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Novel association of ROL- and ROL complex−mediated elastin and collagen expression with epigenetic changes through miRNA regulators

Ramine Parsa, Johnson & Johnson Consumer; Anne-Sophie Brillouet, Vincent Bardey, Corrine Reymermier, Meghan Rushing

Retinol (ROL), the criterion standard in reducing the appearance of aging, helps to clinically delay and reduce the signs of skin aging. ROL helps stimulate collagen and elastin production among many skin benefits through a retinoic-acid-mediated transcriptional activation. In addition to a classic ligand-dependent transcriptional activation, recent studies suggest that epigenetic regulation through microRNAs (miRNAs), specific inhibitors of targeted gene translation, may also play a role in the regulation of skin aging. However, no studies demonstrated ROL's rejuvenating skin benefits could be also associated with epigenetic regulation of miRNAs in human skin. Studies were conducted to discover whether ROL's support in the stimulation of anti-aging biomarkers collagen and elastin could be associated with epigenetic changes in miRNA expression in human skin cells. Human adult fibroblasts were treated with either ROL or ROL complex (a proprietary discovered combination enhancing ROL activity) for up to 72 hours. mRNA, miRNA, and protein expressions were evaluated. ROL and ROL complex helped induce ELN gene expression and type I collagen protein production. Concomitantly, ROL and ROL complex also caused epigenetic changes by reducing the expression of multiple miRNAs known to inhibit collagen and elastin genes expression. Thus, ROL may also exert its rejuvenating skin benefits through epigenetic regulation of both collagen and elastin that supports increases of extracellular matrix proteins. In conclusion, ROL and ROL complex may exert anti-aging skin benefits through a pleiotropic mode of action, uncovering epigenetics as an additional mechanism to explain and enhance its benefits.

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Comparison of SPF50+ and SPF100+ sunscreens on the induction of cutaneous pigmentation over multiple days: A real-world, single-center, randomized, double-blinded evaluation

Indermeet Kohli, PhD, Department of Dermatology, Henry Ford Health System; Cynthia Nicholson, Joshua D. Williams, PhD, InSeok Seo, PhD, Xiaoyan Tian, Evren Atillasoy, MD, Johnson & Johnson Consumer; Henry W. Lim, MD, Department of Dermatology, Henry Ford Health System, Detroit, Michigan; Iltefat H. Hamzavi

Recently, a study evaluating the difference in sunburn protection offered by SPF 50+ and SPF 100+ sunscreens over the course of 5 consecutive days in a beach environment facilitated a unique opportunity to evaluate the protection sunscreens provide against the induction of cutaneous pigmentation. A randomized, double-blinded, split body/face study assessing the efficacy of two broad spectrum sunscreens (SPF50+ and 100+) was conducted in the beach setting of St Petersburg, Florida. Fifty-five healthy subjects (1 phototype I, 22 phototype II, and 32 phototype III; average age 45.2 years [range: 19-59]) were enrolled. Subjects were permitted unrestricted access to test sunscreens and instructed to apply to the designated side as they normally would. Objective assessments of daily and cumulative changes in cutaneous pigmentation were conducted by colorimetry (ΔL^*, Δb^*, ΔITA°) and diffuse reflectance spectroscopy (DRS) (Δ melanin). SPF 100+ sunscreen offered greater protection against pigmentation induction as determined by a lower ΔL^* and an increased Δb^* on the SPF 50+ treated side ($P < .001$), which resulted in a mean ΔITA° of -7.57 on the SPF 50+ side and -5.78 on the SPF 100+ side. This pigmentation differential was supported by DRS assessments indicating greater melanin induction on the SPF 50+ side, Δ melanin (SPF50+ 0.18 ± 0.09 vs SPF100+ 0.15 ± 0.09, $P = .01$). Although pigment formation occurred on both sides, compared with SPF 50+ sunscreen, objective assessments show that the SPF 100+ sunscreen offered significantly greater protection against the induction of cutaneous pigmentation in actual use.

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17956

The suitability of a polyacrylate cross-polymer cleanser for sensitive skin: Clinical, patient experience, and microbiome observations from 17 clinical studies

Jessica Snell, Mark Benn, Toni Anne Lisante, Johnson & Johnson Consumer

Regardless of skin condition, dermatologists often recommend gentle cleansers to remove germs, dirt and oil from the skin's surface. While surfactants are the principal ingredients in cleansing products, these molecules can also penetrate the skin barrier, disrupting its normal structure and function, leading to inflammation, dryness, and irritation. The development of polymeric cleansing technologies provides a new means to improve mildness of cleansing products without sacrificing performance attributes desired by patients. Data was analyzed from 17 clinical studies using a cleanser containing polyacrylate cross polymer cleanser either as the primary test product or as a companion product. In 13 clinical studies totaling over 800 people, the cleanser used as a companion product was considered well tolerated in combination with light therapy, alpha hydroxy acids, beta hydroxy acids, polyhydroxy acids, benzoyl peroxide, retinol, and hexyl resorcinol. In three clinical studies specifically designed to measure product efficacy ($n > 150$) on various skin types including sensitive skin, the cleanser demonstrates either parity or superior efficacy in makeup removal compared with a leading gentle cleanser and was well tolerated. In addition, the effect of the cleanser on the skin microbial community was evaluated and results demonstrated that it did not significantly alter the diversity of the skin microbiome after 4 weeks of use. These data demonstrate that this gentle cleanser was clinically efficacious and well tolerated in subjects of various skin types including sensitive skin using a variety of treatments. When discussing cleansing, this product is a suitable recommendation for all patients including those with sensitive skin.

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The quantification and measurement of nasal hairs in a cadaveric population

Christine Pham, BS, School of Medicine, University of California, Irvine; Bobak Hedayati, Kiana Hashemi, Ella Csuka, Margit Juhasz, Natasha Atanaskova Mesinkovska, University of California, Irvine

Background: Alopecia areata is an inflammatory condition associated with hair loss of the scalp, eyelashes, eyebrows, and nostrils. Many alopecia patients have experienced increased allergies, upper respiratory infections, and dryness due to the lack of nose hairs. The quantification of nasal hairs and the effects of lack of nasal hairs on a patient's quality of life has yet to be assessed.

Objective: To quantify the amount of nasal hairs in the right and left nostril in healthy controls and measure the distance of nasal hair growth distally to proximally.

Methods: A cross-sectional study was conducted with cadavers at a medical school in southern California. Information regarding patient demographics, cause of death, and concomitant diseases were collected. Individual nose hairs were counted in each nostrils. Using a measuring tape, the distance of nasal hair growth from the distal nostril tip to the proximal nostril was measured at three different points: upper, lateral, and lower nostril.

Results: Twenty cadavers (10 male, 10 female, mean age: 83.45 ± 13.82) were included. The average left and right nasal hair counts were 120 and 122.2 ($P > .05$). The left and right nasal hair growth distances were, respectively: upper: 0.905 cm vs 0.945 cm; lateral: 1.035 cm vs 0.945 cm; and lower: 0.81 cm vs 0.825 cm ($P > .05$).

Conclusions: These data demonstrate that the average nose hair count per nostril is around 120-122.2 while the distance that nose hairs grow proximally range from 0.81 to 1.035 cm. Future directions include collection of cross-sectional data of patients of various ages.

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