BLOOMAGE

NOI=0.963

A groundbreaking feat in glycobiology for radiant beauty

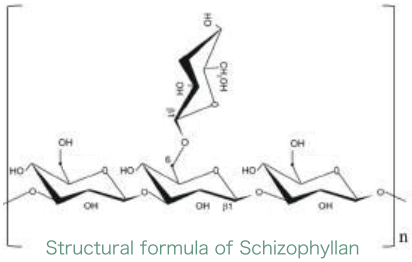
Bioyouth™-SPG Schizophyllan Gel

Triple-helix Active β-Glucan

Restore the Golden Equilibrium of Immunity, Microenvironment and Anti-aging

Introduction

Bioyouth™-SPG is a schizophyllan gel using the unique *Schizophyllum commune* from the pristine forests of Yunnan as the fermentation strain. Through innovative fermentation technology, it produces an active β-glucan with a distinctive triple-helix structure, known as Schizophyllan. Bioyouth™-SPG not only forms a 3D water network to enhance the skin's physical barrier but also offers dual immunomodulation, soothing redness, improving the skin's microenvironment, and combating inflammaging for a healthier, more radiant complexion.

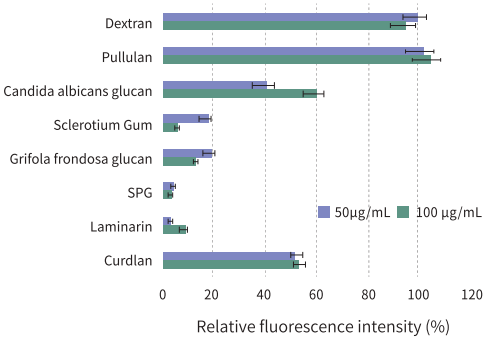


Structural formula of Schizophyllan

【Dual immunomodulation】

Schizophyllan (SPG) precisely regulates the balance of the NF-κB/MAPK pathway through two channels, SPG activates the Syk-CARD9 signaling axis via the Dectin-1 receptor, and SPG activates the MyD88 signaling axis via the TLR2 receptor. In this way, while suppressing the cytokine storm of pro-inflammatory factors (↓ IL-1α/TNF-α), SPG enhances the reparative immune response (↑ IL-10/expansion of Tregs), achieving controlled repair of inflammation.

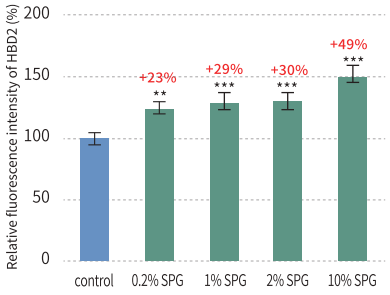
Targeting the Dectin-1 receptor



Dectin-1A-transduced HEK293 cells model, multiple types of glucans competitively bind to Dectin-1A. The stronger the binding ability to Dectin-1A, the weaker the relative fluorescence in this study[1].

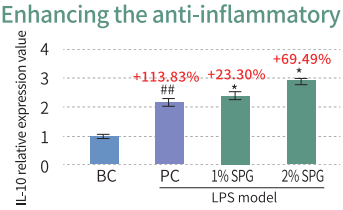
Activating the hypoallergenic state, intervening in the hyperactive state

Up-regulated expression of HBD2

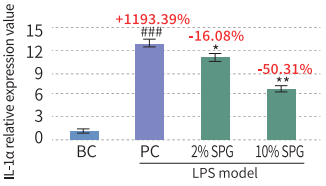


Human keratinocytes model, compared with control, **p<0.01, ***p<0.001.

Enhancing the anti-inflammatory factor IL-10



Inhibiting the pro-inflammatory factor IL-1α



In-vitro test, human THP-1 cells macrophages modele, LPS (0.1ug/mL) as positive control, compared with control, ##p<0.01, ###p<0.001, compared with LPS model group, *p< 0.05.

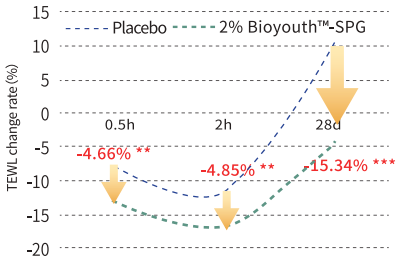
The spatial structure of glucan is closely related to its binding ability with Dectin-1A. The results of this experiment clearly show that, compared with other types of glucans, SPG has the strongest binding ability with Dectin-1A.

Bioyouth™-SPG certainly up-regulates the expression of β-defensin-2 (HBD-2) and interleukin-10 (IL-10), activates the hypoallergenic immune state, and enhances skin resistance.
When the skin is exposed to external stimuli and the hyperactive immune state is activated, Bioyouth™-SPG can significantly down-regulate the pro-inflammatory factor IL-1α, helping to quickly reduce inflammation.

[1] Yoshiyuki Adachi，Characterization of-Glucan Recognition Site on C-Type Lectin, INFECTION AND IMMUNITY, July 2004, Vol. 72, No. 7: 4159–4171.

【Enhancing skin physical barrier function】

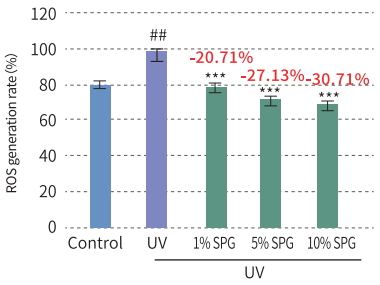
Reducing TEWL value



In-vivo test, 29 volunteers (with sensitive skin), double-blind, half-face control design. The gel product containing 2% Bioyouth™-SPG was tested. Compared with the placebo, **p < 0.01, ***p < 0.001.

The triple-helix conformation of Bioyouth™-SPG can form a 3D reticular water-retaining film, instantly reducing transepidermal water loss (TEWL) value.

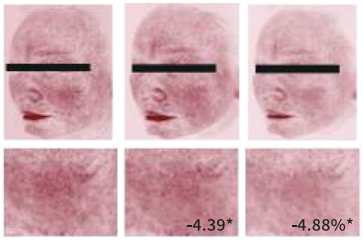
Protection against oxidative damage



HaCaT cell，UV model; compared with the control group, ##p < 0.01; compared with the UV model group, ***p < 0.001.

Bioyouth™-SPG at a concentration of 1%,5% and 10% effectively reduces the generation of reactive oxygen species (ROS) radicals induced by UV,thus providing protection against oxidative damage.

Instant redness reduction

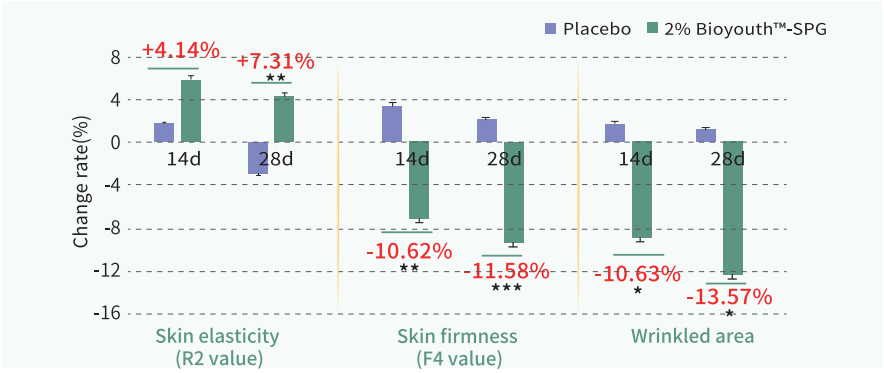


In-vivo test, 29 volunteers (with sensitive skin), double-blind, half-face control design. The gel product containing 2% Bioyouth™-SPG was tested. Compared with the placebo, *p < 0.05.

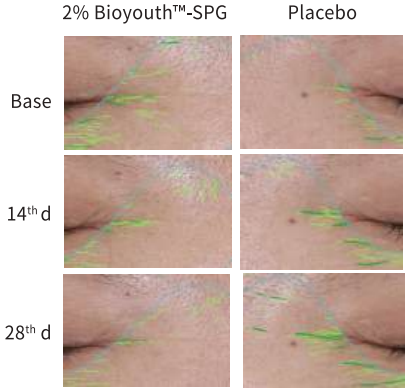
Chronic inflammation leads to immune imbalance and skin redness. In vivo tests have shown that Bioyouth™-SPG can improve the appearance of red blood streaks and skin redness caused by sensitive skin and damaged skin barriers, restoring a calm complexion.

【Rejuvenating the Senescent microenvironment】

Firming and smoothing the skin

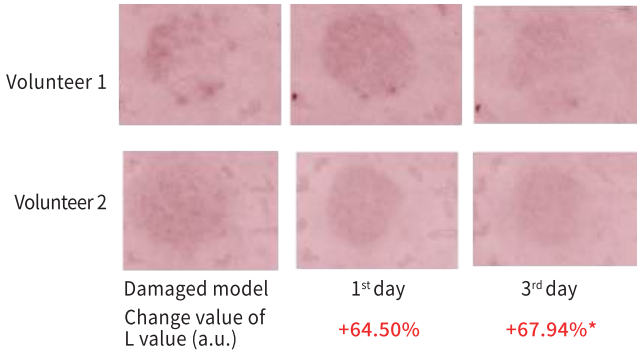


After 28 days of continuous use of a gel product containing 2% Bioyouth™-SPG, skin elasticity increased by 7.31%, firmness improved by 11.58%, and wrinkle area decreased by 13.57%. These results indicate that Bioyouth™-SPG can delay skin aging with sensitive skin.



In-vivo test, 29 volunteers (with sensitive skin), double-blind, half-face control, the gel product containing 2% Bioyouth™-SPG, compared to placebo, *p<0.05, **p<0.01, ***p<0.001.

Reducing pigmentation and brightening skin tone



In-vivo test, 10 volunteers, a skin damage model was made on the forearm flexor by tape-stripping the stratum corneum. placebo: PBS solution. Compared to the placebo, *p<0.05.

Chronic inflammation leads to immune imbalance and pigmentation. After using a solution containing 1% Bioyouth™-SPG, the skin L value significantly increased by 67.94% compared to placebo group. This indicates that Bioyouth™-SPG can improve unhealthy pigmentation caused by barrier damage.

【Application instructions】

INCI Name: Schizophyllan, 1,2-Hexanediol, Ethylhexylglycerin, Water

Recommend usage:

- √ **Skincare: 0.5%-5%;**
- √ **Personal care: 0.5%-2%;**
- √ **Others: 0.5%-10%**

Application scenarios:

- √ **Prematurely aging skin induced by inflammation (rosacea / seborrheic dermatitis accompanied by wrinkles)**
- √ **Repair of double damage from photoaging and oxidative stress**
- √ **Repeatedly fragile skin barriers caused by microecological imbalance**

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让每个生命都是鲜活的
CREATIVE TECHNOLOGY FOR VIBRANT LIFE

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