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## STUDIES LIST Visioscan® VC 98

*H. Tronnier, M. Wiebusch, U. Heinrich, Results of the Skin Surface Analysis by Means of SELS, Akt. Dermatol. 23, 1997*

Surface evaluation of living skin (SELS) is a new optical-photoanalytical process. Four important parameters, determining the surface structure of the skin (scaling, roughness, wrinkling status and smoothness) can be recorded simultaneously. At the same time the image of the studied skin area can be used either directly or converted to colors chosen arbitrarily to represent different temperatures. The usefulness of the method is shown through examples of relevant influences on the skin surface and their effect on the SELS values, as well as by the results of comparative treatments of several weeks`duration. Constitutional, topical and age dependant skin surface structures can also be recorded by means of this method.

*H. Tronnier, M. Wiebuch, U. Heinrich, R. Stute, Surface Evaluation of Living Skin-SELS. Experimental Dermatology-Vo. 6, No.5, 10/1997*

*H. Tronnier, M. Weibusch, U. Heinrich, R. Stute, Surface Evaluation Of Living Skin. 3rd Int.Symposium on Cosmetic Efficacy, May 1998*

*H. Tronnier, Ergebnisse der Hautoberflächenanalyse mit SELS. Kosmetische Medizin Nr. 5, 1998*  
Nach einer Beschreibung des Meßprinzips und der Durchführung der SELS-Methode sowie einem Eingehen auf bereits publizierte Studienergebnisse wird über 3 weitere Untersuchungsreihen berichtet. Dabei konnte gezeigt werden, daß die glätte der Haut  $SE_{sm}$  mit einer Verbesserung der zellulären Kohäsion korreliert ist.

*H. Tronnier bsr, Beitrag zur Hautverträglichkeit von Körperpflegemitteln. Kosmetische Medizin 6/1999*

Wenn auch die Zahl der Nebenwirkungen durch kosmetische Präparate und Körperpflegemittel, vor allem der allergischen, sehr gering ist, gibt es doch gerade bei empfindlichen Patienten Hautzustände, für die eine weitere Maximierung der Verträglichkeit für den Dermatologen wünschenswert ist.

*H. Tronnier, Results of the Skin Surface Evaluation, Cosmetics&Toiletries Manufacture Worldwide 1999.*

After a description of the measuring principle, the equipment and the realization of the SELS-Software as well as after dealing with already published study results, there will be a report also about three more analysis series. Thus it was possible to show that the smoothness of the skin  $S_{esm}$  has correlated with an improvement of the cellular cohesion.

*A.O.Barel, K.Alewaeters, P.Clarys, Optical Imaging Using UV Light for the Determination of Photoageing. Skin Research and Technology, Vol.5 No. 2, May 1999*

*P.Clarys, K.Alewaeters, A.O.Barel, Comparative Study of Skin Color Using Different Bioengineering Methods. Skin Research and Technology, Vol.5 No. 2, May 1999*

*H.Tronnier, U.Heinrich, Diagnostik und Behandlungskontrolle seborrhoischer Kopfschuppung mit bildanalytischem Verfahren.* Kosmetische Medizin, 2 Mai 1999-07-15

Nach kurzem Eingehen auf die Klinik der (seborrhoischen) Kopfschuppung und ihre Pathogenese sowie die Therapie wird auf die konischen Nachweisverfahren auf der Kopfhaut hingewiesen. Eine neue bildanalytische Methode, basierend auf älteren Untersuchungen, wird beschrieben. Gemessen wird dabei die Schuppenzahl (SZ), die durch Schuppen bedeckte Meßfläche (SF), aus denen sich eine relative Schuppengröße errechnen läßt (SG). Außerdem werden prozentual die Schuppengrößen in 9 Klassen ausgewiesen.

*E. Thumm, E.G. Jung, Ch. Bayerl, Überprüfung der Auswirkung von Kosmetika auf Hautrauhigkeit, Feuchtigkeitsgehalt und Barrierefunktion der Haut.* Kosmetische Medizin 3 Juni 1999

In einer seitenkontrollierten Studie wurde drei Kosmetikpräparate auf liposomaler Basis hinsichtlich ihrer Auswirkung auf a)Hautrauhigkeit (Skin Visiometer SV 500), b) den Feuchtigkeitsgehalt des Stratum corneum (Corneometer CM825) und c) die Hautbarrierefunktion bzw. den transepidermalen Wasserverlust/TEWL (Tewameter TM 210) untersucht.

*M. Puschmann, A. Melzer, H.P. Nissen., Hautglättende, hautelastische und hautschützende Wirkung einer Urea-Ceramid-Kombination.* Kosmetische Medizin Nr. 4, 1999-11-22

Sebstase ist ein häufiges dermatologisches Krankheitsbild. Sie wird durch exogene Faktoren, (Klima, Waschgewohnheiten) und/oder konstitutionelle Faktoren wie Alter und atopische Hautdiathese hervorgerufen. Eine auffällige Häufung derartiger Symptome findet sich in der kalten Jahreszeit. Hier ist das Klima (Temperatur, Luftfeuchtigkeit) sowohl im Freien als auch in den Gebäuden als wichtiger Kofaktor anzusehen. Zur Therapie trockener Haut werden traditionell Salben/Fettsalben, Ölbäder sowie harnstoffhaltige Zubereitungen eingesetzt.

*H. Tronnier, Wirksamkeit von Kosmetika – Anspruch, Wirklichkeit und Perspektiven,* 13. Symposium der DGK Bad Neuenahr, 1999

*H.E.Packham, c.L. Packham, Skin Bioengineering as a Contribution to Product Performance and Safety.* Cosmetics & Toiletries 03/2000

*J.W.Wiechers, C.Oakley, V.Wortel, T.Barlow, Comparison of Skin Colour Measuring Methodologies on Asian Skin.* Personal Care Ingredient Asia Conference, Bangkok, March 2000.

*H.E.Packham, Skin Bioengineering as a Contribution to Product Performance and Safety,* C&T, 2000

*A. Castro, Sericina en Preparaciones Capilares para Cabellos Danados: Medida de su Efectividad,* Magazine Actualizaciones Terapéuticas Dermatológicas y Estéticas, Vol. 25 No. 3, 2001

*C.Piérard-Franchimont, G.E.Piérard, Postmenopausal Aging of the Sebaceous Follicle: A Comparison between Women Receiving Hormone Replacement Therapy or Not.* Dermatology 07/2002

The endocrine control of sebaceous follicles is complex in women. During aging, a decline in sebum output is often experienced. However, some women report increased seborrhea after the menopause.

*H. Tronnier, Effects of Textiles on Human Skin,* SÖFW Journal, 128. Jahrgang 4-2002

Very often, the people concerned as their employers make detergent residues in clothes responsible for skin reaction to textiles. Sometimes allergies are suspected.

*A. Pagnoni, Photoaging and Photodocumentation,* Cosmetics & Toiletries, January 2002, Vol. 117, Nr. 1

Techniques to photograph or image skin photodamage have reached new levels of sophistication. This survey discusses clinical grading, light imaging techniques, videomicroscopy and threedimensional in vivo measuring systems.

*M. Boeninger, Comparison of Three Methods for Determining Removal of Stratum Corneum Using Adhesive Tape Strips*, International Conference on Occupational and Environmental Exposures of Skin to Chemicals, September 8-11 2002, Hilton Crystal City, Washington DC

Adhesive tape stripping has been used to remove layers of the outermost stratum corneum from the skin. These tapes can be used to measure the physical condition of the skin, or for quantifying exogenous and endogenous compounds present within the skin.

*JS Burry, RL Evans, AV Rawlings, Effects of antiperspirants on whole body sweat rate and thermoregulation*, Posters of the 22nd IFSCC Congress, Edinburgh 23.-26. Sep. 2002

*Nils Krüger, Lucy Fiegert, Dagmar Becker, Tilman Reuther, Martina Kerscher, Spurenelemente in Form eines Kupfertripeptidkomplexes*, Kosmetische Medizin, 1/2003, 24. Jahrgang

In den letzten Jahren wurde eine Reihe von neuen dermatokosmetischen Wirkstoffen entwickelt, um Hautalterungssymptome zu bessern. Neben konsequentem Lichtschutz, Retinol und Antioxidantien werden jetzt auch in Deutschland Spurenelemente bei Hautalterung eingesetzt. In der hier vorgestellten offenen, kontrollierten Untersuchung an 40 Probanden zeigte sich bei topischer Applikation von Kupfertripeptid eine Zunahme der Hautdicke in der 20MHz-Sonographie, eine verbesserte Hydratation der obersten Hautschichten gemessen mittels Corneometrie sowie eine im Vergleich zu Retinol und Placebo signifikant stärkere Glättung der Haut, erfasst mit dem Visio-Scan.

*Astrid Castro de Castro, Sericina en preparaciones capilares para cabellos danados: medida de su efectividad*

El cabello humano está sometido a una agresión ambiental que contribuye a causar degradaciones químicas y estructurales. Se diseñaron dos preparaciones con Hidrolizado de Sericina: champú acondicionador y ampolla revitalizante. Se estudiaron 20 pacientes con cabellos dañados, observándose el daño mediante un Visiscan VC 98. Cada paciente usó: champú y ampolla 3 veces/semana/30 días.

*Thomas Förster, Henkel KgaA, Cosmetic Lipids and the Skin Barrier*, 2001 by Marcel Dekker

There is no doubt that the application of cosmetic lipids has many positive effects on the structure and function of the skin. These effects are pleiotropic, caused either by direct interaction with the epidermis, particularly the stratum corneum, or indirectly, by influencing the physiologic, homeostatic condition of the skin.

*R. Pena Ferreira, P. Costa, F. Bahia, Visioscan VC 98 application: a comparison study between coarse and smooth skin surface*, Skin Research and Technology, Vol. 9, No. 2, May 2003

The skin is a result of many biochemical and physical factors and these are subject to changes both internally and externally. What is aging? Must we define aging in terms of the appearance of people in our life experience. Others studying aging mechanisms define aging as a decrease in functional capacity. In the last few years, a great deal of data has been generated on aging mechanisms trying to determine if the aging process is a single event, a one-gene process, or a multifaceted process produced by many events and perhaps many genes.

*H. Tronnier, M. Wiebusch, U. Heinrich, Frictiometry on human skin*, Skin Research and Technology, Vol. 9, No. 2, May 2003

The state and function of human skin can be quantified by numerous non-invasive test methods. There are, however, still no valid methods to measure the tactile properties of the skin surface and thus to quantify the state of the skin on the one hand, and to determine the negative and positive effects of tactile influences on the other hand. The measuring device (Frictiometer) consists of a sensor, a steering unit and a monitor. The torque, the circular friction on the skin surface, is measured via the motor load current and is shown as a voltage drop.

*L. Orejarena, A. Castro, Evaluación de la efectividad hidratante de diferentes sustancias y su estabilidad física*, Actualizaciones Terapéuticas, dermatológicas y Estéticas, Nov.-Dic. 2002, Vol. 25

La resequedad de la piel tiene diversos orígenes: disminución de lípidos, pérdida de agua transepidérmica, factores hormonales, genéticos, medicamentosos, ambientales. Conociendo que esta condición es una de las más tratadas por especialistas, y que infinidad de productos dermocosméticos especifican ser hidratantes, sin evaluación de efectividad ni estabilidad, nos propusimos evaluar la actividad de diferentes hidratantes, en varias bases.

*H. Lambers, H. Pronk, S. Piessens and E. Voss, Natural human skin surface pH is on average below 5, Gordon Conference, Aug. 2003*

The acidic surface pH and the pH gradient over the stratum corneum (SC) are important for optimal condition of the skin, supporting the following functions: regulation of skin microflora, thereby preventing pathogenesis, optimal structure and function of the lipid barrier, optimal stratum corneum homeostasis.

*A.G. Shepky, A. Bürger, G. Rudolph, M. Max, U. Koop, J. Ennen, M. Kuhn, A. Schölermann, F. Rippke, Mild keratolysis by topical application of proteolytic enzyme subtilisin,*

The proteolytic enzyme subtilisin offers a novel, especially mild way of keratolysis, obtained already in low concentrations and within the normal pH-range of the skin. The highly purified protease subtilisin from *Bacillus subtilis* degrades the bonds between the corneocytes and promotes the release of peptides and amino acids as natural moisturizing factors.

*U. Heinrich, H. Tronnier, Johanniskraut-Extrakt zur Pflege der atopischen Haut, Kosmetische Medizin, Ausgabe 3-4/2003, 24. Jahrgang*

Die Bedeutung einer wirkungsvollen Hautpflege mit subakuter atopischer dermatitis sowie auch Personen mit trockener empfindlicher Haut konnte in zahlreichen Untersuchungen nachgewiesen werden. Neben einem besseren Hautgefühl können Juckreiz, Rauigkeit, Rötung und Trockenheit deutlich vermindert werden. Gleichzeitig werden heute die angenehmen galenischen Eigenschaften einer kosmetischen Hautpflege verlangt.

*M. I. Nogueira de Camargo Harris Propriedades biomecânicas da pele, Pele : estrutura, propriedades e envelhecimento, Editora Senac, Sao Paulo, 2003.*

A biometrologia cutânea, ramo da ciência que avalia quantitativamente as propriedades biomecânicas da pele, tem encontrado na cosmetologia um importante aliado, pois o apelo mercadológico dos produtos destinados aos cuidados com a pele e com os cabelos tem-se baseado cada vez mais em evidências científicas e técnicas sensíveis, precisas e validadas, ao invés de serem fundamentadas em especulações.

*R. Pena Ferreira, P. Costa, F. Bahia, Visioscan VC 98 application: a comparison study between coarse and smooth skin surface, Skin Research and Technology, Vol. 9, Nr. 2, May 2003, "Abstract Nr. P91".*

The skin is a result of many biochemical and physical factors and these are subject to changes both internally and externally. What is aging? Most of us define aging in terms of the appearance of people in our life experience. Others studying aging mechanisms define aging as a decrease in functional capacity.

*H. Tronnier, B. Garbe, M. Herling, M. Wiebusch, U. Heinrich, Nicht-invasive Testverfahren an der Kopfhaut, Ästhetische Dermatologie, 2 2004, S. 30-37.*

Zum Nachweis vorliegender Hautzustände oder Funktionen sowie ihrer Änderungen unter dem Einfluss interner Faktoren oder externer Maßnahmen im positiven (zum Beispiel Wirksamkeit) oder negativen Sinn (zum Beispiel Verträglichkeit) gibt es zahlreiche nicht-invasive Testmethoden. Sie können zum großen Teil modifiziert oder mit Vorbehandlung (zum Beispiel Rasur) auch an der behaarten Kopfhaut eingesetzt werden.

*M. Fröschle, R. Pliiss, K. Bojarski, A. Peter, Antiaging Effect with Cosmotropic Substances, SÖFW-Journal, 130, 4 2004, S. 36-43.*

Water is one of the most important and limiting factors for plants, animals and humans. The human being consists of 60-65% water and loses daily up to several liters through the skin. The regulation of water content is therefore very significant. Plants especially have developed fascinating physiological and structural strategies to minimize water loss and survive periods of dryness.

*P. J. Dykes, R. Marks, **Unfolding or True Extension? The Mechanism and Importance of Stratum Corneum Compliance**, Stratum Corneum IV, Paris, 17.-19. Juni 2004.*

-1y, 2y and 3y skin surface lines

-Role in stratum corneum compliance

- What happens to these lines on deformation (see pictures included)

- Stretched stratum corneum (see picture) etc.

*H. Lambers, S. Piessens, A. Bloem, H. Pronk, P. Finkel, E. Voss, **Natural skin surface pH is on average below 5, which is beneficial for its resident flora (abstract)**, Skin Research and Technology 10, Abstracts, 2004.*

The acidic surface pH as well as the pH gradient over the gradient over the stratum corneum (SC) are important for a good skin condition, supporting optimal structure and function of the lipid barrier and SC homeostasis.

*P. Quatresooz, L. Petit, I. Uhoda, C. Pierard-Franchimont, G. E. Pierard, **Mosaic subclinical melanoderma : An Achilles heel for UV-related epidermal carcinogenesis**. International Journal of Oncology 25: 1763-1767, 2004.*

Cutaneous cancers are not uncommon on the face of elderly patients. Melanin should protect, at least in part, against the ultraviolet (UV)-induced neoplastic damage. However, the density in melanin chromatophores is heterogenous in the epidermis of Caucasian adults. The computerized UV light-enhanced visualization (ULEV) method is a sensitive tool to assess non-invasively this mosaic pattern of intra-epidermal melanin load.

*R. Debowska, K. Rogiewicz, T. Iwanenko, I. Eris, **Folic Acid (Folacin) – New Application of a Cosmetic Ingredient**, Kosmetische Medizin 3/2005, pp. 16-22. \**

Many years of trials and research tests proved that a lot of well-known vitamins could be successfully used in cosmetology. The available data indicate that one of them – folic acid plays an important role in life process of mitotically active tissues and its deficiency increases background level of DNA damage.

*C. Vincent, M. Szubert, I. Eris, K. Rogiewicz, **Comparison of microtopography and profilometry-two methods of skin surface analysis**, Poster presentation Centre For Science And Research Dr. Irena Eris, 2005.*

The process of skin aging is connected with progressive changes in skin structure. The most spectacular effect of skin aging are wrinkles and progressive unevenness of skin surface. Skin of elderly people is thin and fragile due to complex changes very often summarized to reduced dermal collagen and decreased cell proliferation.

*Sonnen-Apotheke, Kötzing, **Dermokosmetik**, Beratung in der Apotheke, PTA Nr. 11, Oktober 2005.*

Eine gute Unterstützung bei Promotionaktionen zum Thema „Hautpflege“ sind Hautanalysegeräte. Sie erleichtern den Einstieg in die Beratung, individuell auf den Hauttyp und Hautzustand der Kundin oder des Kunden abgestimmt.

*Hristo Dobrev, **Clinical and instrumental study of the sebum regulation efficacy of REGU®-SEB**, Poster Presentation at the EADV in London, October 2005.*

Excessively oily facial skin is due to overactive sebaceous glands and can occur in both males and females. The skin is greasy and shiny, with large open pores, feels unpleasant and may be a serious cosmetic problem. Moreover, this type of skin is sensitive and much more prone to acne and seborrhoeic dermatitis. That is why the control over the excessive oiliness is very important.

*Dr. G. Varju, Dr. G. Garay, **Surface Evaluation of Living Skin (SELS) during Microdermabrasion Treatment Course**, Poster Presentation, Dr. Derm Laser Center of Dermatology, Budapest Hungary, 2005.*

Microdermabrasion has become a popular method of skin rejuvenation for treating photodamage, fine rhytides, age spots, dyschromia, enlarged pores and mild acne. This procedure is one of the newest skin rejuvenating techniques employed to help improve the texture and appearance of the skin.

**H. Dobrev, The Effects of topically applied Matrixyl, natural grape seed and avocado oils on skin surface, hydration and elasticity**, EADV, May 2005, Sofia, Bulgaria (abstract). \*

Background: Matrixyl is a lipophilic pentapeptide that stimulates the collagen synthesis by fibroblasts in the skin. The grape seed extract is rich in flavonoids which are powerful antioxidants. Avocado oil consists predominantly of unsaturated fatty acid glycerides, vitamins and minerals, and has good emollient properties.

**H. Dobrev, Evaluation of the efficacy of a Rooibos Extract containing anti-wrinkle cream**, EADV, May 2005, Sofia, Bulgaria (abstract). \*

Background: Rooibos plant possesses scientifically proven anti-oxidative, anti-allergic, anti-microbial and anti-inflammatory features. Aim: To evaluate the efficacy of a Rooibos extract containing cream on aged facial skin using in vivo skin bioengineering techniques.

**K. Schweikert, V. Kalhöfer, B. Gabard, Improving the properties of Hyaluronic acid on dry skin**, Personal Care, Nov. 2005, pp. 35-39.

The effects of two cosmetic actives intended for the treatment of skin dryness (Hyaluronic acid and the new Tamarindus indica seed extract) were evaluated in five healthy volunteers by objective measurements after twice daily application on the skin of the volar forearm for two weeks.

**Hristo Dobrev, Evaluation of dry Skin: a comparison between visual score, corneometry and image analysis**, Poster presented at the 16<sup>th</sup> Congress of the EADV, 5/2007

The term "dry skin" describes a skin condition characterized by reduced quantity and/or quality of moisture and/or lipids. The visible symptoms of dry skin are roughness, scaling and reduced elasticity. In addition, patients complain about tightness and itching.

## PHARMAZIE

### Kosmetika

#### Wirken sie wirklich?

von Ulrike Heinrich, Witten

#### **Bei der Beurteilung kosmetischer Produkte im Hinblick auf ihre Wirksamkeit gehen die Meinungen oft weit auseinander. Ist ihre kosmetische Wirksamkeit wissenschaftlich erwiesen oder steht sie nur als vollmundiger Werbeslogan im Vordergrund?**

Für die Herstellung und Vermarktung kosmetischer Produkte gelten heute genaue Vorschriften, sowohl auf nationaler als auch auf internationaler Ebene. Sie beziehen sich vor allem auf die Verträglichkeit und den Nachweis der Wirksamkeit dieser Produkte. Die EGKosmetikrichtlinie befasst sich in Artikel 7a mit dem Nachweis kosmetischer Wirkungen. Er muss erbracht werden, wenn dies auf Grund der Beschaffenheit des Erzeugnisses oder der angepriesenen Wirkung gerechtfertigt ist.

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#### **Nicht invasive Testverfahren am behaarten Kopf**

Hagen Tronnier 10. MFDK München, 04.12.2004 ( PPT )

Enleitung

Messung der (seborrhoischen) Kopfschuppung  
Photo-Trichogramm  
Messung von Haardichte und -qualität

### Original Contributions

## A novel micronutrient supplement in skin aging: a randomized placebo-controlled double-blind study

**Alain Béguin**

*Skin Testing Department, Intercosmetica Neuchâtel SA, Neuchâtel, Switzerland*

### Summary

*Background* Skin aging, a combination of intrinsic and environmentally induced Processes, predominantly ultraviolet (UV) light from the sun, results in characteristic tissue alterations, such as the degradation of collagen and the formation of visible fine lines and wrinkles.

*Objective* To test the efficacy and safety of a novel micronutrient supplement (Estime) in skin aging.

*Methods* A 4-month randomized double-blind controlled study including 40 subjects where the supplement was tested against placebo for 3 months followed by a 1-month supplement-free period for both groups to assess lasting effects. Efficacy measurements included skin surface evaluation, ultrasound measurement of sun-exposed and protected areas of the skin (back of the hand and ventral forearms, respectively), and photographic assessment.

### *Results*

All investigated parameters showed a continuous and significant improvement in the active group during the 3 months of supplementation as compared to placebo. Photographs showed visible improvement of the overall skin appearance and reduction of fine lines. Ultrasound measurements showed an increase in dermis density of up to 78% in the active group ( $P < 0.0001$ ). The final assessment after 1 month without supplementation showed no further improvements, but a slight decrease was observed in most improved parameters. No treatment-related side effects were reported.

### *Conclusion*

The study demonstrated that the supplement appears to be effective and safe as an oral supplement to protect the skin and support its repair process. Recommendations are made for further evaluations.

*Keywords* aging, Estime®, micronutrients, microscar, skin, UV

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### **Assessment of Age-Related Differences in Skin Surface, Hydration, Sebum and pH;**

*Marta O. Ferreira, M. Helena Amaral, Paulo C. Costa, M. Fernanda Bahia; Ifssc Barcelona 2008*

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. It is composed of two main layers: the epidermis and the dermis. The stratum corneum is the outermost layer of the epidermis and is the most important in terms of protection against damage and aesthetic appearance of the skin. The hydro-lipidic film of the stratum corneum, which consists mainly of sebum excreted by the sebaceous glands and moisture components excreted with sweat, protects the skin from drying out, keeps it supple and due to the natural acid protection

barrier it prevents the penetration of harmful external substances.

#### **In Vivo Assessment Of Ectoin: A Randomized, Placebo-Controlled Clinical Trial;**

*Heinrich U, Garbe B, Tronnier H.; Ifsc Barcelona 2008;*

The objective of this study was to determine the anti-aging properties of Ectoin with special regard to its compatibility and efficacy. For this purpose 104 voluntary female participants were included in a monocentric, randomized, double-blind application test. Moisturizing properties, skin surface structure and skin elasticity were tested, comparing Ectoin (2 %: Treatment B) to a reference emulsion (Treatment A) versus an untreated control. None of all treated participants showed side effects during the study. The gained results of this study display that the natural cell protection concept of Ectoin is transferable to skin care

#### **Study of the Inter-Relations between Skin Surface Parameters, Hydration, Sebum and pH**

*Marta O. Ferreira, M. Helena Amaral, Paulo C. Costa, M. Fernanda Bahia; Ifsc Barcelona 2008*

Skin is the body's largest organ and constitutes a formidable physical barrier that protects us from the environment [1]. Several biophysical techniques are commonly used to study the skin properties and to measure the in vivo skin effects of cosmetics, topical medicaments and chemical irritants [2,3]. The Corneometer® (a capacitance method) measures skin hydration, the Sebumeter® (a photometric method) measures the sebum of the skin and the Skin-pHMeter ® (a potentiometric method) measures the pH of the skin [4]. The Visioscan® VC98 connected to the software SELS (Surface Evaluation of the Living Skin) can measure several skin surface parameters [5]. This apparatus consists of a special b/w video sensor chip with very high resolution, an objective and an UVA-light source.

#### **Stability and Clinical Efficacy of Cosmetic Formulations Containing Different Peptides;**

*Glasiela Lemos Anconi, Patrícia Maria Berardo Gonçalves Maia Campos; Ifsc Barcelona 2008*

Wrinkles, as a sign of skin aging, have an important social impact, especially because of longer lifetimes and more frequent social relationships; consequently, they are an important factor influencing our way of communication. Wrinkles represent the more evident outcome of cutaneous ageing. Their onset is linked to a variety of events, resulting from both chrono- and photoageing. Both *intrinsic* (hormones, racial and genetic factors, oxidative stress, systemic disease) and *extrinsic* (temperature, air pollution, smoke, alcohol) factors worsen skin condition. However, wrinkles deriving from skin texture, or micro-relief, modification afflict women more than all other wrinkles as signs of ageing in the common mind.

#### **Bi-Functional Study of Ion Calcium in the Skin**

*Silvia H. Pérez Damonte1, Claudia Liliana Selem, Claudia Groisman; Ifsc Barcelona 2008*

The Calcium ion has an important function in the skin. Its gradient plays a role in regulating epidermal growth and differentiation *in-vivo*. In the intact epidermis, the extra cellular calcium content is low in both, malpighi and spinosum strata, but increases from the inner to the outer layer of the stratum granulosum [1]. Also, the calcium ion participates in the formation of the epidermal desmosomes, fibroblasts and keratinocytes, which provide the integrity and firmness of the skin [2]. All of these factors are important for the correct function of the epidermal barrier.

#### **Safety Assessment for Nickel in Cosmetics; Silvia H Pérez Damonte; Ana Maria Martín; Marta Edit Daraio ; Ifsc Barcelona 2008**

Many environmental chemicals produce contact hypersensitivity or local inflammatory responses in the skin. Nickel released from metal objects is well known as a sensitizing agent in humans. Since the initial damage caused by nickel remains to be the leading cause of skin disorders such as allergic contact dermatitis worldwide, the aim of this study is to investigate if the content of nickel in cosmetics could produce such reactions.

**Clinical efficacy of cosmetic formulations containing *Myrtus communis* extract;** *Patricia M. B. G. Maia Campos; Flavio Bueno de Camargo Junior; Sabrina M. Bertucci; Emeline Esteves de Oliveira; Glasiela Lemos Anconi; Lorena Rigo Gaspa; Ifscc Barcelona 2008*

The Research & Development of cosmetic products that are able to act in skin ageing alterations has been a challenge in Cosmetic area. This way, a great number of botanical extracts have been proposed as active ingredients for anti-ageing cosmetic development. *Myrtus communis* is a plant rich in polysaccharides, essential oils, flavonoids, among other substances. Some studies showed that its different hydroalcoholic extracts have a potent antioxidant activity mainly due to the presence of polyphenols. *Myrtus communis* leaves hydrolyzed extract has been proposed as cosmetic ingredient with anti-ageing properties because it is rich in galacturonic acid, ramosse, galactose, glucose, xylose and fructose.

**Evaluation of the Safety and Efficacy of Cosmetic Formulations Containing *Saccharomyces cerevisiae* Extract and Vitamins;** *Lorena R. Gaspar, Flavio B. de Camargo Jr, Mirela D. Gianeti, Patricia M. B. G. Maia Campos \**

*\*Universidade de São Paulo - Faculdade de Ciências Farmacêuticas de Ribeirão Preto. Ifscc Barcelona 2008*

There are many substances frequently used in anti-aging products due to their moisturizing, photoprotective and skin barrier effects and among them we can point out vitamin A, C and E derivatives.

Vitamin A palmitate acts on epithelization and on abnormal keratinization [1]. Vitamin E acetate is a free radical scavenger and can reduce DNA damage and keratinocytes death (sunburn cell formation) [2,3] and also can enhance stratum corneum hydration and reduce skin roughness [4]. Tetra-isopalmitoyl ascorbic acid (VC-IP) releases vitamin C in physiological conditions and enhances cellular tolerance against UVB and reactive oxygen species as well as reduces the production of interleukin-1 $\alpha$  and prostaglandin E $_2$  [5].

**Protective Effects Of Turmerones From *Curcuma Longa* Against UVB-Induced Oxidative Stress – Upregulation Of Cellular Defence Systems;** *Michael Wegmann<sup>1</sup>, Peter Lersch<sup>1</sup>, Hans Henning Wenk<sup>1</sup>, Saskia K. Klee<sup>1</sup>, Ursula Maczkiewitz<sup>1</sup> Mike Farwick<sup>1</sup>. Evonik Goldschmidt GmbH. Essen. Germany<sup>1</sup>.*

The human epidermis represents the largest interface of the body that is constantly in close contact to the environment. Therefore, it is especially vulnerable to oxidative stress, which in turn leads to oxidation of cellular macromolecules such as proteins, lipids and nucleic acids. In order to counteract these harmful effects and consequently ensure the redox status of the cell, a plethora of defence mechanisms exists. Fuelled by new research, activities and expression of enzymes of the anti-oxidative defence line is better understood. Two major players during aging and anti-oxidative stress mechanisms are the thiol redox systems driven by glutathione peroxidase (GPX1) and thioredoxin reductase (TXNRD1) [1]. Both systems require redox equivalent in the form of NADPH to restore their full anti-oxidative potential [2,3]. This in-turn is generated by another enzyme named NAD(P)H dehydrogenase (NQO1) that generates NADPH from oxidized NADP<sup>+</sup> by consuming ATP [4]. While the thioredoxin and the glutathione systems neutralize harmful products emerging from the oxidation and peroxidation of bio-macromolecules the defense of reactive oxygen species (ROS) such as hydrogen peroxide which are responsible for most of the oxidative stress on cells exposed for example to UV-irradiation depend on the catalase system. This enzyme eliminates hydrogen peroxide by catalyzing its decomposition to water and oxygen [5].

*Hagen Tronnier, Mathilde Wiebusch, Ulrike Heinrich; First Skin-Physiological Tests in Weightlessness in the ISS Space Station;* IFSCC Magazin – vol. 11, no 3/2008

A prolonged stay in weightlessness induces several medical alterations of the human body and also results in impairment of the skin. The stratum corneum, epidermal barrier as well as other skin compartments are affected in terms of their susceptibility to dryness, desquamation and pruritus. This can lead, for example, to wound healing disorders. Skin physiological tests were performed on the skin of an astronaut during the ASTROLAB-Mission within the Skin Care program initiated by the ESA.

The skin was analysed before, partly during and after the mission. In addition, the tests were repeated after one year.

*C. Huh, M. Choi, S. Lee, S. Kim, Y. Park, B. Kim, H. Park, S. Choi, S. Youn, K. Park; FP0723 Low dose 1064nm Q-switched Nd:YAG laser for the treatment of melasma;* Abstract; EADV Paris 09/2008;

Background : Melasma is a common acquired pigmentary disorder that is known for its recalcitrance to the conventional treatment. Although Q-switched Nd:YAG laser(QSNYL) is widely used for the treatment of melasma, little has been published regarding its effect.

Objectives: In this study, we would like to know the effect of low dose 1064nm QSNYL(MedLite C6, HOYA Conbio, CA) on the treatment of melasma objectively.

*U. Heinrich, B. Garbe, H. Tronnier, W. Stahl, C. Moore, M. J. Arnaud; FP0324 SUPPLEMENTATION WITH GREEN TEA EXTRACT IMPROVES SKIN PHYSIOLOGICAL PARAMETERS;* Abstract; EADV Paris 09/2008;

Background: The objective of the study was to determine changes in skin parameters during the intake of a beverage rich in green tea extract. The detection of hydration properties, transepidermal water loss (TEWL), changes of skin surface (SELS), skin elasticity, skin thickness and density as well as serum analyses were determined during the study.

Methods: Hydration measurements were carried out with the Corneometer CM 825 prior to and during the study. Transepidermal water loss (barrier function of the skin) was measured with the Tewameter, skin surface (SELS) with the Visioscan and skin elasticity with the Cutometer (Courage & Khazaka Electronics, Cologne, Germany).

*R. M. Debowska, A. Dzwigalowska, M. Szubert, K. Rogiewicz, I. Eris, B. Pander; FP0313 EFFICACY EVALUATION OF RE-MODELLING FACE CARE PRODUCT;* Abstract; EADV Paris 09/2008

Background: Skin ageing is an important and interesting topic of study. It results from the combination of intrinsic ageing and photoageing, which is due to the environmental influence. The cosmetic industry creates and develops for the ageing population constantly improving products.

Objectives: The aim of this study was to evaluate the in vivo efficacy and beneficial effects of application of the re-modelling face cream containing an anti-wrinkle peptide, vitamin E, proteins from sweet almonds and peach oil.

*Dorothee Bürkle; Die Haut der Astronauten- Erstes kommerzielles ISS-Experiment aus NRW;* [http://www.wdr.de/themen/wissen/astronomie/blick\\_ins\\_all/raumfahrt/060701.jhtml](http://www.wdr.de/themen/wissen/astronomie/blick_ins_all/raumfahrt/060701.jhtml)

Auf der Raumstation ISS, zu der Thomas Reiter am 1. Juli startet, wird er viele Experimente durchführen. Mit seiner eigenen Haut wird er für den ersten Versuch herhalten, den Unternehmen aus NRW in Auftrag gegeben haben.

Wie viele Falten während seines sechs Monate langen Aufenthalts auf der Internationalen Raumstation ISS dazugekommen sind, wird Thomas Reiter am Ende ganz genau wissen. Alle zwei Wochen holt der deutsche Astronaut einige Messgeräte aus den Regalen der Raumstation, testet damit den Wasserverlust seiner Haut und kontrolliert, ob neue Fältchen dazugekommen sind.

*Permamed, Prof. Dr. med. P. Humbert, Besancon 2008; Klinische Anti-Aging-Studie;*

In einer monozentrischen klinischen Studie wurde die Anti-Aging-Wirkung von Lubex anti-age über drei Monate bei Frauen im Alter zwischen 45 und 60 Jahren mit mittelstark lichtgealterter Haut im Gesicht und Décolleté geprüft und belegt. Als Grundlage wurden hautphysiologische Messungen durchgeführt, das Hautbild wurde fotografisch dokumentiert und durch Dermatologen im Doppelblindverfahren bewertet.

*H. Tronnier, M. Wiebusch, U. Heinrich; Project Skin Care of the European Long-Term Mission (Astrolab) on the ISS; DermaTronnier, Research*

Impairments due to circulatory and vestibular disturbances of the equilibrium are the prevalent medical side effects astronauts suffer from. These are followed by the dermatological problems. In order to examine these skin problems and find ways to prevent them, skin-physiological measurements as a project "Skin Care" were carried out within the framework of the European long-term mission (ASTROLAB) 2005-2007.

*Mike Farwick, Ursula Maczkiewitz, Peter Lersch, Tim Falla, Susanne Grether-Beck, Jean Krutmann; An ECM-derived Tetrapeptide to Counterbalance ECM Degeneration; Cosmetics & Toiletries; Vol. 124, No. 6/June 2009*

The extracellular matrix (ECM) is the structural backbone of many tissues, especially the skin, and represents a main target for cosmetic applications. ECM proteins are believed to play a pivotal role in cellular migration, proliferation and gene regulation during wound healing. Fragments from ECM constituents have been found capable of stimulating ECM biosynthesis to compensate for tissue destruction. Their mechanisms have been implicated in wound healing, skin aging and skin's response to UV irradiation.

*Dr. Laurent Sousselier, Caroline Camuzat, White biotechnology : new source of ingredients, Personal Care, September 2009*

White biotechnology has been used for millennia for the preparation of bread and alcoholic drinks. Sumerians had mastered alcoholic fermentation, for the manufacture of beer, 4,000 years AD. Nowadays, white biotechnology is used for several applications. In the pharmaceutical sector it is used for the production of antibiotics such as famous Penicillin, and it is used for energy in bioethanol production.

*Bazela K., Debowska R. Tyszcuk B., Kazmierczak E., Mlosek K., Nowicki A., Eris I.; Evaluating the efficacy of anti-cellulite cosmetic products – skin ultrasonography and skin condition analysis; Dr. Irena Eris Centre for Science and Research;*

Cellulite is currently considered to be an endocrine metabolic microcirculatory disorder that causes interstitial matrix alterations and structural changes in subcutaneous tissue. It affects thousands of women of any age worldwide. Our study aimed to evaluate the efficacy of an anti-cellulite cream gel. The study was performed using 13 MHz ultrasound (Esoate Technos) as well as Corneometer and Visioscan camera. Each volunteer also completed a survey concerning their own evaluation of the product

*Montserrat Manges, José M. Garcia-Anton, Albert Calvillo, Cristina Crreno; Assessment of new skin brightening agents; Personal Care, November 2009, pp. 31–36*

Exogenous causes, particularly chronic ultraviolet light exposure, are a common factor in pigment abnormalities such as melasma, solar lentigines (or age spots), freckling, mottled pigmentation, and ephelides. There are numerous internal and external stresses that affect human skin pigmentation. Exposure to certain drugs and chemicals as well as the existence of certain disease states can result in hyperpigmentation. Post-inflammatory pigmentation, another skin hyperpigmentation disorder, usually develops after resolution of inflammatory skin eruptions like acne, contact dermatitis or atopic dermatitis.

*M. Udompataikul, P. Sripiroj, P. Palungwachira; An oral nutraceutical containing antioxidants, minerals and glycosaminoglycans improves skin roughness and fine wrinkles; IFSCC Magazine – vol. 12, no 4 / 2009, p. 422*

Various nutraceuticals (dietary supplements) are claimed to have cutaneous antiageing properties, however, there are limited number of research studies supporting these claims. The objective of this research was to study the effectiveness of an oral nutraceutical containing antioxidants, minerals and glycosaminoclycans on cutaneous ageing. In this double-blind, placebo-controlled trial, 60 women aged 35-60 years were randomized to receive oral dietary supplement (n=30) or placebo (n=30), once daily for 12 weeks.

*Enzo Berardesca, Norma Cameli, Grazia Primavera, Manuela Carrera;*

**Clinical and Instrumental Evaluation of Skin Improvement after Treatment with a New 50% Pyruvic Acid Peel;** *Dermatol Surg* 2006

Pyruvic acid is an a-keto acid that presents keratolytic, antimicrobial, and sebostatic properties as well as the ability to stimulate new collagen production and elastic fibers formation. Because of its low *pKa* and its small dimension, it penetrates rapidly and deeply through the skin, so far as to be considered a potent chemical peel agent. It has proven its efficacy for the treatment of many dermatological conditions such as acne, superficial scarring, photodamage, and pigmentary disorders. Pyruvic acid application usually induces intense burning, and the postpeeling period is characterized by erythema, desquamation, and, sometimes, crusting.

G. Szepetiuk, C. Piérard- Franchimont; **Comment j’explore ...la peau par le photodiagnostic**

**utilisant la fluorescence cutanée et son imagerie fonctionnelle;** *Rev Med Liège* 2010; 65 : 9 : 521-526

**RÉSUMÉ :** Sous l’effet d’une stimulation lumineuse adéquate, la peau émet une fluorescence particulière. Cette propriété peut être mise à profit à titre diagnostique ou indicatif d’une fonction particulière de la peau. Diverses infections superficielles (érythrasma, pityriasis versicolor, teignes,...) révèlent une fluorescence parfois intense. Les follicules pilo-sébacés renfermant des propionibactéries apparaissent fluorescents. Cette propriété est perdue lors de certains traitements anti-acnéiques. Elle est masquée par des crèmes solaires. Les zones (pré)néoplasiques préparées pour la photothérapie dynamique deviennent fluorescentes. Certains marqueurs de la couche cornée, comme la pyranine, émettent une fluorescence, propriété permettant de mesurer l’activité de renouvellement de l’épiderme.

**Mots-clés :** *Acné - Propionibacterium acnes - Biopsie de surface - Porphyrine - Crème solaire - Carcinome cutané - Fluorochrome*

*Ward L. Billhimer, M.S., Judy Woodford, Ph.D., Desiree Butcher, Karen Epplen, Tarin Neufarth, Danielle Houston, Jim Bowman, M.S. OBJECTIVE EVALUATION OF MOISTURIZER EFFECT ON SKIN SENSITIVITY AND BARRIER INTEGRITY DURING CONTINUED*

**INSULT PRESSURE,** ISBS 2010 Buenos Aires, Argentinav Demonstrating the ability of a moisturizer to reduce skin sensitivity as it helps restore barrier integrity is a key part of product claims substantiation. Typical measures of sensitivity usually rely on subjective self-assessments while monitoring barrier disruption using TEWL during optimum seasonal periods for severe dry skin. This presentation introduces an objective, continuous skin insult model for evaluating moisturizer treatment effect on skin sensitivity and barrier integrity irrespective of season.

This study evaluated the impact of two skin moisturizers on barrier integrity, neural sensitivity and surface texture during continued insult pressure. The formulas were evaluated in a randomized, double blind, two period crossover design using an exaggerated forearm wash model. Normal, healthy female volunteers were enrolled in this 5 week study. To damage the skin, during the first

4 days, subjects participated in standardized, exaggerated forearm washes (4x/day) on both arms. This was followed by 10 days of washing both arms twice a day to maintain the damage. During this period, the assigned product was applied to one arm (3x/day) to assess its efficacy while the other arm served as a control.

*Patricia M. B. G. Maia Campos, Mirela D. Gianeti, Daiane G. Mercurio, Lorena R. Gaspar,*  
**ASSESSMENT OF PROTECTIVE EFFECTS OF COSMETICS WITH UV-FILTERS,  
VITAMINS, GINKGO BILOBA AND RED ALGA EXTRACTS USING BIOPHYSICAL AND  
SKIN IMAGE TECHNIQUES;** ISBS 2010 Bueno Aires, Argentina

The combination of UV filters with antioxidant substances and natural extracts with biological activity in terms of photoprotection can provide unique benefits to the skin, by increasing its protection against UV radiation and also by improving skin conditions. Thus, the aim of this study was the assessment of protective effects of cosmetic formulations containing UV-filters, vitamins, *Ginkgo biloba* and red alga *Porphyra umbilicalis* extracts by biophysical and skin image techniques. For this purpose, an emulsion was supplemented or not (F) with *Ginkgo biloba* extract (FG), or red alga *Porphyra umbilicalis* extract (FA), or the combination of these extracts and vitamins A, E and C (FGAV). These formulations were submitted to preliminary studies for the evaluation of Sun Protection Factor (SPF), which were carried out on a group of human volunteers according to the COLIPA methodology. After that, the formulations were applied on 10 human volunteers' forearm skin, followed by the analysis of their effects using biophysical and skin image techniques. This evaluation was done in terms of transepidermal water loss (TEWL) (Tewameter® TM 210), water content of the stratum corneum (Corneometer® CM 825), viscoelastic properties (Cutometer® SEM575), skin microrelief (Visioscan® VC 98) and the dermal thickness (Dermascan C®). The measurements were done before and after a 30 day-period of daily applications.

*M. Rosa Pena Ferreira, P.C. Costa, Fernanda M. Bahia;* **Efficacy of anti-wrinkle products in skin surface appearance: a comparative study using non-invasive methods;** Skin Research and Technology 2010; 16; pp. 444-449

Age has a huge influence on skin roughness; with increasing age, the number of collagen and elastine fibers is reduced and elasticity decreases significantly. Pharmaceuticals and cosmetics, environmental factors and lifestyle have an important effect on skin. In this study, the efficacy of 12 commercial anti-wrinkle products was evaluated using a direct non-invasive method to measure the skin surface morphology. Four clinical parameters surface evaluation of the living skin (SELS) (Ser, Sesc, Sesm and Sew) were evaluate using Visioscan VC 98. Two hundred and forty-eight healthy female volunteers, aged between 30 and 70 years, were chosen for this study. The duration of treatment was 28 days. Skin microrelief, parameters were evaluated using the Visioscan VC 98 – SELS 2000 from Courage + Khazaka.

*Bertucci, Sabrina M.1; Freitas, Luciana S.1; Gaspar, Lorena R. 1; Mercurio, Daiane G. 1;  
Gianeti, Mirela D. 1; Maia Campos, Patrici,* **EFFICACY OF COSMETIC FORMULATIONS  
CONTAINING GREEN TEA AND GINKGO BILOBA EXTRACTS – PRE-CLINICAL AND  
CLINICAL STUDIES,** IFSSC 2010 Buenos Aires, Argentina This research aims to evaluate the effects of cosmetic formulations containing green tea (*Camellia sinensis*) and/or *Ginkgo biloba* glycolic extracts by histopathological and histometric studies and also to evaluate the immediate and long-term effects on human skin using biophysical techniques and skin image analyses. The pre-clinical efficacy evaluation was performed by the application of the formulations on the dorsum of hairless mice once a day for 5 days. For the clinical studies, formulations under study were applied to the forearm skin of 48 volunteers, which was evaluated by biophysical techniques and skin image analyses according to the following parameters: stratum corneum water content, transepidermal water loss (TEWL), skin elasticity and viscoelastic-to-elastic ratio and skin micro-relief, before (basal values) and after 3 hours (immediate effects), 15 and 30 days (long term effects). The histological analysis showed the formulations containing green tea extract, alone or in combination with the *Ginkgo biloba* extract, provoked significant enhancement in viable epidermis thickness and in the number of cell layers, suggesting a moisturizing effect and an induction of cell renewal. The clinical

efficacy studies showed that the extracts under study had a moisturizing effect and also acted synergistically on skin viscoelastic-to-elastic ratio, related to hydration of deeper epidermal layers.

*Selem, Claudia, Delic, Norberto* **Sphagnum Magellanicum Peat. Characterization and Proposal for Cosmetics Uses.**

This paper focuses on the characterization of Sphagnum Magellanicum peat, its properties and the different uses in cosmetic products. Studies were conducted to analyze the organic, inorganic and microbiological content of this material. The results determined that it is an important source of polyphenols with antioxidant capacity. It has anti-inflammatory action and is safe in contact with skin. It has germicide properties. Humic substances have a large capacity to retain multivalent ions forming metalorganic complexes acting as a natural organic sequestrant. Because the intensity of UV light absorption it can be used in the formulation of coloured sunscreen emulsions and taking into account the other properties tested in the development of others cosmetic products. Considering the results obtained we found that Sphagnum Magellanicum peat has interesting properties for being used in the cosmetic industry coupled with the benefit of this raw material which has the important property of being natural and organic.

*Alain Thibodeau*, **Anti-aging Skin Care Benefits of Saccharina longicruris Extract;** Cosmetics & Toiletries, Vol. 126, No. 3/March 2011

Skin appearance and functionality are affected by a complex combination of factors including both genetic, i.e. intrinsic, and actinic, i.e. extrinsic or environmental. Indeed, genetic and actinic factors act together to modulate the expression of key genes involved in skin homeostasis. Intrinsic aging is genetically regulated and follows a chronological clock inside of cells, while environmental factors such as UV exposure, humidity and air pollutants are responsible for actinic aging. Together, genetic and actinic aging target important metabolic pathways in skin cells that trigger the signs of aging such as skin roughness and wrinkling. At a molecular level, it has been demonstrated that collagen synthesis is reduced in aged skin cells and in cells damaged by UV radiation.

*Alain Thibodeau, Philip Jacobs, Sergio Amari;* **Olive oil fatty acids: positive effects for the skin;** Personal Care, March 2011, pp. 51-57

The skin is externally located and thus serves as a sheath separating internal organs from direct contact with the environment. The main roles of the skin are: protection from UV radiation (melanogenesis), immune defence and a barrier function preventing the penetration of foreign particles. Perhaps of greater importance, skin – especially the stratum corneum layer – is dynamically involved in the management of internal water levels. The first skin layer facing the external environment is the stratum corneum; the outermost layer of the epidermis. This histological section is predominantly represented by keratinocytes. The epidermis is constantly renewed through an upward movement – and differentiation – of keratinocytes originating from epidermal basal layers up to the stratum corneum.