

BABY

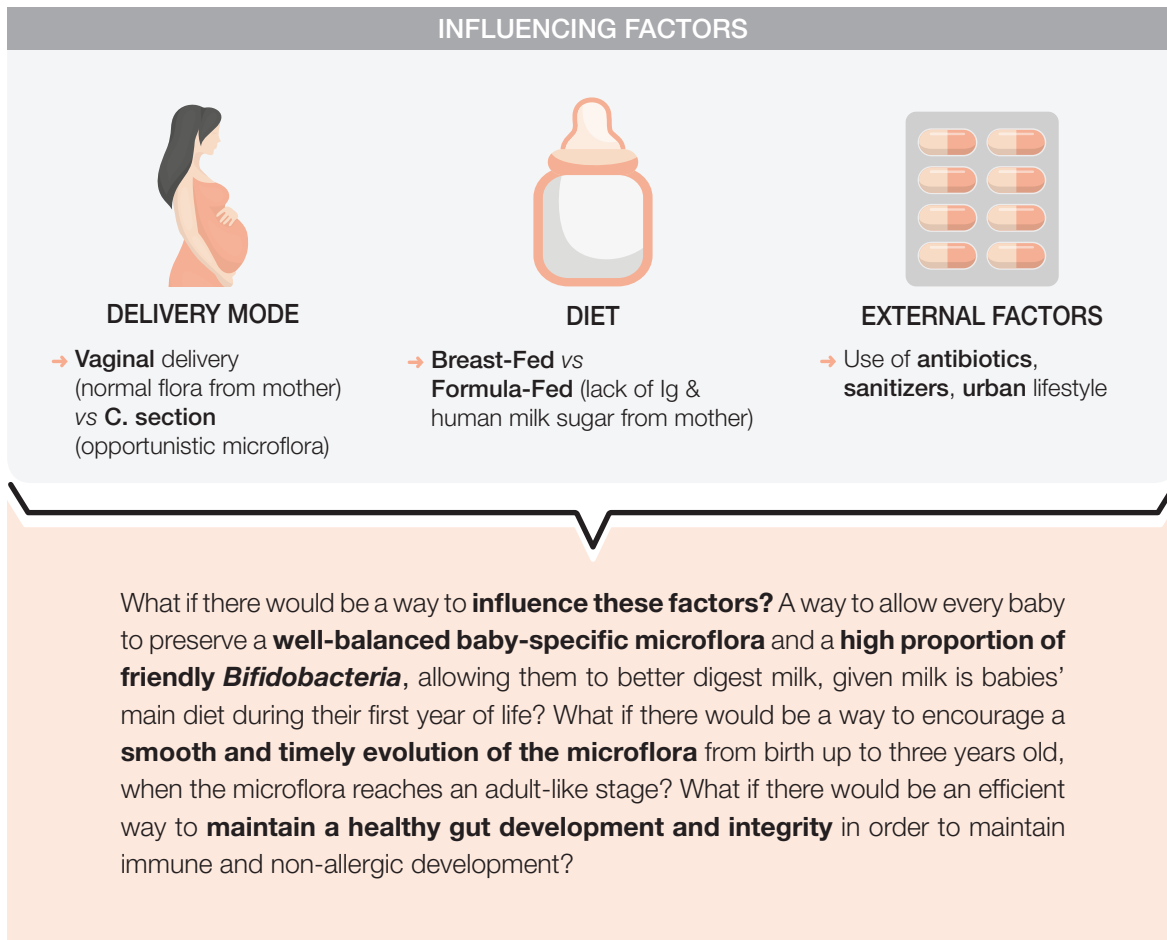
EXPERT'BIOTICS FOR BABIES.



*This is a summary about Lallemand Health Solutions' scientific data, not intended for labeling purposes nor distribution to the final consumer.

GENTLE EVOLUTION OF GUT MICROBIOTA COMPOSITION FROM BIRTH

During their first year of life, babies will **acquire and develop their microflora**, aiming to reach a more stable microflora around three years old. At that age, young children's' microflora is already similar and as diverse as an adult. Many factors along this growing period will **influence the quality of their microflora**. Firstly, **the way they were born**, as vaginal delivery will transmit more friendly bacteria passed on by the mother's vaginal flora compared to caesarian delivery (C-section), where the baby acquires its first bacteria from the skin microbiota. Then, the baby's **diet**, as formula-fed infants do not receive immunoglobulin from the mother's milk. Breastfed babies will be more able to digest milk, ensuring a better gut development and function. Babies' microflora will also be affected by the **early use of antibiotics** that can compromise the survival of friendly bacteria in the gut. Another factor is of course the ecosystem babies are raised in, as children growing in **rural areas** are less prone to develop allergies in contrast with **city-raised children** growing in an overprotecting and sanitized environment.



The intestinal microflora of infants should contain a **high proportion of *Bifidobacteria*** during their **first year of life**. Growing up, until their third year, infants will acquire and develop their microflora until they reach a more stable stage.

Key prevalence data

The **World Health Organization (WHO)** states that **breastfeeding** is one of the most effective ways to ensure children health, and even survival in some parts of the world. Breast milk is the best food for babies because it is safe, contains antibodies that help protect from common childhood illnesses such as diarrhea, help defend against infections, help prevent allergies, and protect against a number of chronic conditions. No one will argue that it gives them the right nutrients to kick-start their life.

WHO recommends infants should be exclusively breastfed for the first six months of life to achieve optimal growth.

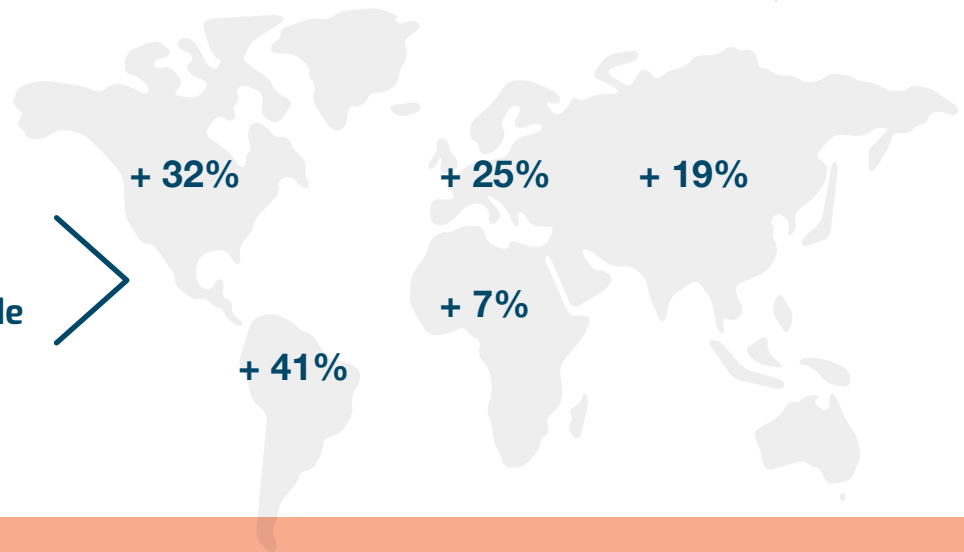
However, exclusive breastfeeding can represent quite a challenge for new mothers. Pain, time commitment, fatigue are just a few of the many reasons why mothers have to opt for another method to feed their child. On the other hand, mothers can feel guilty thinking they are not giving the best nutrients a baby could hope for.

Globally, only **40% of infants under six months of age are exclusively breastfed**

- The World Health Organization, 2020

The rate of **C-section delivery** has been steadily increasing averaging near **20% worldwide**

From 1990 to 2014 (Betra *et al.*, 2019)



Interest for probiotic supplements is on the rise

Gut microbiome **probiotic for children** gets on average **20 times more reviews** than for general population

(Lumina Intelligence, 2019)

In the **United States**, nearly 75% of parents reported interest in, or active purchasing of probiotics for themselves or a member of their family: that explains why **children and babies have now become a focus for probiotic innovations.**

(internationalprobiotics.org)

In **China**, thanks to parents' established knowledge of probiotics, **probiotic supplements are mainly purchased for kids.**

(KuRunData/Mintel)

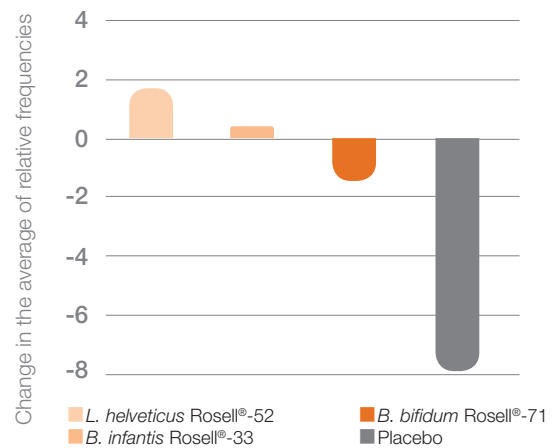
PROBIOTICS SUPPLEMENTS COME INTO PLAY DURING THE FIRST YEAR OF LIFE

The **microflora** is a major player for the gut and immune development and will have a lifelong influence. New scientific evidences, based on two studies performed on healthy infants, show **how probiotics support babies** during their first year of life.

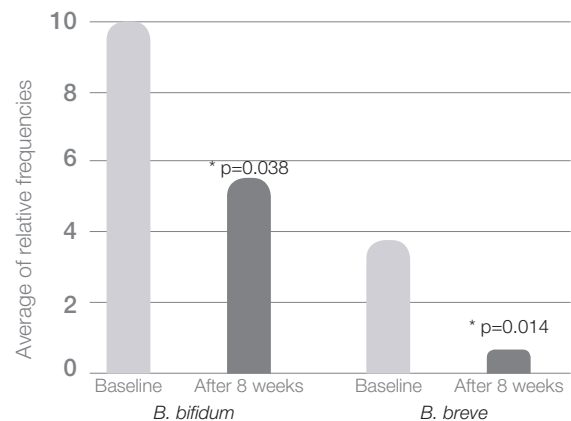
A randomised, double-blind, placebo-controlled study [Manzano, 2017] confirmed the **safety and tolerance** of the three probiotic strains ***L. helveticus* Rosell®-52**, ***B. infantis* Rosell®-33** and ***B. bifidum* Rosell®-71** in 221 healthy three to twelve month-old infants. The babies were on different diets –formula, mother milk or a combination of both. The post-hoc analysis [De Andres, 2018] based on a sample of 92 infants from the Manzano study showed **beneficial effects of probiotic strains**. The tests performed included the collection of faecal samples at baseline and at the end of the eight-week administration period. Microbiological composition using 16S ribosomal RNA gene sequencing and some immunological parameters such as various immune compounds were analyzed with multiplex technology.

Results showed ***Bifidobacteria*** represented around **50% of the microflora** of healthy infants in all four groups. **The three probiotic strains maintained a baby-specific microbiome profile** rich in bacteria able to digest lactose such as *Bifidobacteria*. By opposition, in the placebo group, there were a significant increase in **common constituents of healthy adult gut microbiota** such as *Bacteroides*, *Blautia*, *Clostridium*, *Coprococcus* and *Faecalibacterium* ($p < 0.05$), and **a decrease of *Bifidobacteria***. Two of the three most abundant *Bifidobacterium* species showed a significant decrease: ***B. bifidum*** ($p = 0.038$) and ***B. breve*** ($p = 0.014$). Specific effects of the three strains have been suggested to help ensure proper immune activity (IL-10/IL-12 and TNF- α /IL-10 ratios). **The study showed how the three probiotic strains *L. helveticus* Rosell®-52, *B. infantis* Rosell®-33, and *B. bifidum* Rosell®-71 help support a baby-specific microflora, regardless of any influencing factors.**

[De Andres, 2018] Change in the *Bifidobacterium* genus analyzed in faecal samples from baseline to week 8 (end of intake)



[De Andres, 2018] Analysis of *B. bifidum* and *B. breve* species detected in faecal samples of infants from the placebo group



Probiotic supplements aim to add good bacteria in baby's gastrointestinal (GI) tract, gatehouse for the immune system. Over time, infants build up their microbiota with their own set of good bacteria, which will help them build a barrier in their GI tract and develop their own immune system.

Focus on formula fed babies

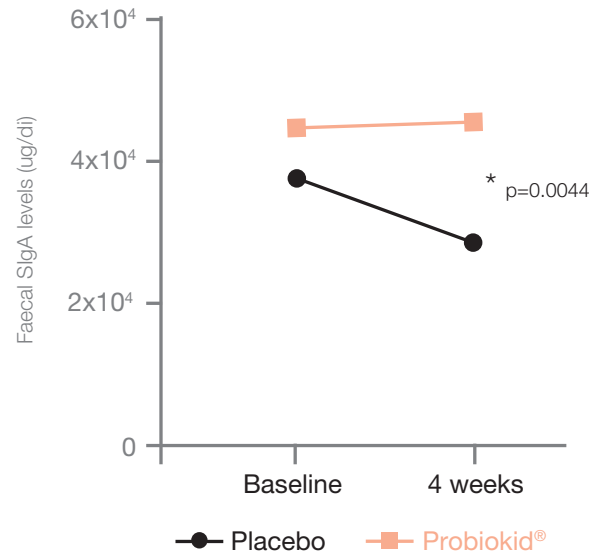
In this randomised, double-blind, placebo-controlled study [Xiao, 2019] to measure **safety and efficacy** of a probiotic supplement, 132, three and a half month-old to six month-old healthy, formula fed, babies were given either **Probiokid® formula (*L. helveticus* Rosell®-52, *B. infantis* Rosell®-33, *B. bifidum* Rosell®-71) and FOS** or a placebo. To gather some conclusions in addition to safety control, parents were asked to complete their infants' diaries to note gut symptoms and **number of stools per day**. Saliva and stool samples were collected at baseline and after four weeks of administration (**salivary and faecal SIgA** (Secretory IgA) quantification).

Scientists concluded that babies who were given **Probiokid®** had a significant **increase of stool frequency (plus 1.35 stools per week)** during the last week of administration versus placebo. Meaning Probiokid® can play a role in gut functions in babies, helping to increase the stool frequency and therefore helping to decrease episodes of occasional constipation. Another positive outcome involved good development of natural defenses. As a reminder, **mother milk ensures a proper development of her child immune system** due to the transfer of immunoglobulins (Ig) such as IgA from the mother to baby, constituting the first line of defenses. Mother milk also ensures the early development of the gut-associated lymphoid tissue, which initiates in turn endogenous SIgA production. Probiokid® showed a positive effect on SIgA production which indicates normal immune development: **Probiokid® maintained higher faecal SIgA versus placebo** ($p=0.0044$) and showed a more pronounced increasing trend in salivary SIgA levels, compared to placebo, after an intake of four weeks. **It is interesting to observe that, even if babies are fed with formula when taking Probiokid®, SIgA levels are maintained, as opposed to placebo group, supporting and maintaining a normal intestinal immunity.**

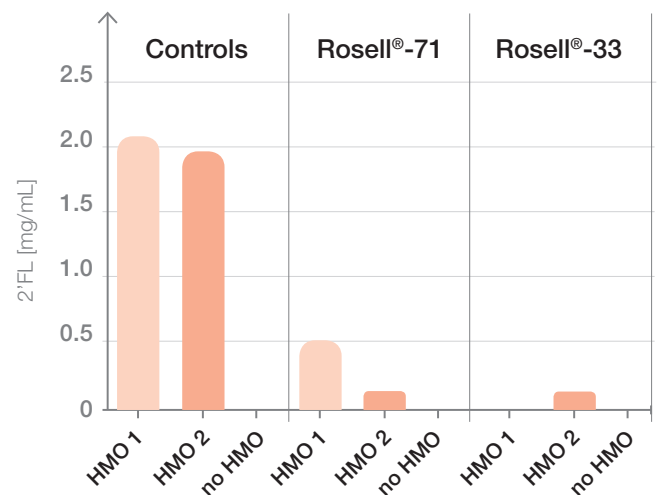
Probiotics work in synergy with HMO

Additionally, it was detected in an *in vitro* test that *Bifidobacteria* specific strains show a good synergy with Human Milk Oligosaccharides (HMOs). **HMOs are complex sugars only found in human breast milk**. They are the third most abundant component in human milk after lactose and lipids. As natural indigestible sugars by humans, they pass through the stomach intact. They act primarily as **prebiotics, promoting the growth of *Bifidobacteria*** and Lactic Acid Bacteria able to metabolize them. The most abundant HMO in human breast milk, representing 30% of all HMOs, is **2'-FL (2'-FUCOSYLLACTOSE)**. The *in vitro* test showed that ***B. infantis* Rosell®-33 and *B. bifidum* Rosell®-71 were able to metabolize HMOs**. These are new scientific elements that help believe it is more and more possible to imitate quite precisely mother's milk.

[Xiao, 2019] Quantification of SIgA levels in faeces at baseline and after 4 weeks of intake



Levels of 2'FL obtained after the growth of Rosell®-71 and Rosell®-33 on 2 different HMOs



MEET THE NEW CHILDREN SUPERHEROES: PROBIOKID®, LAFTI® B94 AND LACIDOFIL®

PROBIOKID®

Probiokid® (*L. helveticus* Rosell®-52, *B. bifidum* Rosell®-71, *B. infantis* Rosell®-33 and FOS) is one of the most documented formula specially conceived for less than one year old babies, with **11 clinical studies in infants and young children**, including two safety studies. Both combination and single strains have been **self-affirmed and notified as Generally Recognized as Safe (GRAS)** by the United States Food and Drug Administration (FDA) for non-exempt infant formula.

It has been granted the following **Canadian health claims for infants and children**: helps to reinforce the **body's natural defenses in children**; could promote a favourable gut flora in three months old babies up to older children and is a source of **probiotics from three months old babies**, up to older children.

FOR OTHER USE
THAN FOOD/DIETARY
SUPPLEMENT

Acute diarrhea

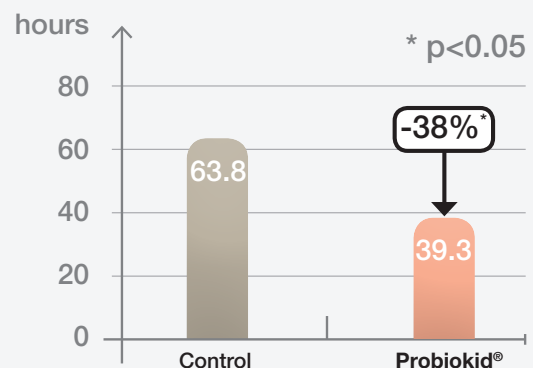
In two clinical studies on gut health [Gao, 2013 and Wang, 2012], children aged less than three year-old, with **non-infectious diarrhea**, were given Probiokid® in adjunct to Smecta. The results showed a **significant improvement of effective rate** with Probiokid® versus intake of Smecta only ($p < 0.05$). As soon as 48 to 72 hours after treatment, there were significant improved clinical symptoms and a decrease in the frequency of diarrhea episodes to less than three a day and a less watery stool.

Scientists have also evaluated the impact of Probiokid® given in adjunct to an antiviral agent to less than two years of age toddlers, with **rotavirus diarrhea**. There was a significant improvement in the **duration of the diarrhea** (minus 24.5 hours, $p < 0.05$) versus control group [Cui, 2003]. Also in another study with similar protocol, one to five years old young children showed a **significant enhancement of the effective rate** defined as improved clinical symptoms, decreased frequency of diarrhea (less than three a day) and less watery stools compared to the single intake of the antiviral agent ($p < 0.05$) [Mei, 2008].

Occasional diarrhea of various origins is particularly frequent in babies and young children (WHO)

- Worldwide, **1 to 1.5 million children** are affected every year
- 80% of them are under 2 years of age and most are 6 to 11 month-old infants
- Children under 5 years of age experience **occasional diarrhea 3 to 4 times per year**
- Over 95% of all cases are not life threatening

[Cui, 2003] Duration of diarrhea in young children from 6 months to 2 years old



Probiokid® has been proven efficient to promote a favourable gut flora and help with acute diarrhea in infants and young children.

Natural defenses

In Xiao 2019 safety study with 132 less than six month-old babies, **Probiokid® helped maintained higher faecal SIgA** at significant levels ($p=0.0044$) at the end of the four-week administration period while there was a decrease in the placebo group. This recent study complements the precedent study by Chen in 2007, where it was noted for the 28, newborn to four year-old, a **significant increase of SIgA levels from the seventh day onwards**, for those starting with an initial lower level. During the 14-day intake there was an **effective maintenance of normal levels of SIgA** for those with initial normal SIgA.

During winter time

In healthy children from 3 to 6 years old, during winter time, Probiokid® showed a **25% reduction in** the risk of health event during the three months of winter versus placebo ($p=0.044$). And a 40% reduction in the number of children who missed at least one day of school because of a potential health event. ($p=0.043$) [Cazzola, 2010].

FOR OTHER USE
THAN FOOD/DIETARY
SUPPLEMENT

Respiratory Tract Infection (RTI) and/or wheezing

In a study focusing on babies and less than four year-old children with **Respiratory tract infection (RTI) and/or wheezing** [Pantovic, 2012], Probiokid® helped **improved IgA** after three months intake only. It also helped bring back IgA to normal levels after six months intake for 80% of patients, without any further relapse for any type of infection during the six-month follow-up period. Furthermore, in another study with less than five year-old children, there was a **significant reduction of Respiratory tract infection (RTI) and wheezing incidence** within three months of Probiokid® intake ($p<0.05$) with persisting positive effects after six and even nine months of intake ($p<0.01$). There was also a **significant increase in IgA serum and IgG** observed within three months ($p<0.05$) [Stojkovic, 2016].

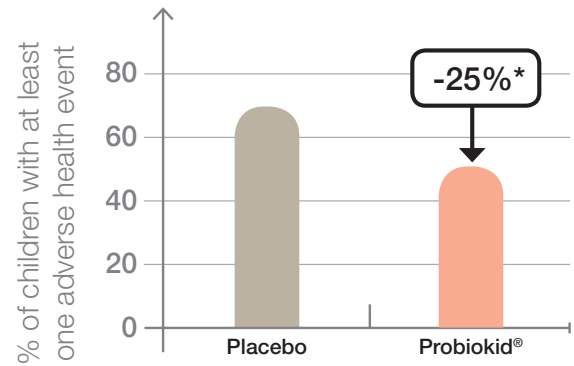
Atopic status

Young children below five year-old with **atopic status** have seen an amelioration of their condition, such as the **reduction of wheezing incidence** over three months of Probiokid® intake, suggesting a restoration of the immune balance (Th1-Th2) as well as a **significant decrease in immune marker for atopic status (IgE)** after nine months ($p<0.01$) [Stojkovic, 2016].

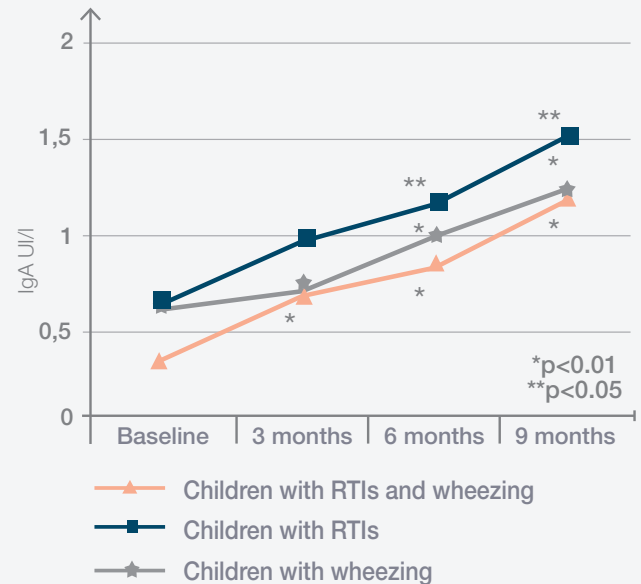
Infant thrush

Probiokid® administration in adjunct to antifungal to infants with thrush showed **significant improvement of effective rate** versus the intake of the antifungal agent only, presented as a decrease of white spots membrane over 50% and a good appetite within 3 days ($p<0.05$). In addition, there was a **significant improvement of recurrence rate** over 30-day follow-up period ($p<0.01$) [Xi, 2013].

[Cazzola, 2010] Effect of Probiokid® in children during winter time



[Stojkovic, 2016] Levels of IgA in children taking Probiokid®



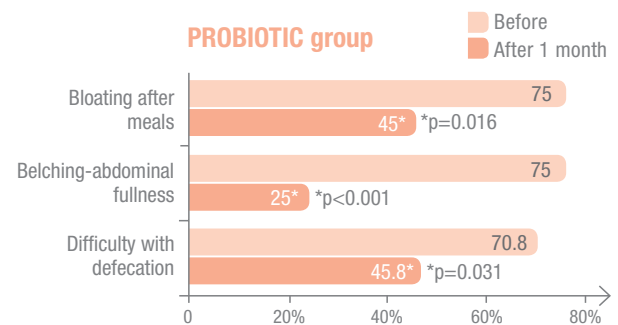
Probiokid® helps to reinforce the body's natural defenses in infants and young children with Respiratory tract infection (RTI) and/or wheezing.

B. lactis Lafti® B94 is another very well documented probiotic strain with clinical evidences coming from **six studies**, to show its safety and promising effects in babies (including premature babies), kids and teens. It was specially selected from among 40 *Bifidobacteria* strains for its good synergy with fibers (FOS & Inulin). Moreover, **Lafti® B94 has recently received a No Questions Letter (NQL) regarding the Generally Recognized as Safe (GRAS) notification from the United States Food and Drug Administration (FDA)**, meaning it is safe to be used as an ingredient in non-exempt powdered milk-based infant formula. Over the years, it has been granted the following **Canadian health claims** for infants from two month-old and older, depending on the recommended dose: helps support intestinal/gastrointestinal health; could promote a favorable gut flora and participates in a healthy microflora balance. For four year-old and older; helps to relieve abdominal discomfort, such as **bloating** and **constipation**; helps children and adolescents with bloating and constipation in **irritable bowel syndrome (IBS)**.

Occasional constipation

After one month taking Lafti® B94, all kids and teens (from 4 to 16 years old) enrolled in this particular study on **occasional constipation**, affirmed to have note significant improvement with **bloating, belching-abdominal fullness and occasional constipation**. When adding inulin to probiotic, they also significantly improved mucus in stool [Basturk, 2016].

[Basturk, 2016] Criteria for % of participants, before and one month after the intake of Lafti® B94

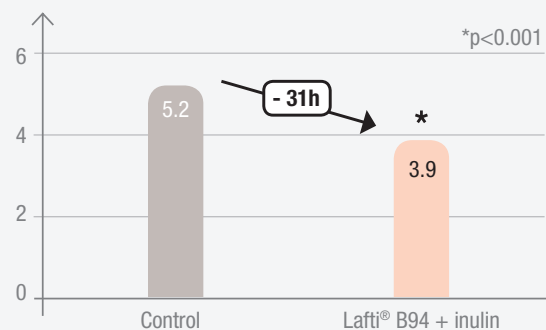


FOR OTHER USE
THAN FOOD/DIETARY
SUPPLEMENT

Acute diarrhea

Babies and children up to five years old, with **rotavirus gastroenteritis**, significantly reduced the duration of diarrhea by approximately three days when taking Lafti® B94 versus placebo ($p<0.001$) [Erdogan, 2012]. Those with **gastroenteritis and acute diarrhea** taking Lafti® B94 plus inulin reduced the **duration of diarrhea** by 31 hours on average versus placebo ($p<0.001$). The symbiotic was even more effective when taken within the first 24 hours of diarrhea ($p=0.002$) [Islek, 2014].

[Islek, 2014] Duration time (days) of acute diarrhea



Necrotizing enterocolitis (NEC)

Necrotizing enterocolitis (NEC) is an acute disorder of the gut primarily seen in premature babies. *B. lactis* Lafti® B94 has been tested in **three clinical studies** and selected in the most recent reviews.

LACIDOFIL®

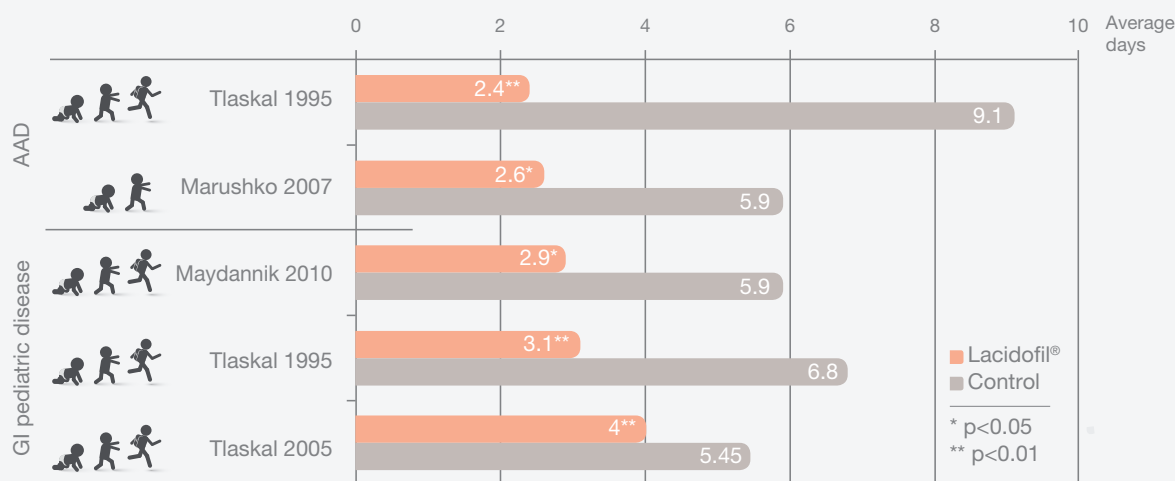
Lacidofil® (*Lactobacillus rhamnosus* Rosell®-11 and *Lactobacillus helveticus* Rosell®-52) is a unique combination, tested in over **26 clinical studies**, half of those with children. **Commercially available since 1995** with a pharmacovigilance program showing **safe use**, Lacidofil® is marketed under various registration status in more than 20 countries all around the world. In some countries, Lacidofil® is registered as a drug, mainly for the prevention and treatment of antibiotic-associated diarrhea (AAD) and diarrhea in pediatric gastrointestinal diseases. It has also **two strong health claims in Canada** for children over two years and older, depending on the recommended dose: for restoring and normalizing gut flora and help to reduce the risk of **antibiotic-associated diarrhea**.

Worldwide, up to **35 million children aged between 1 and 4 year-old** will potentially suffer from **eczema** (atopic dermatitis)
(Lumina Intelligence, 2019)

FOR OTHER USE
THAN FOOD/DIETARY
SUPPLEMENT

Acute and antibiotic-associated diarrhea

As presented in the following graph, babies, toddlers and older kids, with either an antibiotic-associated diarrhea (AAD) or gastrointestinal pediatric diarrhea, have had a **significant reduction of the duration** (at least one, to one and a half day) of the diarrhea symptoms, when taking Lacidofil® in comparison to the control group.



Atopic status

In three studies, it was demonstrated that after one month of taking Lacidofil®, babies and toddlers with atopic dermatitis showed **significant improvement of symptoms (SCORAD: Scoring Atopic Dermatitis ; p<0.01)** which also improved their quality of life as well as their parent's **quality of life**. There was also an **increase of IgG4/IgE ratio**: Lacidofil® induced an increased tolerance to cow's milk specific antigen [Chernyshov, 2007 and 2009].



Based on these results, the use of Lacidofil® in children with atopic dermatitis shows a significant reduction of SCORAD in 63.3% of patients in the probiotic group and a reduction in the use of topical corticosteroids in probiotic group than in the placebo group.

DELIVERY FORMATS

When looking to market probiotic supplements for babies and infants, **delivery forms and packaging** are a key element. **To ensure both proper delivery to babies** and young children as well as **proper survival of the bacteria** during the complete shelf life of the finished products, manufacturers can propose ready-to-market probiotic formulations in different convenient and leading formats; **bulk powder**, room-stable **chewable tablets** with yummy natural flavour, **sachets**, **sticks** and **drops**. It is also possible to add probiotic powder in **infant formula**, when it has the GRAS status to guarantee the strain has been manufactured according to the higher standards, necessary for this specific target. For kids with gut discomfort, such as occasional diarrhea, a **dual-chamber sachet** can combine probiotics with a **rehydration salt**, just to name one combination. Additional ingredients such as **vitamin D**, **HMO**, **FOS** and **inulin** can create positive interactions with certain probiotics strains.



Convenience is key for infant and children probiotics: packets, sachets and sticks are the leading format. Powder follows for both groups, but infants see much greater success in probiotic drops.

(Lumina Intelligence, 2019)

FOR OTHER USE
THAN FOOD/DIETARY
SUPPLEMENT

Some more children superheroes: **the most recommended strains in the world**

Specifically recommended by pediatricians, the following strains help support a baby-specific microflora, gut functions and immune system [Hojsak *et al.*, 2018].

- ***Lactobacillus rhamnosus* GG**: helps fight against common infections, antibiotic-associated diarrhea and acute gastroenteritis as an adjunct to the oral rehydration therapy
- ***Saccharomyces boulardii***: helps restore the gut function following antibiotic-associated diarrhea, *C. difficile*-associated diarrhea and acute gastroenteritis as an adjunct to the oral rehydration therapy
- ***Lactobacillus reuteri***: helps lessen infantile colic in breastfed infants

We reach the highest quality standards to manufacture probiotics solutions for infant formula applications.

Lallemand Health Solutions: Your probiotic solutions provider for babies

At Lallemand Health Solutions, we are a lab to shelf, **vertically integrated manufacturer** and **expert in formulating probiotics products for babies, kids and teens**. We thrive to propose practical, innovative delivery forms to adapt to these specific targets. We conduct **in-house stability studies** to monitor our strains and their specific combinations with health ingredients, the performance of packaging, and specific temperatures for **optimized shelf life**.

From newborn babies up to hearty kids, we have effective probiotic formulas with **clinical evidences to fit all needs**. We have just completed **two new safety studies in healthy infants below one year old**, showing health benefits such as microflora balance and maintenance of standard IgA levels. We have undertaken over **30 clinical studies involving infants and young children**. Our strains are safe and showed efficacy since several years. Four of our strains have the GRAS status. We have **Expert'Biotic solutions** specifically made to support gut health and natural defenses of children under three years old and beyond: **Lacidofil®**, **Probiokid®**, **Lafti B94®**, **S. boulardii**, **L. rhamnosus GG**, and **L. reuteri Rosell®-444**. Our probiotic formulations can be adapted to this specific market needs and proposed up to the finish products in **various convenient delivery forms**. Finally, we reach the highest quality standards to manufacture **probiotics solutions for infant formula** applications, opening new market opportunities for our Expert'Biotic solutions dedicated to babies.

DEFINITIONS:

Babies: less than one year-old

Infants: less than one year-old

Toddlers and young children: one to three year-old

Children and kids: over three year-old



QUALITY PROBIOTICS. COMPLETE SOLUTIONS.

REFERENCES

Probiokid® & strains:

Cazzola et al. 2010. Efficacy of a symbiotic supplementation in the prevention of common winter diseases in children: a randomized, double-blind, placebo-controlled pilot study. *Th Adv in Res Dis* • **Chen et al.** 2007. Mucous membrane immunity enhanced by taking Biostime probiotics. *Chinese Journal of Ecology*, April 2007 Vol 19, No. 2, pg 137-141. • **Cui et al.** 2003. The Treatment of 62 Cases of Rotavirus Gastroenteritis by Biostime Probiotics *Chinese J. of General Med.* 2003, Vol. 5, No. 1 pg 53-54 • **De Andrés et al.** 2018. Modulatory effect of three probiotic strains on infants' gut microbial composition and immunological parameters on a placebo-controlled, double-blind, randomised study. *Beneficial Microbes*, 2018; 9(4): 573-584 • **Gao** 2013. The Efficacy Analysis of the Combination of Smecta and BIOSTIME Probiotics in the Treatment of non-infectious Diarrhea in Children. *Clinical Research*, Aug 2013, pg 164 • **Manzano et al.** 2017. Safety and tolerance of three probiotic strains in healthy infants: a multi-centre randomized, double-blind, placebo-controlled trial. *Beneficial Microbes* May 30:1-10 • **Mei et al.** 2008. Evaluation of the efficacy of Biostime on rotaviral infection in children. *Medical Information*. Jun. 2008. Vo1. 21, No. 6 • **Pantovic et al.** 2012. Serum immunoglobulin levels in children with respiratory infections who used a synbiotic dietary supplement. *PONS Med J* 2012; 10(1):7-11 • **Stojkovic et al.** 2016. Clinical trial / experimental study (consort compliant): Optimal time period to achieve the effects on synbiotic-controlled wheezing and respiratory infections in young children. *Srp Arh Celok Lek.* 2016 Jan-Feb;144(1-2):38-45 • **Wang et al.** 2012. The effectiveness analysis of combination of Smecta and Biostime probiotics in the treatment of infantile non-infectious diarrhea. *Modern Preventative Medicine*, 2012, Vol 39. No.11: 2726-2727 • **Xi et al.** 2013. Observation of Clinical effects of Biostime probiotics on thrush. *Chinese Journal of Microecology*, July 2013, Vol 25, No 7, pg 830-831 • **Xiao et al.** 2019. Probiotics maintain intestinal secretory immunoglobulin A levels in healthy formula-fed infants: a randomised, double-blind, placebo-controlled study. *Beneficial Microbes*, 2019; 10(7): 729-739

Lacidofil®:

• **Chernyshov** 2007. Integrated treatment of infants, patients with atopic dermatitis. [*Dermatology*] 3: 23-26 • **Chernyshov** 2009a. B7-2/CD28 costimulatory pathway in children with atopic dermatitis and its connection with immunoglobulin E, intracellular interleukin-4 and interferon-gamma production by T cells during a 1 month follow-up. *Journal of the European Academy of Dermatology and Venereology* 23: 656-659 • **Chernyshov** 2009b. Randomized, placebo-controlled trial on clinical and immunologic effects of probiotic Lacidofil® in infants with atopic dermatitis. *Microbial Ecology in Health and Disease* 21: 228-232 • **Marushko et al.** 2007. Current status of antibiotics- associated bowel disorders issue in children. *Perinatology and Pediatrics* 4: 65-68 • **Maydannik et al.** 2010. Efficiency and safety of Lacidofil® in children with antibiotic-associated diarrhoea caused by *Clostridium difficile*. *Pediatrics, Obstetrics and Gynecology* 3: 53-57 • **Tlaskal et al.** 1995. *Lactobacillus acidophilus* in the treatment of children with gastrointestinal illnesses. *Česko-Slovenská Pediatrie* 51: 615-619 • **Tlaskal et al.** 2005. Probiotics in the treatment of diarrhoeal disease of children. *Nutrition, Aliments Fonctionnels, Aliments Santé* 3: 25-28

B. lactis LAFTI® B94:

• **Basturk A. et al.**, 2016. Efficacy of synbiotic, probiotic, and prebiotic treatments for irritable bowel syndrome in children: A randomized controlled trial. *Turk J Gastroenterol.* 2016; 27: 439-43. • **Erdogan et al.**, 2012, The comparison of the efficacy of two different probiotics in rotavirus gastroenteritis in children, *Journal of Tropical Medicine*, Volume 2012, Article ID 787240 • **İşlek et al.**, 2014, The role of *Bifidobacterium lactis* B94 plus inulin in the treatment of acute infectious diarrhea in children, *Turk J Gastroenterol* 2014; 25: 628-33

healthsolutions@lallemand.com / www.lallemand-health-solutions.com

The information contained herein is business-to-business information and is not intended for the final consumer. It is based on our research and development work and is, to the best of our knowledge, reliable. Lallemand Health Solutions does not assume any liability resulting from the use of its products, as conditions of use are beyond our control. The business-to-business information provided should not be used as a substitute for any form of advice. In all instances, producers and marketers should check local regulatory requirements before use as different claims may be made depending on the regulations applicable in each country.