

Probiotics+ **Children's Health**

Six large, solid light blue circles are arranged in a 2x3 grid, filling the lower half of the page. They are uniform in size and color, creating a rhythmic pattern against the dark blue background.

The widest range of benefits



Probiotics+ Children's Health

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Upper Respiratory Tract Infection in Children

Upper Respiratory Tract Infections (URTIs) are among the most common health concerns in childhood, particularly in children attending preschool or daycare settings where close contact increases transmission rates. On average, young children experience between six and eight episodes of URTI annually, with pre-schoolers shown to be up to four times more likely to contract infections than children who remain at home. These infections include illnesses affecting the sinuses, throat, and airways and are primarily viral in origin—accounting for 90-95% of respiratory infections. Symptoms often include sneezing, runny or stuffy nose, cough, and sore throat.

Whilst generally mild and self-limiting, these symptoms can significantly affect a child's quality of life by disrupting sleep, appetite, and daily routines. The impact also extends to families and society, with increased healthcare visits and parental work absences adding to the burden. Despite the viral nature of most URTIs, antibiotics are still frequently prescribed, contributing to unnecessary medication use and potentially to development of antibiotic resistance. These challenges underline the urgent need for safe, effective, and evidence-based strategies to reduce the frequency, duration, and overall burden of URTIs in children.

Probiotics and URTIs

Probiotics, defined as live microorganisms that, when administered in adequate amounts, confer a health benefit on the host, are increasingly being explored for their potential role in the prevention and management of URTIs in children. The gut microbiota plays a central role in shaping immune responses, and growing evidence highlights the existence of a gut-lung axis - a bidirectional communication network linking the gastrointestinal tract with respiratory health. By supporting gut microbiota balance and immune modulation, probiotics may help strengthen the body's antiviral defences.

A comprehensive Cochrane review published in 2022 evaluated the efficacy of probiotics in preventing acute URTIs. The analysis concluded that probiotics were more effective than placebo or no treatment in reducing the incidence of acute URTIs.

- 2 published randomised placebo-controlled clinical studies on children's health all showing significant benefits
- ProChild study on upper respiratory tract symptoms and absenteeism in 3-6 year old children attending preschool
- ProChild-2 study on upper respiratory tract symptoms, absenteeism from school and antibiotic prescription in preschool/school children aged 3-10 years
- Lab4 Probiotics combined with a low dose vitamin C shown to be beneficial for children's health, including reduction in upper respiratory tract symptoms, fewer absences from school, fewer doctors' visits, lower antibiotic use, and improvement in bowel habits

Microbiologists Dr. Nigel Plummer and Dr. Sue Plummer established Cultech Ltd in 1994 with the vision for a company with research at its heart.



Studies

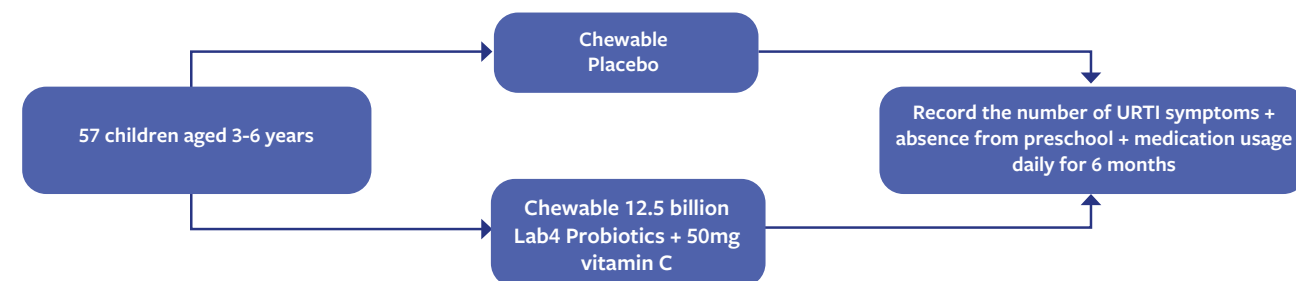
The Evidence for Lab4 Effectiveness in Children's Health

Lab4 Probiotics in combination with a low dose of vitamin C has shown the following benefits:

- Reduction in incidence and duration of coughs and colds
- Reduced absenteeism from preschool/school
- Reduction in visits to the doctor
- Reduction in antibiotic use
- Improvement in bowel habits

The ProChild Study

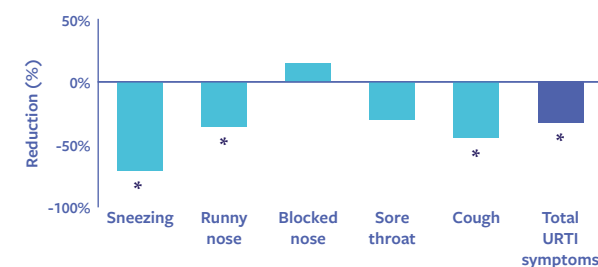
This randomised, double-blind, placebo-controlled study investigated the efficacy of Lab4 Probiotics with vitamin C on URTI symptoms in preschool children, who are the most susceptible age group.



Results

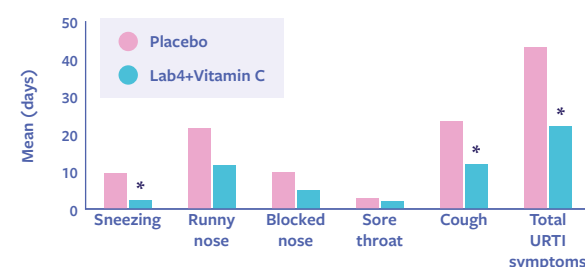
URTI Symptoms

Incidence of URTI Symptoms



- 33% significant reduction in the incidence of URTI symptoms in children taking the Lab4 Probiotics/vitamin C combination compared to the placebo group (* $P=0.002$).

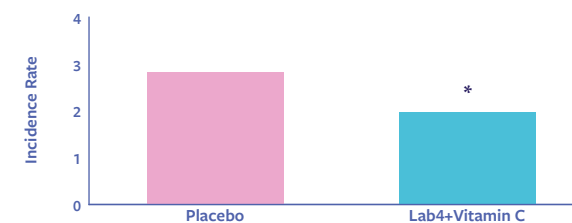
Duration of URTI Symptoms



- 49% significant reduction in the duration of URTI symptoms in the children taking the Lab4 Probiotics/vitamin C combination compared to those taking placebo (* $P=0.006$).

Absenteeism

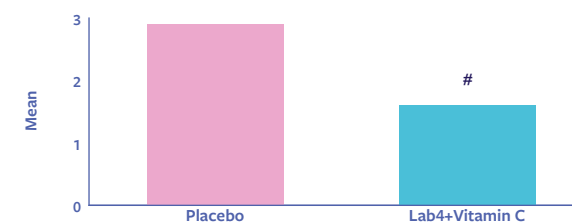
Absence from Preschool



- 30% significant reduction in the incidence of absenteeism from school in children taking the Lab4 Probiotic/vitamin C compared to placebo (* $P=0.007$).

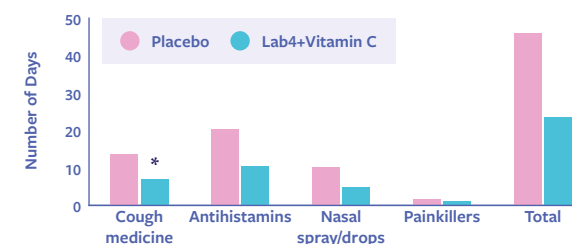
Doctors' Visits & Medication Use

Number of Doctors' Visits



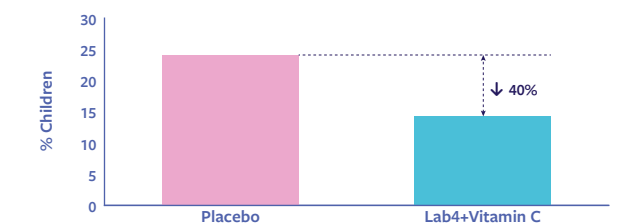
- The number of visits to the doctor was reduced by 43% with the use of Lab4 Probiotics/vitamin C (* $P=0.082$).

Medication Usage



- Significant reduction in the use of cough medicine in the group taking Lab4 Probiotics and vitamin C (* $P=0.040$).

Number of Children with Oral Antibiotics



- 14.3% of children in the Lab4 Probiotics/vitamin C group received oral antibiotics compared to 24.1% of children in the placebo group.

Conclusion

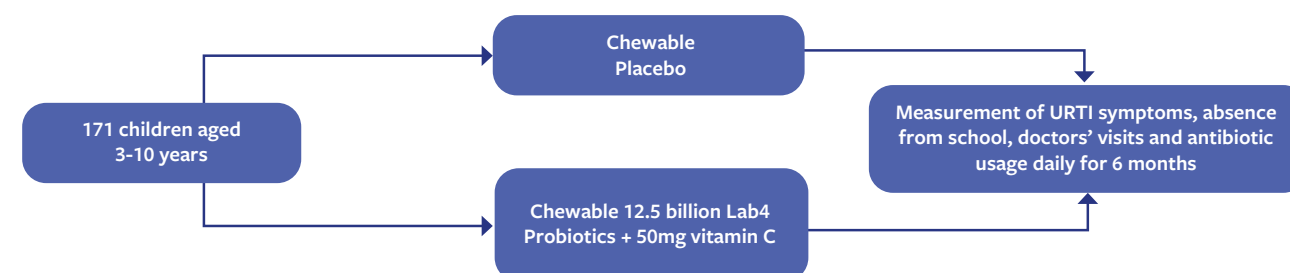
Lab4 Probiotics in combination with low dose vitamin C significantly reduced the incidence and duration of both URTIs and absenteeism from preschool.



Scan for more info

The ProChild-2 Study ➔

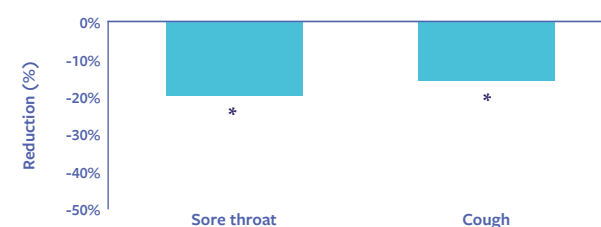
This second randomised, double-blind, placebo-controlled study investigated the effect of Lab4 Probiotics with low dose vitamin C in the prevention of upper respiratory tract infections in children attending school, aged 3-10 years.



Results ➔

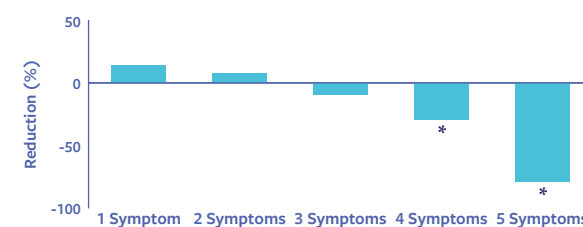
URTI Symptoms

Incidence of URTI symptoms



- A 16% significant reduction in the incidence of coughing was observed in the children taking Lab4 Probiotics and low dose vitamin C compared to those taking placebo (* $P=0.0300$).
- There was a 20% significant reduction in the incidence of sore throats in the children taking Lab4 Probiotics and vitamin C versus those taking placebo (* $P=0.0373$).

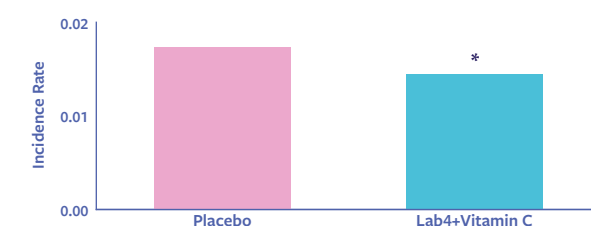
Incidence of five common URTI symptoms in one day



- A 79% significant reduction was observed in the incidence of all five URTI symptoms in one day in the Lab4 Probiotics group compared to the placebo group(* $P<0.0001$).

Absenteeism

Absence from Preschool/School



- 16% significant reduction in the incidence of absenteeism from preschool/school children taking the Lab4 Probiotics/vitamin C compared to placebo (* $P=0.0060$).



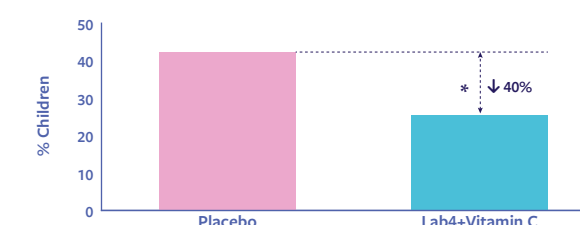
Doctors' Visits & Antibiotic Prescription

'Doctors' Visits



- The number of visits to the doctor was significantly reduced by 19% with the use of Lab4 Probiotics/vitamin C (* $P=0.0077$).

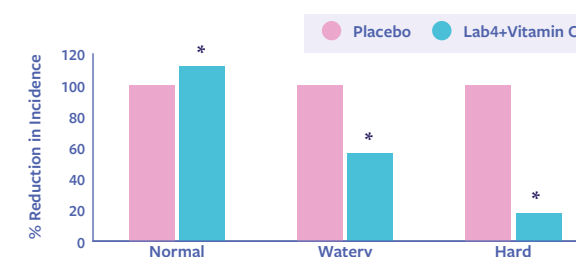
Proportion of Children receiving Oral Antibiotics



- 25.1% of children in the Lab4 Probiotics/vitamin C group were prescribed oral antibiotics compared to 42.3% of children in the placebo group (40% risk reduction, * $P=0.0239$).

Bowel Habits

Stool Consistency



- There were significant reductions in the incidence of watery (diarrhoea) and hard (constipation) stools with the use of Lab4 Probiotics/vitamin C (* $P<0.0001$).
- Significant improvement in 'normal' stool consistency was observed in the Lab4 Probiotics group compared to placebo (* $P<0.0001$).

Conclusion ➔

Lab4 Probiotics in combination with low dose vitamin C reduced the incidence of coughing and sore throats together with absence from school and the need for antibiotic prescription.

To our knowledge, this is the first time two probiotic studies (ProChild and ProChild-2) with the same intervention for the same duration, have shown beneficial effects in the management of URTIs in children attending school.



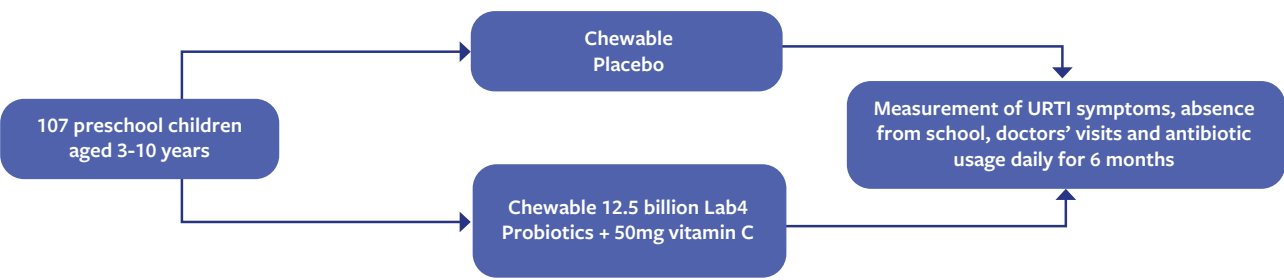
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Pooling data from Two Preschool Children Cohorts

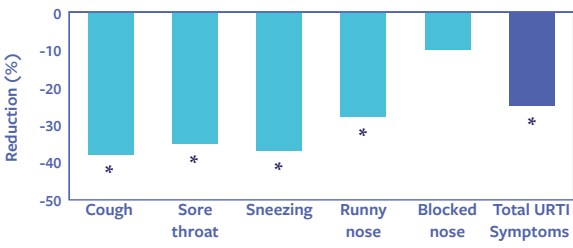
Repeating a study is an important criterion for confirming the beneficial effects of an intervention and pooling data from multiple trials can provide strong evidence for its effectiveness. We assessed the impact of the Lab4 probiotics/vitamin C combination on the prevention of URTIs in the two groups of preschool children participating in the ProChild and ProChild-2 studies.



Results

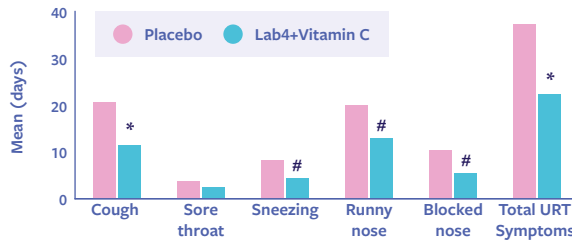
URTI Symptoms

Incidence of URTI Symptoms



• 25% significant reduction was observed in the incidence of URTI symptoms in children taking the Lab4 Probiotics/vitamin C combination compared to the placebo group (* $P<0.0001$).

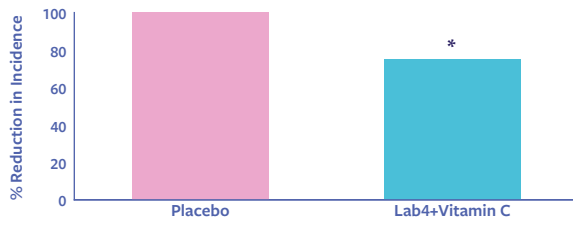
Duration of URTI Symptoms



• 40% significant reduction in the duration of URTI symptoms was seen in the Lab4 Probiotics/vitamin C group versus the placebo group (* $P=0.0030$; # $P<0.1$).

Absenteeism

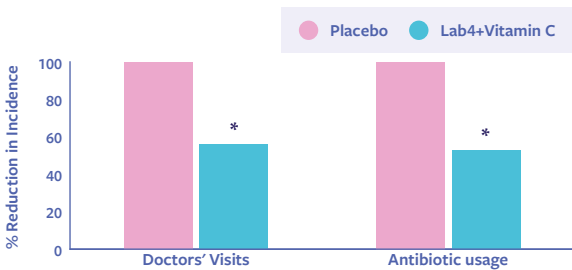
Absence from Preschool



• 25% significant reduction was observed in the incidence of preschool absenteeism in children taking the Lab4 Probiotics/vitamin C compared to placebo (* $P<0.0001$).

Doctors' Visits & Antibiotic Usage

Incidence of Doctors' visits & Antibiotic Use



• The number of visits to the doctor was reduced by 44% with the use of Lab4 Probiotics/vitamin C (* $P<0.0001$).

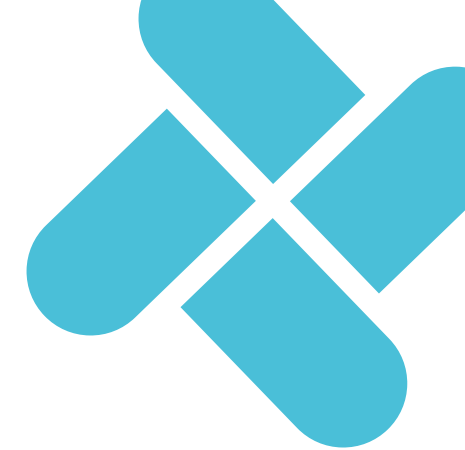
• There was a significant reduction in antibiotic use by 47% in the Lab4 Probiotics/vitamin C group compared to placebo (* $P<0.0001$).

Conclusion

The pooled analysis of data from the two studies confirmed the beneficial effect of Lab4 Probiotics in combination with low dose vitamin C in the prevention and management of URTIs in preschool children.



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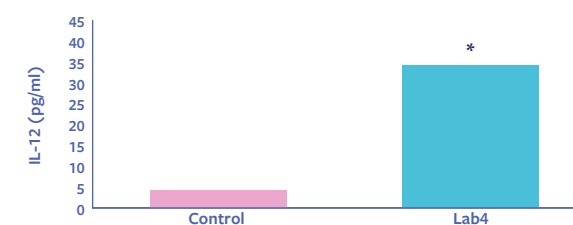


Proposed Mechanism of Action of Probiotics for Enhancing Immune Response to URTI ➤

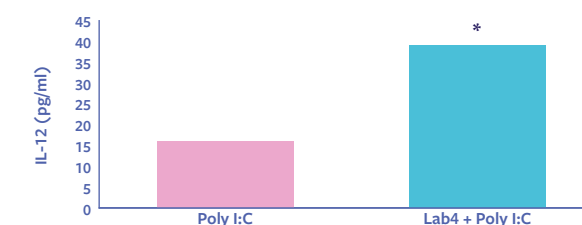
The beneficial immune effects of Lab4 Probiotics are well-reported and this study aimed to identify the regulatory roles of these probiotics on the innate immune system using cultured macrophages.

Results ➤

IL-12 Production in Human Macrophages



IL-12 Production in Challenged Human Macrophages



Conclusion ➤

Lab4 Probiotics induce production of antiviral IL-12 in human macrophages, priming them for viral challenge and helping to promote a strong antiviral immune response.



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A multitude of benefits

- Lab4 Probiotics have shown simultaneous benefits on digestive health, immune function, athletic performance, gut-brain axis, and alongside antibiotic use
- The Lab4 consortia are adapted to the human gut with demonstrable ability to survive stomach acidity and bile acids and to colonise epithelial tissue and mucous
- Shelf-life up to 24 months in ambient conditions*

Why Lab4 Blends Work

One body system

The gut and hence the microbiome are extensively connected to almost all of the other physiological systems of the body, this includes the immune system, endocrine system, brain and central nervous system, and metabolic physiology.

Proxies for microbes

Consequently, as proxies for our microbiome, effective probiotics could also impact beneficially on these distant physiologies – and these benefits may be manifest simultaneously as the intestinal health benefits outlined above.

Bacterial colonisation

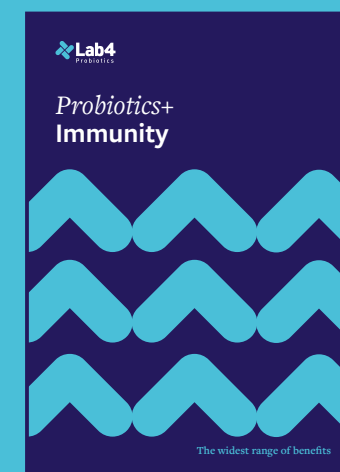
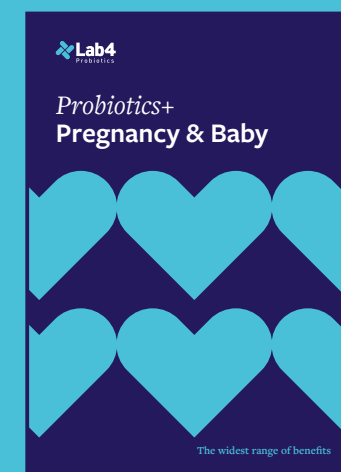
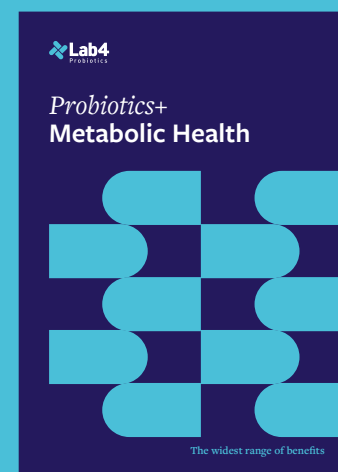
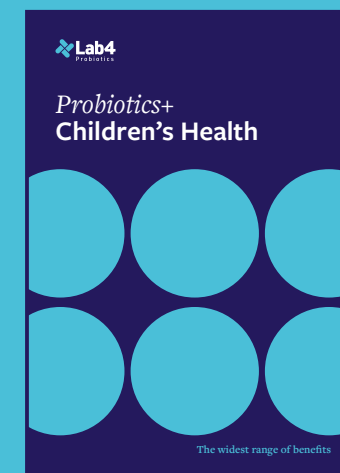
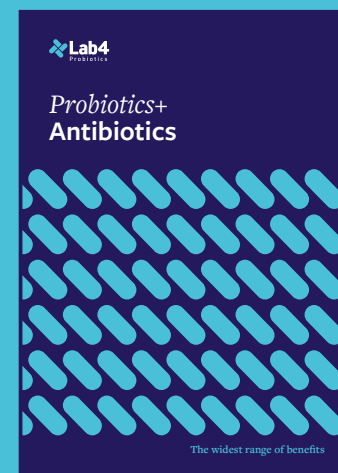
Lab4 contains *Lactobacillus acidophilus* (two strains) as well as *Bifidobacterium animalis* subsp. *lactis* and *Bifidobacterium bifidum*. The Lactobacilli are dominant colonisers of the sparsely populated small intestine and the Bifidobacteria constitute a significant population in the distal small intestine and are also present throughout the large intestine.

High dose

Over the past 30 years it has become evident that higher doses of effective probiotic strains produce faster, greater and more consistent effects and benefits. In all clinical studies on adults performed to date, Lab4 has been supplemented at 25 billion a day. This is why we have seen a broad range of consistent health benefits across a wide range of conditions and particularly with intestinal health.

*In powder and capsule products produced and packed appropriately

See our other Guides



Lab4 Specification

Lab4 Probiotic blends are available as freeze-dried concentrated powders at various concentrations. Please contact us for more details at info@lab4probiotics.co.uk or on 01639 825100 www.lab4probiotics.co.uk

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