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NOTICE

LB946

Improvements in acne-prone skin quality correlate with a reduction in saliva cortisol levels after use of an 8-week 3-step topical regimen

C Skobowiat[1], JS Craw[1], R Bianchini[1], K Fields[1,2], K Rodan[1,2] and T Falla[1] *1 Rodan + Fields LLC, San Francisco, California, United States and 2 Department of Dermatology, Stanford University, Stanford, California, United States*

It is well established that both UV exposure and emotional stress can lead to an activation of stress response via the Hypothalamic Pituitary Adrenal (HPA) axis resulting in elevated cortisol levels negatively affecting skin. [a, b, c]In this study, we found that subjects using a three-step skincare regimen not only experienced the expected skin benefits but also significantly lower cortisol levels after eight weeks. Thirty women, ages 18-45, applied a three-step skincare regimen featuring antioxidants, electrolytes, prebiotics and a sunscreen to their faces twice a day for eight weeks. Saliva samples along with clinical grading and TEWL measurements were taken at baseline and at week eight. Subjects also completed a questionnaire on skin quality at the beginning and end of the study. Over the duration of the study, cortisol levels, determined from saliva using ELISA, decreased from an average of 435 ng/dL at baseline to 73.3 ng/dL ($p \leq 0.005$). Concurrently, a statistically significant increase in barrier function (TEWL) corresponded to a clinical improvement in healthy glow. Subjects reported a significant improvement in pore appearance and decreased number of acne lesions at the end of the study. In addition, 76% of the subjects felt more confident about posting a selfie at the end of the study compared to 53% at the beginning. We suggest that one of the factors responsible for the observed decrease in saliva cortisol levels may be a reduction of emotional stress due to improved skin quality. References [a] Br J Dermatol. 2013 Mar;168(3):595-601; [b] J Invest Dermatol. 2006 Aug;126(8):1697-704; [c] Sci Rep. 2018 Apr 20;8(1):6334.

LB947

Development of LY3454738, an agonistic antibody to human CD200R

SC Potter, KD Werle, SP Bauer, DI Ruiz, J Rhoden, S Demarest, D Witcher and A Koester *Eli Lilly, San Diego, California, United States*

CD200R is an immune receptor of the IgG family that is primarily expressed on cells of the myeloid lineage and was recently identified as a marker for Th2 biology (Blom et al 2017). In vivo studies with knockout mice of either the receptor or its ligand, CD200, have demonstrated that it is an inhibitory receptor capable of negatively regulating immune responses. Previous work using agonistic antibodies to mouse CD200R showed inhibition of mast cell activation in vitro and in vivo (Cherwinski et al 2005) as well as efficacy in multiple preclinical models of autoimmune diseases. We developed an agonistic antibody to the human CD200 receptor to downregulate the immune system in multiple human inflammatory conditions. LY3454738, is a humanized IgG4 monoclonal antibody that was derived from a rabbit antibody discovered by immunizing rabbits with alternating soluble extracellular domain (ECD) of hCD200R and cyno CD200R protein. The antibody was selected based on desired properties for agonism and cross-reactivity to cyno CD200R. In vitro LY3454738 demonstrated inhibition of FcγR induced cytokine secretion from a human myeloid cell line as well as inhibition of primary mast cell activation. In vivo the antibody demonstrated efficacy in a humanized mouse model of contact hypersensitivity as well as passive cutaneous anaphylaxis in cynomolgus monkeys. After demonstrating safety and tolerability in a phase 1 trial in healthy volunteers, LY3454738 is currently being studied in patients with atopic dermatitis and chronic spontaneous urticaria. The poster will describe properties and functional activities of the clinical drug candidate.

LB948

Evaluation of creams containing ozonated sunflower oil

P Brizzi, M Andreassi, L Furi, J Zanardi and V Travagli *Dipartimento di Biotecnologie, Chimica e Farmacia - Dipartimento di Eccellenza 2018-2022, Università degli Studi di Siena, Siena, Italy*

This study concerns the evaluation from the physical point of view of preparations for topical application containing sunflower oil (Helianthus annuus) as such and after ozonation. Six different creams with different amounts of either untreated or ozonated sunflower oil (3%, 5% and 10%) with respect to the original one without sunflower oil have been evaluated. Two different preparation methods have been adopted: i) adding the relative percentages of oil in the base cream; ii) replacing a part of a lipophilic component of the base cream. The various preparations have been evaluated for apparent viscosity (T = 35 °C; n=3) by both vibrational (VV) and torsional oscillation viscometers (TOV). For creams obtained by i): viscosity values decrease as oil amounts increase with increasing oil concentration. Moreover, the ones with ozonated oil were slightly less viscous than the corresponding creams with non-ozonated oil, with the exception of 10% ozonated oil cream (442 mPa·s vs 555 mPa·s,VV; 145 mPa·s vs 210 mPa·s, TOV). However, the creams prepared with i) proved to be unstable, with a temperature-dependent phase separation with the appearance of oil droplets on the surface (especially for 10% and 5%). For creams obtained by ii): viscosity values proportionally increase with oil concentration (2.13 Pa·s at 10% ozonated oil, VV). On the contrary, they did not give stability problems to the heating, maintaining intact consistency and appearance even after 3 months from the preparation. Obtained results suggested that the method of inserting the oil into the base cream cannot be exploited as it brings the formulation into an excess of lipophilic phase that the various emulsifying components are not able to stabilize. Despite the higher viscosity, the creams obtained by using the replacement method always show both suitable spreadability for the type of topical preparation and excellent stability over time, even in the presence of temperature fluctuations.

LB949

Development of topical MEK inhibitor, NFX-179, as a chemopreventive agent for squamous cell carcinoma

A Shah[1], B Sell[2], W Sun[1], M Duncton[3], J Banoo[1], J Kincaid[3], K Sarin[1] and KY Tsai[2] *1 Dermatology, Stanford University, Redwood City, California, United States, 2 H. Lee Moffitt Cancer Center, Tampa, Florida, United States and 3 NFlection Therapeutics, Wayne, Puerto Rico, United States*

Cutaneous squamous cell carcinoma (cSCC) is the second most common skin cancer comprising over one million cases and contributing up to 9,000 deaths annually in the United States. We recently demonstrated that blockade of RAS signaling by MEK inhibitors reduces the formation of cSCCs in mice highlighting the potential of MEK inhibitors in chemoprevention of cSCC. However, the systemic toxicities of MEK inhibitors preclude their chronic usage in chemoprevention. To that end, NFlection Therapeutics has developed a topically formulated, novel and potent MEK inhibitor, NFX-179, designed to selectively inhibit MEK in SCC tumor tissue but with a high rate of clearance from plasma to limit systemic exposure. In human tissue, topical application of NFX-179 was shown to penetrate the stratum corneum and concentrate in the epidermis and dermis and potently suppress phosphorylation of ERK (p-ERK), a key downstream component of the RAS signaling pathway, in a dose related fashion. NFX-179 also demonstrated suppression of p-ERK in ex-vivo human cSCC tumor explants. Application of NFX-179 to the back skin of a UV-driven mouse model reduces cSCC formation compared to vehicle in a dose dependent manner. Lesion development was reduced by 27%, 73% and 92% at 0.01%, 0.15%, and 0.5% dosages, respectively. These results support the development of topical NFX-179 for as a chemopreventative agent for SCC. Plans are underway to conduct human clinical trials in 2021.

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