

**LongDbName:** Academic Search Premier

**ShortDbName:** aph

**AN:** 169324152

**Title:** N,N-Dimethylglycine Sodium Salt Exerts Marked Anti-Inflammatory Effects in Various Dermatitis Models and Activates Human Epidermal Keratinocytes by Increasing Proliferation, Migration, and Growth Factor Release.

**PublicationDate:** 20230715

**Contributors:** Lendvai, Alexandra; Béke, Gabriella; Hollósi, Erika; Becker, Maike; Völker, Jörn Michael; Schulze zur Wiesche, Erik; Bácsi, Attila; Bíró, Tamás; Mihály, Johanna;

**DocTypes:** Article;

**PubTypes:**

**CoverDate:** Jul2023

**PeerReviewed:** true

**Source:** International Journal of Molecular Sciences

**IsiType:** JOUR

**DOIDS:** ;

**ISBNS:** ;

**ISSNS:** 1661-6596;

**PublisherLocations:** ;

**RecordType:** ARTICLES

**BookEdition:**

**Publisher:** MDPI

**PageStart:** 11264

**PageEnd:**

**PageCount:**

**Volume:** 24

**Issue:** 14

**Abstract:** N,N-dimethylglycine (DMG) is a naturally occurring compound being widely used as an oral supplement to improve growth and physical performance. Thus far, its effects on human skin have not been described in the literature. For the first time, we show that N,N-dimethylglycine sodium salt (DMG-Na) promoted the proliferation of cultured human epidermal HaCaT keratinocytes. Even at high doses, DMG-Na did not compromise the cellular viability of these cells. In a scratch wound-closure assay, DMG-Na augmented the rate of wound closure, demonstrating that it promotes keratinocyte migration. Further, DMG-Na treatment of the cells resulted in the upregulation of the synthesis and release of specific growth factors. Intriguingly, DMG-Na also exerted robust anti-inflammatory and antioxidant effects, as assessed in three different models of human keratinocytes, mimicking microbial and allergic contact dermatitis as well as psoriasis and UVB irradiation-induced solar dermatitis. These results identify DMG-Na as a highly promising novel active compound to promote epidermal proliferation, regeneration, and repair, and to exert protective functions. Further preclinical and clinical studies are under investigation to prove the seminal impact of topically applied DMG-Na on relevant conditions of the skin and its appendages.

**DOI:** 10.3390/ijms241411264

**Language:** eng

**Subjects:** GROWTH factors; KERATINOCYTES; SUNBURN; SKIN inflammation; CONTACT dermatitis;

**plink:** <https://research.ebsco.com/linkprocessor/plink?id=d3e0a1c3-2f64-3728-a175-049a592fb0fa>