



# DERMABIOTICS™

PLANT-BASED  
COLLAGEN BOOSTING SPRAY



TECHNICAL DATA SHEET



## DERMABIOTICS™

### PLANT-BASED COLLAGEN BOOSTING SPRAY

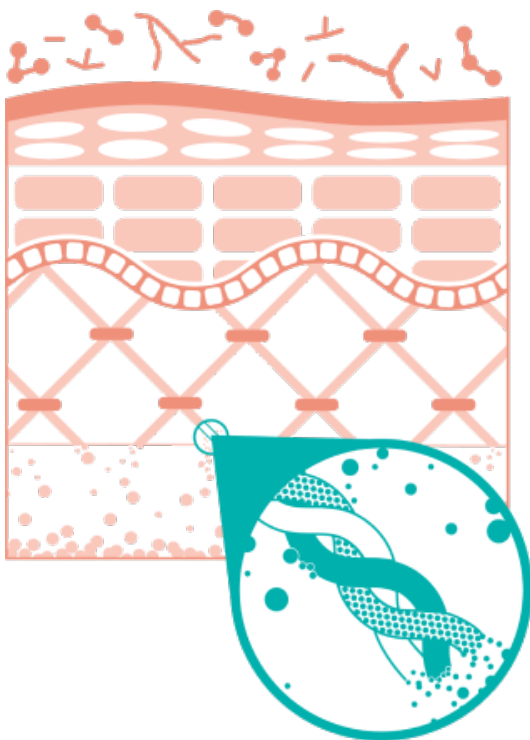
For radiant, firm skin, instead of “taking” collagen... make it. This clean, plant-based, all-natural oral spray helps boost collagen production, improve skin moisture, and support skin elasticity.\* #CleanHappyGlow

## KEY INGREDIENTS

Daily oral spray (honey berry) with targeted postbiotics, phytonutrients, and minerals that boost your body's collagen production.\*

- Lactobacillus Sakei 65 (postbiotic) from fermented Kimchi.\*
- Dracobelle, or Organic Moldovian DragonHead (phytobiotic).\*

DermaBiotics™ Plant-Based Collagen Boosting Spray is a clean, all-natural, oral spray that helps the gut produce new collagen building blocks to support your skin's base layers and:



- Boost collagen production\*
- 〰 Support skin elasticity\*
- Improve skin integrity\*
- ♥ And it's cruelty-free.  
No animal testing. Ever.

The main ingredients driving the health benefits in this functional probiotic soda are:

1. Lactobacillus Sakei 65 (heat treated probiotic) Lactobacillus sakei Probio 65 is a lactic acid bacteria strain obtained from kimchi, a traditional fermented food from Korea.
2. Organic Moldavian Dragon head (Dracobelle) DracoBelle™ is a unique, natural, high quality and sustainable Moldavian Dragonhead extract and Dragonhead (*Dracocephalum moldavica*) is a member of the mint family (Lamiaceae). It is native to Central Asia and naturalized in Eurasia and the US. The aerial parts of the Moldavian Dragonhead are traditionally used Central Asia where antioxidant, cardio-protective and anti-aging effects have been reported.

Moldavian dragonhead is known for its high content in flavonoid glucuronides and its antioxidative effects. In vivo studies showed that, Moldavian dragonhead extract had a collagen-boosting effect.

## CLINICAL STUDIES

### Atopic dermatitis-mitigating effects of new Lactobacillus strain, Lactobacillus sakei probio 65 isolated from Kimchi

J-Y Kim 1, B-K Park, H-J Park, Y-H Park, B-O Kim, S Pyo

#### Abstract

Aims: Atopic dermatitis (AD) is an inflammatory skin disease. Probiotics have been reported to modulate immune responses and thus are now being suggested as potential treatments for allergies. In this study, we investigated the inhibitory effects of Lactobacillus sakei probio 65 isolated from Kimchi on artificially inducing AD in NC/Nga mice.

Methods and results: Oral administration of viable or heat-inactivated Lact. sakei probio 65 improved the condition of skin and reduced scratching frequency. Serum levels of IgE and cutaneous T-cell-attracting chemokine (CTACK) were significantly decreased by this therapy. Dead Lact. sakei probio 65 also decreased IL-4 and IL-6 serum concentrations. Moreover, both live and dead Lact. sakei probio 65 inhibited the expression of Thymus and activation-regulated chemokine and CTACK in AD-like skin lesions. The increased levels of Foxp3 expression in the lesional skin and ears were also suppressed by Lact. sakei probio 65. In addition, Lact. sakei probio 65 inhibited  $\beta$ -hexosaminidase release and the secretion of IL-4, TNF- $\alpha$  and IL-6 from RBL-2H3 cells.

Conclusions: Oral treatment with both viable and heat-inactivated Lact. sakei probio 65 inhibits skin inflammation and AD-like skin lesions, as well as mast cell activation.

Significance and impact of the study: Lactobacillus sakei probio 65 has an inhibitory effect on atopic dermatitis-like skin lesions and may represent an effective new anti-inflammatory agent.

## Probiotic *Lactobacillus sakei* proBio-65 Extract Ameliorates the Severity of Imiquimod Induced Psoriasis-Like Skin Inflammation in a Mouse Model

[Irfan A Rather<sup>1</sup>](#), [Vivek K Bajpai<sup>2</sup>](#), [Yun Suk Huh<sup>3</sup>](#), [Young-Kyu Han<sup>2</sup>](#), [Eijaz A Bhat<sup>4</sup>](#), [Jeongheui Lim<sup>5</sup>](#), [Woon K Paek<sup>5</sup>](#), [Yong-Ha Park<sup>1</sup>](#)

### Abstract

This study was designed to evaluate the protective effect of ethanol extract (SEL001) isolated from a potent probiotic strain *Lactobacillus sakei* proBio-65 on imiquimod (IMQ)-induced psoriasis-like skin inflammation in a mouse model. Histopathological and histomorphometrical changes in the ear and dorsal skin tissues were observed under hematoxylin and eosin stain for general histopathological architectures or Masson's trichrome stain for collagen fibers. The expression profile of psoriasis-associated specific genes was determined using Real-Time PCR analysis. As a result, topical application of IMQ resulted in a significant increase of mean total and epithelial (epidermis) thicknesses, the number of inflammatory cells infiltrated in the dermis, and the decrease of dermis collagen fiber occupied regions in the ear tissues of IMQ and IMQ plus vaseline treated groups when compared to the intact control group. A significant increase of epithelial thickness and number of inflammatory cells infiltrated in the dermis of dorsal skin tissues were also noticed in IMQ and IMQ plus vaseline treated groups as compared to the intact control group, suggesting classic IMQ-induced hypersensitive psoriasis. IMQ-induced hypersensitive psoriasis related histopathological changes to the ear and dorsal skin tissues were significantly inhibited by the treatment of a standard drug clobetasol and SEL001. Further, mRNA expression analysis indicated a significant increase in gene expression levels of pro-inflammatory cytokines, including IL-19, IL-17A, and IL-23 in IMQ and IMQ plus vaseline treated groups than that of the control. Clobetasol and SEL001 treated groups resulted in a lower gene expression level of IL-19, IL-17A, and IL-23 as compared to IMQ and IMQ plus vaseline treated groups. These results enforce that SEL001 could be a novel treatment for psoriasis and an alternative to other drugs that pose a number of side effects on the skin.

## New functional probiotic *Lactobacillus sakei* probio 65 alleviates atopic symptoms in the mouse

[Chun Wook Park](#)<sup>1</sup>, [Myoungsub Youn](#), [Young-Mi Jung](#), [Hongik Kim](#), [Yoonhwa Jeong](#), [Han-Ki Lee](#), [Hye One Kim](#), [Insun Lee](#), [Soo Won Lee](#), [Kook Hee Kang](#), [Yong-Ha Park](#)

### Abstract

The purpose of this study was to investigate the improvement of allergic dermatitis in chemical allergen-induced mice by *Lactobacillus sakei* probio 65. *L. sakei* probio-65 was isolated from kimchi, a traditional Korean fermented food. This strain was resistant to gastric acidity, bile, and several antibiotics and possessed antimicrobial activity against several pathogenic microorganisms. To investigate whether the probiotic activity of *L. sakei* probio 65 was effective for treating allergic dermatitis, the organism was supplied to mice triggered by allergen (1-chloro-2,4-dinitrobenzene). Mice that received *L. sakei* probio 65 showed a more rapid recovery compared to control mice, as assessed by visual evaluation of the severity of allergic dermatitis and levels of immunoglobulin (Ig) E and interleukin (IL)-4. *L. sakei* probio 65 exhibited good probiotic properties in vitro and in mice and was effective in reducing allergen-induced skin inflammation through the regulation of both elevated IgE and IL-4 in sensitized mice.

## A Double-Blind, Placebo Controlled-Trial of a Probiotic Strain *Lactobacillus sakei* Probio-65 for the Prevention of Canine Atopic Dermatitis

[Hyejin Kim<sup>1</sup>](#), [Irfan A Rather<sup>2</sup>](#), [Hyunwook Kim<sup>1</sup>](#), [Sungsoo Kim<sup>1</sup>](#), [Taeun Kim<sup>1</sup>](#), [Jaeyoung Jang<sup>1</sup>](#), [Jimin Seo<sup>1</sup>](#), [Jeongheui Lim<sup>3</sup>](#), [Yong-Ha Park<sup>2,4</sup>](#)

### Abstract

Canine atopic dermatitis (CAD) is a ubiquitous, chronic inflammatory skin disorder prevalent in dogs, which results in production of abnormal levels of IgE antibodies in reciprocation to an allergen challenge. In this study, administration of the probiotic strain *Lactobacillus sakei* probio-65 for 2 months significantly reduced the disease severity index in experimental dogs diagnosed with CAD. In addition, one month pre-medication of *L. sakei* probio-65 revealed significant difference in the PVAS score in experimental dogs for both probio-65 and placebo groups. However, post 2 months treatment resulted in a significant decrease in the CASESI score values in the probio-65-treated group ( $p < .0.06$ ).

## Effect of a bioactive product SEL001 from *Lactobacillus sakei* probio65 on gut microbiota and its anti-colitis effects in a TNBS-induced colitis mouse model

[Irfan A. Rather<sup>1</sup>](#), [Vivek K. Bajpai<sup>1</sup>](#), [Lew L. Chinga Rajib Majumdera](#), [Gyeong-Jun Nama Nagaraju Induguc](#), [Prashant Singh](#), [D Sanjay Kumare Nahid H. Hajrahf Jamal S.M. Sabirf](#), [Majid Rasool Kamlif Yong-Ha Parka](#)

### Abstract

This study underpins the therapeutic potential of SEL001, a bioactive product isolated from *Lactobacillus sakei* probio65, in terms of its anti-inflammatory properties and its effect on gut-microbiota in a TNBS-induced ulcerative colitis mouse model. Ulcerative colitis was developed in mice by intra rectal administration of trinitrobenzene sulfonic acid. Bioactive product SEL001 (50 mg/kg b.w.) was administered orally. Myeloperoxidase activity was measured using 3,3',5,5'-tetramethylbenzidine. The entire colon was sampled for post-mortem clinical assessment. Colonic injury was assessed through histological and histomorphometric examinations. The 454 pyrosequencing and QIIME pipeline were used for gut microbiota analysis and statistical analysis were conducted using R. mRNA extraction from colon tissue and RT-PCR approaches were employed to determine the changes in the level of specific biomarker genes associated with UC. The results depict that SEL001 significantly lowered pro-inflammatory cytokines, including CD4, TNF- $\alpha$ , and interleukin-6. Examination of clinical and histopathological traits revealed that SEL001 was effective and potent in reducing the inflammatory signatures of UC to a similar extent as did by the standard drug mesalamine (5-ASA). Pyro-sequencing 16S data revealed that the reduction in the major member of phylum Firmicutes, which has been previously associated with a higher risk of UC. The SEL001, an anti-inflammatory bioactive product originated from a probiotic strain *L. sakei* probio65 could be an alternative therapeutic agent for treatment of UC.



## Evaluation of the collagen-boosting effects of a Moldavian dragonhead extract.

1Mibelle Group Biochemistry, Mibelle AG, Bolimattstrasse 1, 5033 Buchs AG, Switzerland

2Extracellular Matrix Regeneration Laboratory, Institute of Translational Medicine, Department of Health Sciences and Technology, Eidgenössische Technische Hochschule (ETH) Zürich, Schorenstrasse 16, 8603 Schwerzenbach ZH, Switzerland

\*Corresponding Author: Torsten Grothe, Mibelle Group Biochemistry, Mibelle AG, Bolimattstrasse 1, 5033 Buchs AG, Switzerland.

### Abstract

Skin aging is a natural process that is influenced by various intrinsic and extrinsic factors such as UV radiation, pollution, oxidative stress, or an unhealthy lifestyle. Premature skin aging affects millions of people worldwide, but treatment options are limited and often of invasive nature. Therefore, the demand for alternative natural and safe products for nutraceutical use is increasing. Moldavian dragonhead is known for its high content in flavonoid glucuronides and its antioxidative effects. However, its effect on skin appearance parameters is unknown to date. Our in-vitro study showed that treatment of mouse C2C12 cells with Moldavian dragonhead extract activates the innate longevity pathway involving the signaling kinase AMPK and the transcription factor FOXO1. In vivo, Moldavian dragonhead extract had a collagen-boosting effect preserving a youthful collagen expression and mass during aging in *Caenorhabditis elegans*. Moreover, in humans, daily food supplementation with 200 mg Moldavian dragonhead dry extract (DracoBelle™ Nu) for eight weeks in an open pilot trial significantly increased skin moisturization and elasticity by 14.4 % and 6.7 %, respectively. Furthermore, skin density was increased as shown by ultrasound visualization. There were no reports of adverse events during the study period. We, therefore, conclude that Moldavian dragonhead extract presents a safe and effective treatment option for (photo) aged skin.

## Application of Moldavian dragonhead (*Dracocephalum moldavica* L.) leaves addition as a functional component of nutritionally valuable corn snacks

[Agnieszka Wójtowicz](#),<sup>1</sup> [Anna Oniszczyk](#),<sup>2</sup> [Tomasz Oniszczyk](#),<sup>1</sup> [Sławomir Kocira](#),<sup>3</sup> [Karolina Wojtunik](#),<sup>2</sup> [Marcin Mitrus](#),<sup>1</sup> [Anna Kocira](#),<sup>4</sup> [Jarosław Widelski](#),<sup>5</sup> and [Krystyna Skalicka-Woźniak](#)<sup>5</sup>  
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### Abstract

Application of Moldavian dragonhead (*Dracocephalum moldavica* L.) leaves in extruded snacks was evaluated. Directly expanded corn snacks (crisps) were supplemented with 5–20% of dragonhead leaves. The supplemented snacks were characterized to have improved nutritional value and were a good source of dietary fibre. The presence of phenolic compounds, especially rosmarinic acid, showed a high antioxidant potential and a radical scavenging activity of tested snacks, especially if a high content of additive was used. The increasing amount of additive also had an impact on the physical properties of extrudates lowering the expansion ratio, water absorption and solubility, yet increasing bulk density, cutting force and the breaking index of the enriched snacks. The highest viscosity was observed at 5 and 10% addition level. The increasing amount of dragonhead leaves lowered the brightness of snacks and increased the greenness tint significantly. A sensory evaluation showed good acceptability of snacks enriched with up to 15% of dragonhead dried leaves. Dried leaves of the Moldavian dragonhead seem to be a prospective functional additive for extruded crisps with a high nutritional value, especially because of dietary fibre and rosmarinic acid content, a strong antioxidant potential and acceptable sensory properties.