

GLOBAL SKIN HEALTH

# A NOVEL BODY MOISTURIZER WITH EFFECTIVE PH BUFFER SYSTEM AND DEXPANTHENOL PROTECTS THE SKIN AGAINST ENVIRONMENTAL TRIGGERS IN VITRO, EX VIVO AND IN VIVO

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**Introduction:** The skin pH plays a relevant role in the context of sensitive skin as many skin diseases associated with an impaired barrier function are characterized by aberrant pH values. The optimal skin care for sensitive skin acts as protective shield against environmental stressors, while restoring an acidic milieu of the stratum corneum.

**Objective:** In this study, we demonstrate the effective buffer capacity, the protective shielding effect in vitro and ex vivo and the beneficial effect on skin hydration and barrier integrity in vivo of a novel moisturizer, based on a wax-hydrodispersion lotion with light texture, containing Dexpanthenol and being adjusted to pH5 by citrate buffer.

**Materials and Methods:** Buffer capacity of the moisturizers were analyzed via titration with NaOH. To investigate the protective shielding efficacy, excised pig skin was contaminated with model dirt and skin lightness was measured as indicator for dirt removal. In vitro, the expression of heme oxygenase-1 (HO-1) protein and UV-induced reactive oxygen species (ROS) was measured in fibroblasts. In vivo, the effect and tolerability of formulations was tested on volunteers by corneometry, clinical assessments, and transepidermal water loss measurements.

**Results:** Results show a better buffer capacity for the new lotion compared to commercial moisturizers. The dirt removal of pre-treated pig skin was more effective than on the untreated control site, indicating a protective shielding by the lotion. In vitro, Dexpanthenol induced HOX-1 in fibroblasts and the UV-induced level of ROS was significantly lower in Dexpanthenol treated cells than in untreated controls. In vivo results show a significant improvement in skin moisturization, barrier function and skin roughness.

**Conclusion:** The novel moisturizer containing an effective pH buffer system, provides an optimal care for sensitive and allergy-prone skin. It functions as a protective shield against



external stressors and contains dexpanthenol, which stimulates cellular defense systems against oxidative stress.

