



ECZEMA SHIELD KIDS

- ✓ Triple action for skin healing, regeneration and repair
- ✓ Relieve and reduce occurrence of eczema and dermatitis symptoms
- ✓ Internal treatment to address atopic immuno-inflammatory drivers of inflammatory skin conditions

FORMULATION DETAILS:

Each 2g dose (2 x 1g scoop) contains an exclusive probiotic blend:

<i>Lactobacillus rhamnosus</i> (LGG®)	10 Billion CFU
<i>Bifidobacterium animalis ssp lactis</i> (BB-12®)	1 Billion CFU
Cholecalciferol (Microencapsulated* Vitamin D)	25µg (1000IU)

LGG® & BB-12® are registered trademark of Chr. Hansen A/S

*Microencapsulation is a process which coats the ingredient particles to prevent an interaction between the ingredients

CLINICAL FOCUS

- Supports skin health in children
- Reduces symptoms of mild eczema in children
- Helps reduce occurrence of eczema symptoms in children

KEY ACTION

- Reduce incidence of eczema

KEY FORMULA FEATURES:

- **LGG®** and **BB-12®** modulate the immune system to reduce atopic response
- **LGG®** and **BB-12®** support the integrity of the gastrointestinal system to modulate immune responses
- **Vitamin D** supports a healthy microbiome

PROFESSIONAL PRESCRIBING GUIDELINES:

Dosage & Directions

Children from 0 to 12 years: Take 2 x 1 g scoops daily mixed into water, juice, formula or milk (warm or cold), or sprinkle on food.

Cautions & Contraindications

Infants from 0-12 months should not exceed the upper limit (UL) of 25 µg (1000 IU) of **vitamin D** per day. Children aged 1-18 years should not exceed the UL of 80 µg (3200 IU) per day;¹ however, much higher doses are often needed for the short-term treatment of **vitamin D** deficiency. Some research shows that giving **vitamin D** 14,000 IU/week for a year in children aged 10-17 is safe;^{2,3} though intakes of 2000 – 3000 IU per day may cause toxicity symptoms in some children, as may doses of 1000 IU / day in hypersensitive infants.⁴ Not recommended for use in children under 4 months of age, unless advised by a healthcare professional.

Contraindications

Calcipotriene: Calcipotriene is a **vitamin D** analogue used topically for psoriasis. It can be absorbed in sufficient amounts to cause systemic effects, including hypercalcemia. Theoretically, combining calcipotriene with **vitamin D** supplements might increase the risk of hypercalcemia. Avoid concurrent use.⁵

Calcitriol: Calcitriol is a **vitamin D** analogue and when used in conjunction with **vitamin D** supplements may have an additive effect and increase risk of **vitamin D** toxicity and hypercalcemia. Avoid concurrent use.⁶

Cautions – Moderate level

Renal failure and/or chronic kidney disease: **Vitamin D** doses above 2000 IU (50 µg) daily may cause hypercalcemia and should be avoided due to the risk of increased calcium accumulation. For doses under 2000 IU, use caution and only under medical supervision.⁷

This list is not exhaustive. For further information, please contact Clinical Support on 1800 777 648 or email clinicalsupport@metagenics.com.au

Cautions – Low level

Immunosuppressants: Theoretically, *Lactobacillus* could cause infection in patients taking medications that suppress the immune system. These include cyclosporine, tacrolimus, azathioprine, and cancer chemotherapeutic agents like cyclophosphamide and cisplatin, and others.^{5,6} Use only under medical supervision in these patients.

Severely ill and/or immunocompromised patients: *Lactobacillus* bacteraemia and sepsis have been reported in severely ill and/or immunocompromised patients consuming probiotics such as *Lactobacillus*, though this is a very rare finding.^{5,6} Based on these occurrences, a theoretical concern of bacteraemia and sepsis extends to *bifidobacteria* probiotics.^{5,6} Use *Lactobacilli* and *bifidobacteria* strains only under medical supervision in hospitalised patients.

Short-bowel syndrome: Patients with short-bowel syndrome might be predisposed to pathogenic infection from *Lactobacillus*. This might be due to impaired gut integrity in patients with short-bowel syndrome. Use only under medical supervision in patients with this condition.^{5,6}

Pregnancy: Likely safe. While there is evidence to support the use of these ingredients during pregnancy^{8,9,10,11,12,13} and a review did not identify concerns for use, practitioner discretion is advised.

Breastfeeding: Appropriate for use.^{14,15,16,17,18}

No added: Artificial flavouring, colouring or preservatives.

Free from: Gluten, wheat, dairy, lactose, cereals, eggs, soy, nuts.

Suitable for vegans & vegetarians.

If symptoms persist, talk to your health professional

HCP COUNSELLING QUESTIONS

My child already takes a probiotic. Why should they take Inner Health Eczema Shield Kids instead?

Probiotic formulas contain different strains of bacteria and it is important to take the one that contains specific strains for the individual's needs. Inner Health Eczema Shield Kids contains **LGG®**, **BB-12®** and **Vitamin D**, which have been shown in clinical trials to reduce atopic responses in children.

Does my child need to take Inner Health Eczema Shield Kids on an empty stomach?

No, Inner Health Eczema Shield Kids can be taken on a full or empty stomach.

I want to reduce the likelihood my baby will get eczema. Should I take Inner Health Eczema Shield Kids while I am pregnant?

LGG® has been clinically trialled in pregnant women to reduce eczema incidence in children.

Consider instead taking Inner Health Pregnancy & Breastfeeding, which has been specifically formulated and is a capsule format to provide this benefit plus additional benefits to maternal health.

CLINICAL FEATURES

The combination of LGG®, BB12® and vitamin D supports a healthy immune system and microbiome in children.

Incidence of Eczema in Australia and New Zealand

Australia and New Zealand have some of the highest incidences of eczema in the world^{19,20} with the latest statistics showing at least 20% of children under the age of 2 years have eczema, with some reports showing incidence being as high as 1 in 3 (38.5%) in infants.^{21,22,23,24} An irregular immune system reaction that favours allergic response has been implemented in the pathogenesis of eczema.²⁵ As well as this, dysbiosis of the gut is implicated as a large contributing factor to disorders of the skin, particular inflammatory conditions.²⁶ The main basis of this relationship is the way the microbiota interacts with the immune system to modulate inflammation, as well as barrier integrity in both the skin and the gut.²⁷ Probiotics can be used to support these functions (Figure 1).

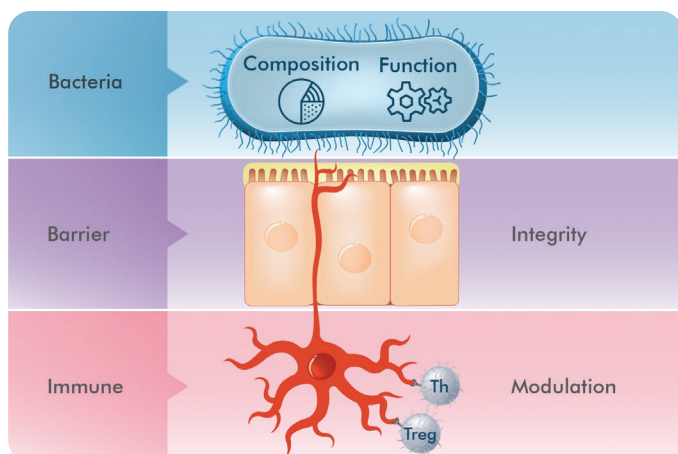


Figure 1: Key mechanisms of probiotics that are of benefit in eczema sufferers

The Microbiome and the Immune System

The microbiome is essential for the development and ongoing modulation of immune responses,²⁸ signalling Toll like receptors in the intestinal epithelium, as well as in the skin itself,²⁹ and balancing between T helper 1 (Th1) and T helper 2 (Th2) responses. In this way, the composition of the gut microbiota can impact atopic conditions, such as eczema.

Specific strains of probiotics may be used to support the induction of T regulatory cells, in turn supporting the balance of Th1 and Th2 pathways,³⁰ as well as provide additional anti-inflammatory support via the stimulation of immunoglobulin A (IgA) production, and³¹ suppression of IgE.³²

LGG® and BB-12® Regulate Immune Responses

The range of LGG® immune-regulating mechanisms is extensive; LGG® increases anti-inflammatory cytokines interleukin 10 (IL-10),³³ and transforming growth factor beta,³⁴ and down-regulates inflammatory cytokines tumour necrosis factor alpha (TNF-α), IL-6, and interferon gamma (IFN-γ), thus promoting Th1/Th2 balance.³⁵ LGG® has also been shown to increase IgA levels,³⁶ as well as decrease circulating levels of IgE.³⁷

In addition to this, BB-12® also plays an important role in modulating the intestinal immune system. Studies have shown BB-12® to induce maturation of dendritic cells and increase IL-10, whilst lowering IL-1β, IL-6, IL-12, TNF-α and IFN-γ, supporting healthy immune activity.³⁸

It is also of note that LGG® and BB-12®, both separately and in combination, have been shown to modulate the immune response in children specifically.

Supporting Gut Integrity

Gut barrier integrity is important to protect against bacterial translocation (when enteric bacteria can cross the intestinal mucosal barrier and be found in remote tissues) as well as prevent immune dysregulation.³⁹ The integrity of the intestinal barrier depends on a complex of proteins that make up different intercellular junctions, including tight junctions (TJs).

Disruption of TJs by proinflammatory factors elevates TJ permeability (Figure 1),⁴⁰ thus increasing the likelihood of a systemic cycle of immune activation and inflammation,⁴¹ as antigens, food, and microbes cross the mucosal barrier and cause an allergic response, aggravating the conditions associated with this response, such as eczema.⁴²

Gut barrier enhancement is one of the central and most accepted mechanisms of probiotic function. Human trials have demonstrated the ability of LGG® to reduce intestinal permeability,^{43,44} and an in vitro study investigating the effects of BB-12® on cell junctions found that supplementation significantly enhanced the integrity of TJs.⁴⁵ This is because LGG® and BB-12® can increase the formation of short-chain fatty acids (SCFAs) such as acetate, propionate and butyrate.⁴⁶ These help to supply energy to the enterocytes and support gut barrier integrity via the preservation of transepithelial resistance, and proteins such as occludens, E-cadherin, and β-catenin in the intercellular junctions. These points support the role of strain-specific probiotics in enhancing intestinal barrier function.⁴⁷

Supporting a Healthy Microbiome

The gut microbiota in non-allergic individuals has been shown to differ from allergic individuals.^{48,49} Studies have shown that numbers of *Clostridia* are higher, whereas numbers of *bifidobacteria* and *lactobacilli* groups are lower in allergy sufferers,^{50,51} suggesting that these latter species in particular offer benefits to the host that may lower allergy incidence.

LGG® promotes the growth and biodiversity of *bifidobacterium*⁵² and *lactobacillus/enterococcus*^{53,54} therefore contributing to increased microbial diversity to support SCFA production, mucosal barrier function⁵⁵ and thus a lower incidence of allergy. BB-12® supplementation in infants has also been shown to increase faecal levels of *bifidobacteria*,⁵⁶ which is particularly significant as *bifidobacteria* cross-feed other important commensal species within the gut microbiota.⁵⁷ Further, two in vitro studies have also highlighted the positive effect of BB-12® on pathogen inhibition.^{58,59}

Vitamin D and the Microbiome

Research has discovered that the composition and function of the bacterial community comprising the gut microbiome is dependent on vitamin D status, and conversely, the presence of an unhealthy microbiome can predispose an individual to vitamin D deficiency due to reduced capacity to absorb vitamin D adequately.⁶⁰ Vitamin D and vitamin D receptors (VDRs) regulate host-bacterial interactions and innate immune responses of the gut microbiota, including the production of antimicrobial peptides,⁶¹ as well as maintain gut tolerance and barrier function,⁶² to help to control microbial dysbiosis,⁶³ and inhibit inflammation.⁶²

Given that data reveals that >50% of newborns in Australia and New Zealand have inadequate levels of vitamin D,^{65,66,67,68} and the evinced link between vitamin D and the gut microbiome health, supplementing with vitamin D makes sense to support microbiome health and further, the health of the immune system. It has also been shown that children with allergic disease states, including eczema, are more likely to have insufficient levels of vitamin D^{69,70,71} and VDR,⁷² further supporting the evidence for vitamin D supplementation in these individuals.

References

Available at metagenicspharmacacyacademy.com.au