J Clin Exp Dermatol Res 2016, 7:3 (Suppl)
http://dx.doi.org/10.4172/2155-9554.C1.033



## Organic silicium increases the synthesis of hyaluronan synthase 2 gene transcript coding for the enzyme responsible for native hyaluronic acid production

**Evgeniya Ranneva, Pierre-Antoine Deglesne, Rodrigo Arroy O** and **Philippe Deprez**
Skin Tech Pharma Group, Spain

Organic silicium has been used for decades in mesotherapy procedures; although its beneficial properties for the skin have been widely observed, poor scientific documentations describing the molecular mechanisms involved can be found. An *in vitro* assay has been performed on medical device CE Class III that contains organic silicium associated to resveratrol and viniferins for efficacy assessment on human fibroblast. Cell proliferation following the exposure to the actives in particular conditions has been evaluated. Medical device Class CE III based in organic silicium is able to increase hyaluran synthase 2 gene expression 26 times (corresponding to a 2400% increase). HAS2 in human is responsible of the majority of High Molecular Weight Hyaluronic Acid synthesis. Among the three HAS proteins present in human, HAS2 is the only one essential for life. Hyaluronan synthase 2 protects skin fibroblasts against apoptosis induced by environmental stress. Organic silicium capability to renew extracellular hyaluronic acid content is suggested by its capacity to induce high levels of HAS2 *in vitro*.

drranneva@clinicahera.es

## Acne, microbiome and spicy dietary habits

**Hok Bing Thio**
Erasmus University Medical Center, Netherlands

*Propionibacterium acnes (P. acnes)* play a directive role in the pathogenesis of acne. Other bacteria of the skin microbiota such as the Staphylococcus epidermidis may join the P. acnes in causing the typical acne skin lesions. In addition the gut microbiota could also play a role in acne. This is probably the mode of action of systemic antibiotics in acne. One of the most prominent cells in the pathogenesis of acne is the sebocyte. As we know the sebocytes are stimulated and inhibited by several hormones, not only androgens but also glucocorticoids, progesterone, β-endorphin, MSH and ACTH. Other stimulators of this sebaceous gland lipid synthesis are the lipid mediators' endocannabinoids and linoleic acid, the TRP (V) channel agonists, capsaicin and growth factors including EGF and insulin. In countries with spicy dietary habits such as India, Thailand, Mexico, stimulation of the sebocyte by lipid mediators and/or capsaicin is more prominent. The sebocytes will then transform into lipid/sebum in a more rapid way causing overactive hypertrophic sebaceous glands. This indirectly results in higher numbers of P. acnes. Due to this P. acnes overpopulation a pro-inflammatory state will occur in the sebaceous gland. This will in turn stimulate the innate immune system especially the neutrophils and the Th17 (interleukin-17 producing T-helper lymphocytes). In acne systemic and topical retinoids are able to stimulate/inhibit several intracellular retinoid receptors in sebocytes and the inflammatory/immune cells including the Th17 cells. Not only active acne skin lesions but also acne scar formation could be under influence of specific dietary habits on the microbiota. The formation of cosmetically disfiguring acne scar lesions is not only dependent of the function of the fibroblast but also of the neighboring mast cell which can stimulate the fibroblast by the paracrine action of histamine. Several spices and spicy substances are rich in histamine and histamine-releasers. So the acne patient with spicy dietary habits is probably more prone to formation of more disfiguring acne scar lesions.

h.thio@erasmusmc.nl