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Enhancing cell energy and improving cell defense against stress with a new cell energizer

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Oxidative stress and glycation are recognized as key factors in skin aging. Because cell energizers can play an essential role in mitochondrial energy synthesis and antioxidative stress protection, we were interested in developing a new cell energy-inducing active ingredient (CE) and testing its effect on cultured cells and ex vivo human skin. Total cellular ATP was evaluated in dose course studies and showed that fibroblasts treated with the new CE for 3 hours exhibited an increase in cellular ATP of 57%, 63%, and 42%, when treated with 0.5%, 1%, and 3% of CE, respectively. Moreover, time course studies showed an increase in cell ATP of 17% at 1 hour, and 67% at 3 hours of treatment with 1% of CE. Interestingly, additional studies showed that cells treated with 1% of CE exhibited a 30% decrease in protein carbonylation. Similarly, after ultraviolet light stress with 50 mJ/cm² of UVB light, or after a stress with 2 mM of H₂O₂, a decrease of 20% in protein carbonylation was found in CE-treated cells, in addition to a net decrease in the apoptosis marker annexin V. Parallel studies were performed on ex vivo human skin, treated with 1% of CE and then exposed to UVB irradiation with 100mJ/cm², or to glycation stress with 5 mM or 10 mM of methyl glyoxal. Hematoxylin-eosin staining of ex vivo skin samples treated with CE confirmed the above mentioned results by revealing a clear protection of skin structure from UV and glycation damage, compared to the untreated skin. These studies demonstrate the interesting antiaging effect that this new active ingredient possesses by enhancing cell energy and ATP synthesis, and by considerably improving cell protection from oxidative and glycation damage.

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A dermatologic evaluation of the tolerance and efficacy of a topical antioxidant composition containing vitamins C, E, and ferulic acid

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Some of the major changes taking place in the skin as part of the aging process are related to environmental factors, particularly solar exposure. Chronic exposure to sunlight causes the generation of oxidative stress in the skin, resulting in impaired mechanical and biophysical properties of the skin. Clinical symptoms include fine lines and wrinkles, pigmentary changes, and the loss of skin elasticity and firmness. Antioxidants have been shown to reduce the negative effects of ultraviolet light damage by counteracting the generation of oxidative stress in the skin. The objective of this study was to determine the efficacy and tolerance of an antioxidant product in subjects with facial fine lines and wrinkles. Thirty-five female volunteers between the ages of 30 and 60 years with facial fine lines and wrinkles and those with self-perceived sensitive skin and frequent break-outs were enrolled in 24-week single-center, controlled clinical usage study. During the course of the study, volunteers applied the topical antioxidant composition containing vitamins C, E, and ferulic acid to the face twice per day (each morning and night) after cleansing. Volunteers were given cleanser and sunscreen (SPF 20) to substitute for their regular skin care products until the study completion. At the baseline visit, volunteers were graded by a dermatologist for fine lines, wrinkles, poor skin texture, lack of skin smoothness, and firmness using a 9-point visual scale. Objective and subjective irritation symptoms were assessed using a 9-point scale. Biinstrumental measurements for erythema, melanin, and skin firmness were also obtained at the baseline visit. Volunteers returned at weeks 4, 8, 12, 18, and 24 for repeat grading and instrumental measurements. Volunteers completed self-assessment questionnaires at each study visit. Results demonstrated that the topical antioxidant composition containing vitamins C, E, and ferulic acid is well tolerated and significantly improves fine lines, skin texture, firmness, and smoothness of the skin.

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Multi-center, clinical evaluation of a broad-spectrum sunscreen moisturizer containing a new photostable UVA/UVB complex for the treatment of photodamaged facial skin

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The primary preventable cause of photoaging is exposure to ultraviolet A light (UVA) radiation. This important wavelength emitted by the sun is present year-round at all latitudes. At present, the majority of the sun protective products provide excellent UVB protection with minimal UVA protection. New developments in raw material science have led to the manufacture of novel ingredients that are able to provide unprecedented photoprotection in the UVA spectrum. The most significant development in cutaneous UVA protection was the discovery of ecamsule, a chemical with the ability to enhance the stability of avobenzone while functioning as a sunscreen. This study was designed to evaluate the effectiveness and tolerability of this new SPF-15 moisturizer containing a new complex of broad-spectrum sunscreen on facial photodamage. A 12-week, multicenter clinical study of females, aged 35 to 65 years, with mild to moderate periocular fine and coarse wrinkles and facial dyschromia was conducted. The volunteers, Fitzpatrick skin classifications II to IV, used the SPF-15 moisturizer every morning, and as needed during the day. A multidimensional approach was used to assess moisturizer efficacy and tolerance at baseline (pretreatment) and weeks 2, 4, 8, and 12 posttreatment. This included clinical assessment, noninvasive bioengineering methods, digital imaging, and subject self-assessment questionnaires. Clinical assessment included evaluation of fine and coarse wrinkles, overall skin radiance, tactile roughness, and dyschromia. Bioengineering methods included skin moisture measurements, brightness and color, visco-elastic properties, and Silfo replica of the periocular roughness and wrinkle properties. Multispectral digital images were taken of each side of the face to evaluate visual efficacy. Self-assessment questionnaires were administered to evaluate the perceived efficacy and tolerance by the subjects. Statistically significant improvements relative to baseline were observed over the course of the study for all clinical assessment parameters, skin hydration, skin softness, skin elasticity, and skin brightness. Image analysis of the periocular region revealed a skin smoothing effect with diminished wrinkling. Visco-elastic properties improved both in skin softening and elasticity. Digital images showed overall improvements in photodamage properties. Objective and subjective symptoms of irritation assessment revealed that the SPF-15 moisturizer was exceptionally well tolerated.

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High persistency of Glymatrix collagen in the correction of facial wrinkles after 15 months

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Collagen has been used as a dermal corrective agent for nearly 30 years. In the past, the major source of collagen (bovine), and an inability to efficiently remove allergenic telopeptides, resulted in a constant proportion of patients suffering from allergic reactions. In addition, early collagen lacked structural resemblance to native human collagen, which led to higher biodegradation and decreased longevity. Through a patented purification and cross-linking process, the new generation Glymatrix technology not only establishes a latticed collagen product of porcine origin similar to human, but also one that is highly resistant to biodegradation and one that does not require a skin test because of the extremely low risk of hypersensitivity. Glymatrix collagen results from two, open-label, similarly designed, clinical studies were pooled to evaluate the 15-month persistency of this new dermal filler in the correction of nasolabial folds. A total of 66 male and female subjects were followed for 12 months and 52 were evaluable at 15 months. The persistence (change in the Modified Fitzpatrick Wrinkle Scale [MFWS] of >1) of the cosmetic effect was rated through an evaluation of digital photographic images by three blinded, independent physician assessors at the baseline visit (visit 4; before and after correction) up to 12 months (visit 10), and 15 months (visit 11). Patients could elect to continue in the study following their 12-month visit. More than 80% of subjects met persistency criteria at 15 months. In addition, subject satisfaction with their correction was 82% at 12 months and 62% at 15 months. The majority of adverse events were of mild or moderate severity and were of the type typically associated with dermal correction. No allergic reactions occurred. No subjects were withdrawn from the study because of adverse events.

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