17035

Transcriptome profiling of DPP-4–inhibited primary keratinocytes reveals the up-regulatory effect of DPP-4 inhibition on keratinocyte differentiation

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Dipeptidyl peptidase 4 (DPP-4) is widely expressed in keratinocytes as well as many other tissues. Although the impact of DPP-4 inhibition has been well characterized in systems, its direct impact on skin remains unclear. Recently, the use of DPP-4 inhibition is associated with an increased risk of developing bullous pemphigoid through what is thought to be an immune mediated mechanism. In contrast, DPP-4 inhibition appears beneficial in psoriasis. To elucidate the effect of DPP-4 inhibition in keratinocytes, we performed RNA-seq using a small molecular inhibitor of DPP-4. Primary keratinocytes were grown in serum free, low calcium media to subconfluence, and treated for 24 hours. Subsequntly, RNA was extracted, with subsequent quality control, enrichment, and library preparation. Sequencing was performed on an Illumina HiSeq PE150. We used DESeq to analyze differentially expressed genes and Gene Ontology (GO) for an enrichment analysis. Blockade of DPP4 resulted in 424 differentially expressed genes. GO analysis demonstrated significant impact on skin development, keratinocyte differentiation, and cornification. We noted significant up-regulation of late cornified envelope protein complex (LCE1A, LCE1B, LCE1C, LCE1D, LCE1F, LCE2A, LCE2B, LCE2D, LCE3A, LCE3D, LCE3E), small proline rich protein complex (SPRR2A, SPRR2B, SPRR2D, SPRR2E, SPRR2F, SPRR2G, SPRR3, SPRR4, SPRR5), S100 calcium-binding protein A7, peptidase inhibitor 3, and interleukin 36G. Results demonstrate a significant role of DPP-4 inhibition in altering the keratinocyte transcriptome, particularly epidermal differentiation. This effect on keratinocyte differentiation may account for the beneficial impact on psoriasis with use of DPP-4 inhibitors.

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17043

Frontal fibrosing alopecia severity score: A 3-year prospective study

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The Frontal Fibrosing Alopecia Severity Score (FFASS) was described to classify frontal fibrosing alopecia (FFA) patients. Its prospective use can help us to understand better the relationship between inflammation and hairline recession. We conducted a three-year prospective study. All patients started the same treatment in the first visit (oral dutasteride 0.5 mg 3 times a week, topical clobetasol twice weekly and triamcinolone injections 4-8 mg/mL). Patients were assessed with the FFASS every 6 months. To improve the accuracy of the inflammation score, perifollicular scaling and erythema were evaluated by trichoscopy (grade 2: trichoscopic and clinically present; grade 1: only present in trichoscopy). A total of 57 women were included into the study. Their mean age of 62.4 years and 47 (82.5%) had reached their menopause. Mean follow-up was 45.3 months (range 30-48 months). Mean FFASS score in the first visit was 13.2 (extent score 12.0 and inflammation score 1.2). Thirty-four patients (59.6%) had no hairline recession. Of them, 26 (76.5%) had also an improvement in inflammatory signs, but 8 patients (23.5%) still presented inflammation during follow-up. In 23 patients (40.4%) the hairline kept receding despite treatment. The inflammation persisted in 16 patients (69.6%), but 7 patients (30.4%) had no inflammatory signs or they improved. Interestingly, inflammatory signs of the disease were not always correlated to progression of the alopecia. The concomitant medical treatment is a limitation of the study. In conclusion, inflammation is a relevant sign in FFA, but it does not always entail worsening of the alopecia.

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17054

Use of a digital event logger to assess and enhance compliance

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Background: Compliance with topical applications can affect study outcome. Completion of diaries and verbal subject questioning may not produce accurate compliance assessment. Devices are currently available for assessing the opening and closing of pill bottles, but no such compliance device exists for the dispensing of topical products.

Methods: 88 female subjects of Fitzpatrick skin type II-IV and 30-65 years of age were enrolled in an IRB-approved, double-blinded, clinical study using a digital event logger to objectively measure the compliance of subjects with twice daily application of a product designed to improve skin dyspigmentation. The topical dispenser contained a digital event logger that recorded and stored the date, time, and act of dispensing the topical. The data were transmitted by a wireless cell phone connection to a database where study compliance could be monitored for each subject. These data were shared with the study site to investigate non-compliant subjects.

Results: After 1 week, 16% of subjects did not use the topical or used it less frequently than instructed. Two noncompliant subjects discontinued study participation and were replaced. The remaining noncompliant subjects were contacted to correct product compliance. With continued compliance monitoring after 4 weeks of product use, 93% of subjects correctly used the topical twice daily as directed.

Conclusions: Remote monitoring of subject compliance through digital event logging can be used to assess subject protocol adherence affording investigators the opportunity to reeducate subjects and replace noncompliant subjects.

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17059

Melasma dermoscopy: Rings and clouds

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Melasma is an acquired pigmentation disorder that represents one of the most common dermatologic diagnosis. It occurs centrofacially, most commonly on women. It is a frequent disease, but doubtful cases can be differentiated through dermoscopy or histopathology from other pigmentary disorders. Dermoscopy is a noninvasive tool that improves diagnostic yield for different skin conditions. In melasma there is scarce information regarding its different patterns. We conducted an observational study via digital dermoscopy 20× (FotoFinder) of 10 Hispanic females with different grades of melasma. We found light to dark brown pseudoreticular network with sparing of acrosyringeum in 100% of the patients, acrosyringeal ring-like hyperpigmentation in 70%, perifollicular pigmented ring in 80%, telangiectasias in 90% and perifollicular cloud-like hypopigmentation areas in 100% of the patients; a feature not previously described that is thought to represent an area of depigmentation. Thus it is important to keep in mind that the main dermoscopy findings in the population studied were the pigment network, increase in vasculature and cloud-like hypopigmentation areas. Although melasma is usually clinically diagnosed, it is important for dermatologist to fully recognize the different types of dermoscopy patterns in order to have additional tools in cases where diagnosis is doubtful.

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