238 Retinol at a concentration of 0.3% restores filibrillin-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 care products 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 filibrillin-rich microfibrils (FRM) 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; 16-64 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; 43.5 ± 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 FRM, known to be diminished in photaged skin, was significantly restored after treatment with 0.3% (a.u. ± SEM; 3.3 ± 0.1; p<0.05) and 1% retinol (3.1 ± 0.2, p<0.05). 1% retinol (2.95 ± 0.26) and VC (3.06 ± 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 mRNA expression of KGF-2 was significantly upregulated in retinol treated subjects compared with untreated controls. Overall, 0.3% retinol demonstrates similar efficacy to 1% retinol in its ability to modify the epidermis and restore the FRM network.

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

C. Acnes IA1 Phytotype induces features of acneic skin when applied on 3D in vitro model

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Acne is an inflammatory skin disease of the pilosebaceous unit, involving 4 essential factors: hyperseborrhea combined to a modification of sebum composition, colonization by Cutibacterium (C.) acnes, hyperkeratinization and secreted inflammation. Understanding and mimicking this compromised skin is essential for further development of therapeutical solutions. This study aims to develop a new in vitro 3D models mimicking acneic skin, by combining 2 main factors involved in the physiopathology. Normal human keratinocytes were used to generate reconstructed epidermis (RE) that were either untreated (control) or treated in topic with a combination of: - peroxidized sebum to mimic the altered sebum composition and create an aneurogenic environment; - 5.10^5 CFU of C. acnes to mimic the microorganism colonization. To get as close as possible to the pathophysiology of acne, C. acnes strains were specifically isolated by way of using culturomics-inspired techniques on swabs from acneic and healthy patients. This allowed investigating bacterial strains' behavior according to their original environment, as they retain their characteristics when used immediately after collection. 39 isolates were characterized by phylotype and strain-type level and 4 ones were selected: 2 isolates of IA1 phytotype from acne and healthy skin (described as acne-associated phylotype in literature) and 2 isolates of II and IB phylotype, both healthy-associated skin. While both the II and IB strains did not impact RE, IA1 strains of C. acnes lead to hyperkeratinization and inflammation regardless of their origin (acneic vs. healthy patient), thus suggesting a role of ecosystem in controlling C. acnes virulence in healthy skin. In conclusion, by combining 2 main factors involved in the physiopathology of acne, we aim to study the effects of 2 C. acnes strains, IA1 and IB, on IA1 phytotype RE. The aim of this study is therefore to understand potential effects of C. acnes on IA1 infected RE. We hypothesise that IA1 C. acnes strains can have an impact on epidermal physiology. These relevant models are suitable for the substantiation of therapeutic molecules dedicated to acne treatment.