

AquaGlucan™



immediate hydration with long term benefits

Actera

INCI

Water (and) Propanediol (and) Glycerin
(and) Beta-Glucan

Applications

- Water-based gels, serums, lotions, and gel-creams
- Face and body moisturizers
- Overnight treatments
- Face masks and wipes
- After-shaving products

Key Benefits

- Immediate and long-term moisturization
- Anti-aging, anti-wrinkles
- Anti-redness, antioxidant, skin soothing
- Supports the production of collagen in the skin

Formulation Guidelines

Suggested use level:

0.5% to 10.0% (clinically tested at 5.0%)

Suggested pH range:

4.0 to 7.5

AquaGlucan is a water-soluble bioactive. We recommend to add it to the water phase of any cosmetic and personal care formulation at 45°C or at lower temperatures. Combine with glycerin or glycols for even longer-lasting moisturization.



Bioactive Rationale

Beta-glucans are natural glucose polymers found in mushrooms, yeasts, seaweeds, and oats. These polysaccharides promote skin health due to their moisturizing effect, antioxidant activity, anti-wrinkle activity, and wound healing capacity. Natural beta-glucans form a protective film on the skin that retains water and activates cell proliferation.

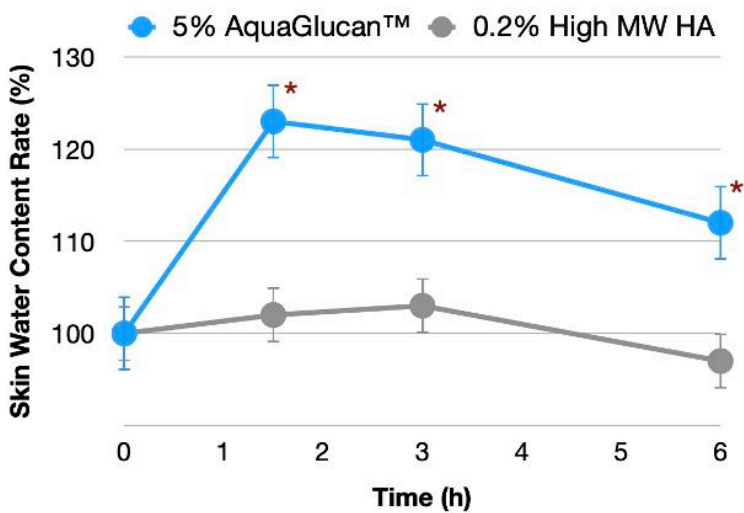
AquaGlucan is a 100% natural product derived from the fermentation of the edible mushroom *Schizophyllum commune*. The beta-glucan extracted from this mushroom, also known as schizophyllan, is a water-soluble $\alpha(1-3, 1-6)$ -glucan with an average molecular weight of 1,200,000 Da. Schizophyllan also has superior biological activity than other beta-glucans.



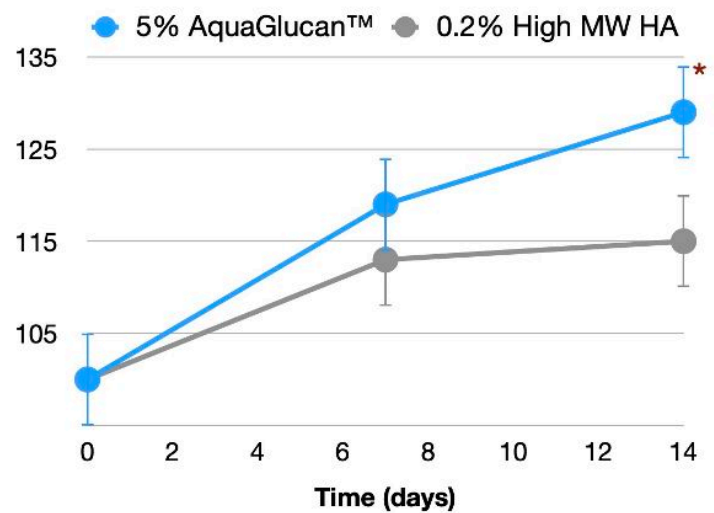
Fruiting body of *Schizophyllum commune*

higher performance than HA

Clinical results show that 5% AquaGlucan (about 0.06% beta-glucan) has **better immediate and long-term moisturizing effects** than high molecular weight Hyaluronic Acid (0.2%).



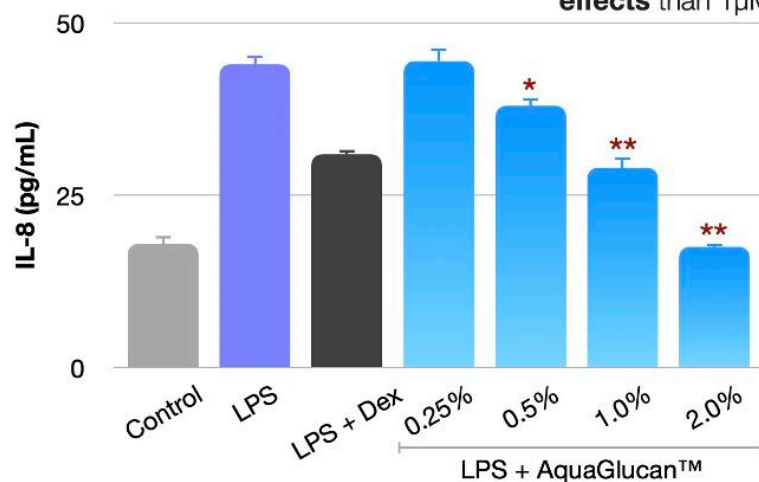
Method: human clinical, apply each formulation to different areas of the arm, measure skin water content at 0h, 1.5h, 3h, and 6h (Corneometer CM825). n = 10. *P < 0.01, if compared to HA.



Method: human clinical, apply each formulation to different areas of the arm daily, measure skin water content at 0, 7, and 14 days (Corneometer CM825). n = 14. *P < 0.05, if compared to HA.

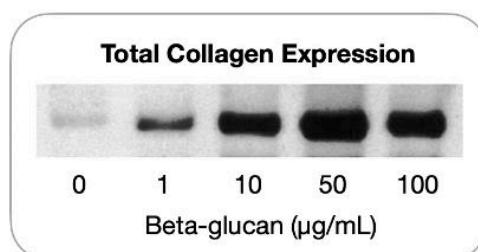
unique benefits for a youthful complexion

Results show that 2% AquaGlucan has **better anti-inflammatory effects** than 1 μ M Dexamethasone and can inhibit cell stress response.



Method: *in-vitro*, culture human mast cells LAD-2 with placebo, dexamethasone, or beta-glucan for 12h, then add LPS to accelerate cell degranulation (immune stress response). After 45 min, collect supernatant and determine IL-8 content (inflammatory mediator) by ELISA. **P < 0.01 and *P < 0.05, if compared to LPS.

Beta-glucan is also known to **accelerate the collagen synthesis** in human fibroblasts.



Method: *in-vitro*, culture human fibroblasts NHDF with beta-glucan for 48h, determine total collagen expression by Western Blot after treatment with different concentrations.

References

- DU, B. et al. Skin Health Promotion Effects of Natural Beta-Glucan Derived from Cereals and Microorganisms: a Review. *Phytother. Res.*, v. 28, p. 159-166, 2014.
- PILLAI, R. et al. Anti-Wrinkle Therapy: Significant New Findings in the Non-Invasive Cosmetic Treatment of Skin Wrinkles with Beta-Glucan. *Int. J. Cosm. Science*, v. 27, p. 292, 2005.
- WEI, D. et al. Glucan Stimulates Human Dermal Fibroblast Collagen Biosynthesis Through a Nuclear Factor-1 Dependent Mechanism. *Wound Rep. Reg.*, v. 10, p. 161-168, 2002.

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