dairy J. 19: 149-154.
4. Wickens K, Black PN, Stanley TV, Mitchell E, Fitzharris P, Tannock GW, Purdie G, Crane J; Probiotic Study Group. 2008. A differential effect of 2 probiotics in the prevention of eczema and atopy: A double-blind, randomized, placebo controlled trial. J Allergy Clin Immunol. 122: 788-94.

HOWARU® Protect EarlyLife: HN001™ Cumulative presence of eczema was found to be 44% lower versus placebo



HOWARU® Protect EarlyLife: HN001™ Cumulative presence of allergic sensitization was found to be 31% lower versus placebo



Figures adapted from Wickens et al. 2013

OUR HOWARU® PROMISE

As a trusted global leader in probiotic solutions, we offer the broadest range of robust, clinically-studied strains. You can be confident that our extensive portfolio, strong consumer insights, and unmatched global support and services make us your ideal partner in probiotic innovation.

Our Strains Area:

- ✓ Backed by Science
- ✓ Identified with complete genome. Every strain has been sequenced and fully assembled
- ✓ Tested for virulence and toxigenic properties and the absence of antibiotic resistance transfer potential
- ✓ Tested for toxicity to confirm safety for human consumption
- ✓ Formulated and evaluated to ensure viability through end of shelf life
- ✓ Generally Recognized as Safe (GRAS) or FDA notified without objection as a New Dietary Ingredient
- ✓ Manufactured in the USA under FDA Good Manufacturing Practices

Exceptional Quality

-  High Performance
-  High Stability
-  High Functionality

Our Areas of Expertise

-  Women
-  Weight Management
-  Immune
-  Oral
-  Digestive
-  Brain

Howaru
www.howaru.com

© 2021 by International Flavors & Fragrances Inc. IFF is a Registered Trademark. The information contained herein is based on data known to IFF or its affiliates at the time of preparation of the information and believed by them to be reliable. This is business-to-business information intended for food, beverage and supplement producers, and is not intended for the final consumer of a finished food, beverage or supplement product. The information is provided "as is" and its use is at the recipient's sole discretion and risk. It is the recipient's sole responsibility to determine the suitability and legality of its proposed use of IFF products for its specific purposes. Information and statements herein shall not be construed as licenses to practice, or recommendations to infringe, any patents or other intellectual property rights of IFF or others. IFF HEREBY EXPRESSLY DISCLAIMS (I) ANY AND ALL LIABILITY IN CONNECTION WITH SUCH INFORMATION, INCLUDING, BUT NOT LIMITED TO, ANY LIABILITY RELATING TO THE ACCURACY, COMPLETENESS, OR USEFULNESS OF SUCH INFORMATION, AND (II) ANY AND ALL REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO SUCH INFORMATION, OR ANY PART THEREOF, INCLUDING ALL REPRESENTATIONS AND WARRANTIES OF TITLE, NON-INFRINGEMENT OF COPYRIGHT OR PATENT RIGHTS OF OTHERS, MERCHANTABILITY, FITNESS OR SUITABILITY FOR ANY PURPOSE, AND WARRANTIES ARISING BY LAW, STATUTE, USAGE OF TRADE OR COURSE OF DEALING.

