238 Retinol at a concentration of 0.3% restores fibrillin-rich microfibrils and modifies the epidermis in photaged human skin in vivo in a manner similar to 1% retinol.

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Whilst retinol concentrations of 1% weight/volume (w/v) in skin cosmetics are commonplace within the US market, lower percentage formulations are associated with fewer tolerance issues. Here we investigated the effect of retinol at 0.1%, 0.3% and 1% w/v upon epidermal barrier, keratinocyte proliferation and deposition of fibrillin-rich microfibrils (FMM) in a 12-day in vivo patch test. The vehicle control (VC) and retinol formulations were applied under occlusion to photaged forearms of healthy volunteers (n=5; 46-66 years) prior to biopsy and analysis of key biomarkers of skin health. Epidermal thickening occurred in response to 0.1% retinol (mean ± SEM; 81.62 ± 8.5), 0.3% retinol (92.7 ± 8.2) and 1% retinol (122.3 ± 31.2) compared to untreated, occluded forearm (baseline; 42.3 ± 4.8) and VC (42.3 ± 3.5). Statistical significance however, was only reached in response to 0.3% retinol (p<0.05). Deposition of papillary dermal FMM, known to be diminished in photaged skin, was significantly restored after treatment with 0.3% (a.u. mean ± SEM; 0.36 ± 0.1; p<0.05) and 1% retinol (0.11 ± 0.2; p<0.05). 0.1% retinol (2.95 ± 0.26) and VC (3.06 mean ± 0.2) failed to induce significant changes above the baseline (2.3 ± 0.2). All retinol concentrations increased keratinocyte proline-rich protein deposition within the stratum granulosum and induced keratinocyte proliferation, concomitant with loss of e-cadherin expression at the basal layer. These data suggest that a retinol concentration of 0.3% appears to have similar efficacy to 1% retinol in its ability to modify the epidermis and restore the FMM network.

240 In vitro and in vivo skin efficacy of CBD extract

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Cannabidiol (CBD) has been implicated as beneficial in variety of skin conditions, including acne, atopic dermatitis, psoriasis, scleroderma, and pruritus. CBD mediates its effect through skin’s own endocannabinoid system composed of CB1 and CB2 receptors, but detailed mechanism of action in skin and clinical efficacy potential needs to be established. In this study we investigated the role of CBD on modulation of heat shock protein pathway in human dermal fibroblasts. Cells were treated with various concentration of CBD and amount of HSP-70 induced was evaluated by ELISA. In addition, clinical efficacy was assessed using an in vivo model. Erythema was induced by topical methyl nicotinate (MN), leading to prosta- glandin release and vasodilation of the peripheral blood capillaries of the skin. CBD was shown to significantly stimulate HSP70 protein level in human dermal fibroblast cells as well as reduce erythema in a clinical model of redness.

244 Protective properties of Avene thermal spring water on biomechanical, ultrastructural and clinical parameters of the human skin

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The mineral content of thermal spring waters (TSW) applied at the surface of the skin can directly influence the skin barrier through changes in the skin biomechanical properties and ulceration however; the mechanism underlying these are not completely elucidated. The aim of this study was to compare the effects of Ave´ne TSW with mineral-rich (MR) TSW on the biomechanical properties of the skin using ex-vivo and clinical studies. Ex-vivo studies included analyses on: the skin surface ultrastructure and mineral element deposit using scanning electron microscopy coupled to energy dispersing X-ray spectroscopy, and the drying stress profile of the stratum corneum (SC) when exposed to dehydration. Human clinical studies were performed to compare the soothing effect of TSW after a dermatological chemical peeling of face skin and determine the overall sensitive scale of consumers using TSW.

In conclusion, by combining 2 main factors involved in the physiopathology of acne, we (1) succeeded to design in vitro 3D models mimicking this skin disorder, (2) highlighted how the phylotype of C. acnes strains can have an impact on the epidermal physiology. These relevant models are suitable for the substantiation of therapeutic molecules dedicated to acne treat-ment.

245 RNAseq profiling highlights immune and barrier differences among ichthyoses

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Transcriptional analyses of a small sample of patients with rare forms of ichthyosis have suggested a shared Th17-skewed profile. To elucidate pathogenic differences among ichthyoses, we performed RNAseq on skin of a large cohort (n=56) ichthyosis patients (7 Netherton syndrome/NS, 16 lamellar ichthyosis/LI, 18 congenital ichthyosiform erythroderma/CIE, 11 ichthyosis vulgaris/IW, and 41 other). We used this dataset to (1) find signatures of all-cause gene function. The present study is to identify biological endpoints of proprietary extract of T. triandra. Testing in vitro in 3D skin model showed strong effect on hyaluronic acid production. After topical application of the ingredient in vivo, histological analysis of skin biopsy samples confirmed this observation. In addition effect on collagen production and epidermal turnover were also indicated in this in-vitro and in-vivo analysis. Skin wrinkle reduction benefits in a dermatologist-supervised, double-blind, randomized, pla-cebo-controlled, split face clinical trial. Additionally, anti-inflammatory properties of T. triandra extract were confirmed by in vivo redness reduction assay. Interestingly, when tested in vitro, T. triandra was able to restore normal permeability of the skin. This study was designed to in vitro 3D models mimicking this skin disorder, (2) highlighted how the phylotype of C. acnes strains can have an impact on the epidermal physiology. These relevant models are suitable for the substantiation of therapeutic molecules dedicated to acne treat-ment.

239 Multi-functional in vitro and in vivo efficacy of Tilia cordata triandra, natural ingredient with clinical anti-aging skin benefits

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Tilia cordata triandra is a flowering plant also known as “bai yanang”. It is native to Southeast Asia. In traditional chinese medicine, it is used to treat various skin conditions. In this study we investigated the role of CBD on modulation of heat shock protein pathway in human dermal fibroblasts. Cells were treated with various concentration of CBD and amount of HSP-70 induced was evaluated by ELISA. In addition, clinical efficacy was assessed using an in vivo model. Erythema was induced by topical methyl nicotinate (MN), leading to prosta-glandin release and vasodilation of the peripheral blood capillaries of the skin. CBD was shown to significantly stimulate HSP70 protein level in human dermal fibroblast cells as well as reduce erythema in a clinical model of redness.