ABSTRACT BOOK ABSTRACTS



A new ERA for global Dermatology 10 - 15 JUNE 2019 MILAN, ITALY

AESTHETIC AND COSMETIC DERMATOLOGY (LASERS SEPARATE CATEGORY)

INTERRACIAL COMPARISON OF FACIAL SKIN BARRIER AND AGING

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Introduction: Fundamentally, skin is an environmental interface and barrier. To quantify changes in epidermal barrier function with age, two large studies were conducted on female subjects aged 10-80 years across 5 ethnic groups.

Objective: To characterize the physical and molecular properties of facial skin barrier in women of different ethnicities.

Materials and Methods: In one study, we evaluated 1250 female subjects, aged 10-80 (250 each in five ethnic groups: Caucasian, Chinese, African, Indian and Latino, ~36 per decade), at 3 sites (2 US, 1 China); stratum corneum (SC) barrier was assessed using evaporimetry with Trans-Epidermal Water Loss (TEWL) as the metric. A second study evaluated molecular effects of aging in 340 US women aged 20-74 years (~25 women per decade), in 4 ethnic groups: Caucasian, Chinese, African, and Latino. Using facial biopsies, transcriptomic profiling was conducted on RNA extracted from laser-capture micro-dissected epidermis with Affymetrix gene arrays. Bioinformatics analysis of gene expression focused on processes pertinent to SC barrier.

Results: TEWL decreased after age 40-50 across all 5 ethnicities, although Indian and Chinese subjects had overall highest lifetime values (p<0.05). In parallel, maximal expression of epidermal barrier-related genes was recorded in the 50s in the Caucasian, African and Latino groups. The up-regulation of these genes until the 50s suggests the need for higher repair activity due to an accumulation of unrepaired skin damage, as indicated by increased CDKN2A expression, with decreased expression in later years due to intrinsic aging. In contrast, barrier-related gene expression in Chinese women continued to increase with aging. This unique characteristic in Asian subjects may relate to a difference in SC physiology and / or feedback in response to environmental stimulus.

Conclusions: SC barrier changes occurring with aging appear due, at least in part, to











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changes in barrier-related gene expression across different ethnic groups.



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