



zoom #21

BY SKINOBS

edito

After several months without events, cosmeticians around the world are returning to trade fairs and congresses, revealing the dynamism of the beauty industry. Coming at the end of November, in Paris, the SFC Symposium dedicated to «Healthy Skin», Cosmetagora in Paris on January 11-12, then **Cosmetotest, the Symposium dedicated to preclinical and clinical tests** that Skinobs organizes in Lyon on January 27-28 in collaboration with Cosmet'in Lyon. These meetings with testing experts allow us to follow the latest innovations in this sector and to continuously update the methods and expertise of the laboratories on the Preclinical and Clinical platforms. In this ZOOM that closes the year 2021, we will talk about the evaluation of **emotions and the in-vitro and ex-vivo objectivation of the barrier function** as well as the news of our partners: **Courage & Khazaka, Microfactory, Pixience, Helioscreen, Eurofins, Ellead, Phylogene and Validated Claim Support.**

Anne Charpentier, CEO

WHAT'S INSIDE THE BOX ?

The free login to the Skinobs database, enables the worldwide cosmeticians to easily:

- Find the right methods,
- Retrieve the right partners for every claim substantiation,
- Directly send an email to the testing Lab,

Skinobs platforms are today 2 international databases renowned as a reference in the testing field of actives and personal care. It represents, with users from 85 nationalities, a unique tool for clinical and preclinical testing giving crucial and qualified information on instrumental devices and CROs. Cosmeticians can retrieve classical or innovative tests. We continually update the testing solutions to share with you all the new trends of the dermocosmetics testing field.

Log in now, www.skinobs.com for free to access the search or send us your specific request directly at contact@skinobs.com. We will be happy to provide you special advice to help you in your evaluation projects.

TESTIMONIALS OF THE PLATFORM USERS

« Thank you so much for such an amazing platform which has made life so simple. Really appreciate your quick support on my evaluation project. »

« I use the Skinobs platform for 3 years when I have new development missions; I really appreciate its completeness and ergonomics, thank you for all this work and sharing! »

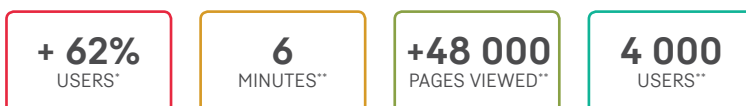
« First of all, congratulations for your skinobs project. It's a super powerful tool and it helps me a lot to solve doubts. »



572 Methods
45 Skins mechanims
152 CRO's

188 Claims
363 Methods
126 CRO's

January to september 2021



* From January to September 2021 vs 2020
** From 1 st January 2021

THE SCIENTIFIC EVALUATION OF EMOTIONS

The study of emotions has won over cosmetics for a few years now with first the evaluation of well-being by quality-of-life questionnaires and self-evaluations of consumer tests. Since the 2010s, with the contribution of neuroscience and new technologies, it has been a question of **scientifically and dynamically evaluating** the psychic and physiological influence of emotions associated with the application of a cosmetic product and consequently the actions that result from it. Emotions, **complex physical and instinctive phenomena**, cause unconscious bodily signals that can be instantly and objectively measured. The application of a cosmetic as a sensory experience is a stimulus that modifies the heart rate, facial expressions, skin surface activity, in a multidimensional cognitive, behavioural, and physiological process.

Multidimensional studies

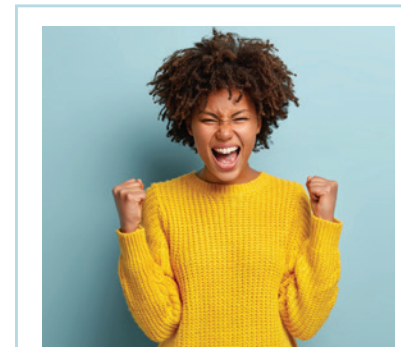
Experts agree that **6 primary emotions**, sometimes more, constitute the common and universal base of individuals with: **pleasure, sadness, fear, disgust, surprise, and anger**, (contempt, shame, guilt, curiosity). The emotional response as a subjective feeling associated with an event is **spontaneous, instantaneous, rapid, universal** and consists of **the 3 expressive, physiological, and subjective components**. The effect of the application of a cosmetic product is unconsciously and quickly evaluated by the brain. When it comes to claims, the study of emotions makes it possible to evaluate a wide range of perceptions caused by the application of a product and **the improvements in self-representation** as well as the physiological **effects induced**.

To objectify emotions scientifically, there is not a single simple and direct method but a **multitude of methods**. To increase the reliability of these analyses resulting from an unconscious and implicit process, it is necessary to consider in the design of the protocols, the claim sought, the type of product studied, the typology of consumers and to integrate the combination of the **3 components of the emotion**:

- **Expressive or behavioral**: what modifies facial and postural expressions
- **Physiological**: what changes body parameters
- **Subjective or cognitive**: what can be verbalized.

The following table presents the summary of the methods that can be used for the study of emotions through the 3 components they represent.

You can find all these methods by connecting for free to the Skinobs Clinical Testing Platform : www.skinobs.com/clinical.php



A WORD OF EXPERT



**Christa
RISSELADA**

Cosmetics
Efficiency
Assessment
Manager

MS BEAUTILAB

The consumer is an emotional being, as we know, his purchases are guided by emotions. At MS Beutilab, beyond the efficacy studies and sensory analyses conducted, we wanted to evaluate the emotional response generated by the application of two new lipstick textures. Because of their instinctive, raw, and instantaneous nature, emotions are complex to evaluate. A comprehensive approach was needed to analyse them as accurately and robustly as possible. We therefore combined **three components: expressive, subjective, and physiological**, in our study carried out on a multi-ethnic panel of 22 women. For the expressive part, we worked with Patrice Bellon from the company CosmetoScent, which is equipped with the Face Reader device. This tool makes it possible to measure facial expressions, based on the recognized method of FACS (Facial Action Coding System, developed by P. Ekman) and to convert them into six universal emotions. This evaluation revealed that both lipsticks generated: **surprise, fear, and joy**. Through the subjective component, carried out from **psychometric questionnaire and verbatim analysis**, we were able to show that lipsticks decreased the share of unpleasant emotions and that the following cosmetic benefits were associated with them: **aesthetic rendering, comfort, ease of application, agreeableness, and improved self-confidence**. Finally, **the physiological component**, which consisted of a recording of the heart rate, revealed a decrease in it. The correlation of all these results highlights that these two new lipsticks provide surprise, associated with joy and well-being (fear having possibly been generated by the apprehension of the test device). This study is rich in lessons to address the psychocosmetology associated with makeup and meet the expectations of consumers in their quest for pleasant emotions.

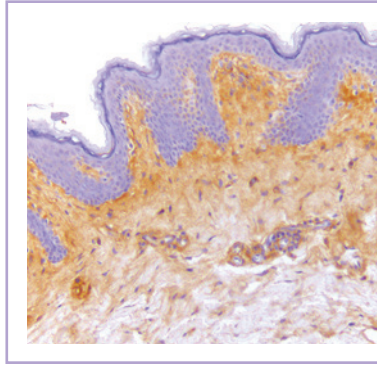
COMPONENT TYPE	METHODS
Expressive or behavioural Evolution of the vocal, facial and postural conscient or no conscient changes	Behavioural changes - Facial Expressions : Facial Actions Coding [FAC], Face Reader (Noldus), Deep Face, Electromyography, - Vocal Expression: prosody - Attention measure: Eye Tracking - Pupillary diameter
Physiological Individual evolution of autonomus neuronal system and its global regulation	Measure of the body changes - Heart rate and variability (Emotiv Epoc), Respiratory rate, - Sleep quality: Actimetry, Drowsiness scale, - Global parameters: Body temperature, Blood pressure, Electrodermal, Sweat, Blood oxigenation, - Cerebral activity (Alpha et Beta rhythm): [EEG], [IRMf] - Salivary hormonal dosage: [S-IgA], Alpha Amylase, Cortisol, Ocytocin... - All other clinical evaluations of the skin conditions by experts and instrumental measurements.
Subjective or cognitive Mental information: direct or indirect description of emotions: Pleasure, sadness, fear, disgust, surprise, anger, contempt, shame, guilt, curiosity...	Verbal analysis Psychometric measure, auto-evaluation with scores, graphics or images: - Self assessment Manikin [SAM] - Genova Emotion Wheel [GEW] - Product Emotion measurement Tool [PrEmo] - Positive and Negative Affect Schedule [PANAS] - Differential Emotions Scale [DES] - Thematic Apperception test [TAT] - Scrapbooking Implicit test [SIT]

The future of virtual reality?

The study of emotional processes represents an infinite source of innovation for the beauty industry by following the expectations of consumers in search of an ever-renewed sensory experience. It is essential to combine the study of the 3 emotional components and to pay particular attention to the **methodological rigor of these complex, global, and multidimensional studies** to ensure their reliability and robustness. Will the evolution of the uses of virtual reality, known to induce a stronger emotional experience, be in cosmetics, a stimulator of innovation in neurosensory studies? The future and the desires shared or not, science fiction universes such as the «Metaverse» promoted by the GAFA, will undoubtedly generate advances in this field of study.

PRECLINICAL ASSESSMENT OF SKIN BARRIER FUNCTION

When functional, the skin regulates the exchanges between the external and the internal environment, preventing water loss or protecting the body against noxious substance absorption, microorganism intrusion or physical trauma. Skin barrier function mainly relies on the stratum corneum (SC), the outermost layer of the epidermis. SC is formed by ultra-differentiated, metabolically unactive and tightly associated corneocytes. These are embedded in a **lipid-rich matrix** and constantly renewed thanks to undifferentiated keratinocytes which proliferate in the basal layer of the epidermis and progressively differentiate while migrating towards the SC. Many factors (genetic, microorganisms, physical trauma, chemicals, etc...) may impair skin barrier function leading to **excessive water loss, microorganism infection, skin inflammation, pruritus, and various diseases including psoriasis and atopic dermatitis**. Skin barrier integrity may be assessed on skin explants or 3D reconstructed skin models (epidermis or full-thickness). The effect of an ingredient on a specific marker can also be tested on a keratinocyte culture with immune or neurone cells.



Evaluation of skin barrier efficiency

Skin barrier normally prevents the passage of various molecules. Its integrity may therefore be assessed by measuring Trans Epidermal Water Loss (TEWL), Transepithelial/transendothelial electrical resistance (TEER), or the entry of various molecules through the epidermis thanks to Franz Cell (OEC2 428) or other percutaneous penetration technics.

Skin barrier formation

Skin barrier integrity involves an appropriate formation and renewal correlated to **keratinocyte proliferation, differentiation, and desquamation**. Various biomarkers allow to assess the distribution of undifferentiated keratinocytes (K5, K14), their stemness (K15, K19), their proliferation (Ki67) and their state of differentiation (K1, K10, Loricrin, Involucrin, Filaggrin). Other markers such as K6, K16 (reinforce the cell-cell and cell-matrix cohesion) transglutaminases 1, 3 and 5 (control involucrin and loricrin covalent-crosslinking), Sirtuin-1 (controls filaggrin synthesis), Caspase 14 (controls filaggrin degradation) or kallikreins (involved in desquamation) are also interesting.

Filaggrin degradation leads to Natural Moisturizer Factor (NMF), a key factor for skin hydration. Appropriate skin hydration and pH allow the proper functioning of skin enzymes involved in stratum corneum formation and cell cohesion. Some components of the dermal-epidermal junction (DEJ) such as Laminin 332 (Laminin V), type IV collagen, nidogen-1 & 2 and Perlecan or allowing the fixation of keratinocytes on the DEJ such as Integrin alpha 6 and beta 4 are not only responsible for the **adherence between dermis and epidermis** but also have an impact on keratinocyte survival, stemness, proliferation and differentiation and therefore on skin barrier function.

Tight junctions and skin integrity

Tight junctions are responsible for the cohesion between the corneocytes and prevent the transfer of various molecules through the SC. Their integrity may be assessed with Corneodesmosin, Zonula Occludens 1 (ZO1), Occludin, E-Cadherin, Desmoglein-1, Claudin 1. SC cohesion also involves proteins such as envoplakin and periplakin which connect intracellular keratins to membrane and cellular junctions.

Antimicrobial peptides

The first line of defence against pathogens is formed by the antimicrobial peptides secreted on skin surface. Such antimicrobial peptides are for example human cathelicidin LL-37, types 1-4 beta-defensins, psoriasin (S100A7), calprotectin (S100A8/9), koebnerisin (S100A15) and RNase 7.

Stratum corneum lipid barrier

Lipid composition and organization is also highly important for skin barrier function. Epidermal thickness, SC thickness and lipid organisation may be assessed using Raman microspectroscopy while lipid composition is obtained using liquid chromatography coupled to high-resolution mass spectrometry. This may allow to evaluate in particular **ceramide synthesis**, subclasses, and organization.

Skin Barrier and Microbiota evaluation with Metagenomic and Metaproteomic Analysis by Phylogene



It's time to think out of the box...

The skin is a barrier membrane that separates environments with profoundly different water contents. The barrier properties are assured by the outer layer of the skin, the stratum corneum (SC), which controls the transepidermal water loss (TEWL). The glandular nature of the skin and its bacteria / fungi rich composition is making it prone to lipids metabolism and salts secretions affecting TEWL as well. Even though the microbiome role in inflammation / infection is currently subject to intensive research, its implication in lipids metabolism and thus TEWL is paramount. **Metagenomic and metaproteomic analysis** are well suited for taxa's ecosystem characterization and elucidate functional interactions between skin and its microbiota to characterize skin

barrier function. With PHYLOGENE characterize your active formulation on skin and its microbiota. Bacterial 16S rDNA and fungal ITS sequencing with OTU based estimation to investigate microbial communities diversity and determine taxonomic composition. **High-resolution nano LC-MS/MS quantitative proteomics and HolXplore™** data processing: The efficient tool for discovery

www.phylogene.com | [Corporate and testing sheet :](#)
www.skinobs.com/preclinical/labo.php?id=222

PARTNERS KEY FIGURES

84

skin parameters analysed by the C-Cube Clinical Research by PIXIENCE

20,000

tests carried out since the creation by HELIOSCREEN

120,000

panelists in our database with a variety of ethnicities, skin types and conditions by EUROFINIS & PERSONAL CARE



NEWS

Read the latest news on cosmetics testing. Subscribe to the online Newsletter

www.skinobs.com/news

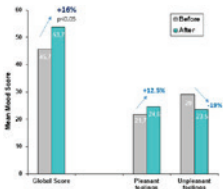
TEWL Measurement Means Tewameter® by C+K



TEWL measurement assessing the skin barrier quality is crucial in claim support and safety testing of applied products. The world famous Tewameter® with its “open-chamber” principle is the benchmark in guidelines, with hundreds of publications, even used on the ISS. The new Tewameter® TM Hex is the departure into a new measurement era. **Sixty sensors for temperature and relative humidity** (15 times more than any other system) deliver an unobstructed TEWL of the highest precision and reproducibility within 20 seconds. This high data volume facilitates the calculation of new, exciting parameters. Read more about the Tewameter® family for in vivo and invitro measurements.

www.courage-khazaka.de | [Corporate and testing sheet :](#)
www.skinobs.com/instrumentation.php?id=80

Eurofins Cosmetics & Personal Care evaluates the well-being effects of cosmetic products



With more than 15 years of experience in the field, Eurofins Cosmetics & Personal Care offers various approaches to objectively measure well-being: quality of Life Scales provide objective, reliable and sensitive measures of physical, psychological and social well-being

- emotional mapping based on PCA (if scoring) or FCA (if CATA)
- if the test involves several products
- Resting Nervous Tremor (RNT) is a rhythmic oscillation caused by involuntary muscle contractions at rest. It accurately reflects the level of stress
- cardiovascular parameters are directly influenced by the state of stress
- a decrease in salivary cortisol («stress hormone») indicates a relaxing effect.

www.eurofins.com | [Corporate and testing sheet :](#)
www.skinobs.com/labo.php?id=26

Skin Surface Roughness Analysis with C-Cube by PIXIENCE



The **3D Module** for C-Cube Clinical Research produces highly accurate surface reconstructions of the skin, either **in vivo** or on **silicone replica**, in mere seconds and with unrivaled ease of use.

Many of our customers use it daily to measure the skin's roughness and texture and evaluate the efficacy of **anti-aging, moisturizing, healing or smoothing products**, quickly and easily.

Our 3D Module produces the following profilometry criteria:

- Altitude / Depth (Sv, Sp, Sz)
- Roughness (Sa, Sq, Sdr)
- Symmetry (Ssk, Sku)

You can also outsource your data analyses to us through **Pixience Cloud**.

www.pixience.com | [Corporate and testing sheet :](#)
www.skinobs.com/instrumentation.php?id=107

The Itch Relief Evaluation Induced Damage to the Skin Barrier like Atopic Skin Through in vitro and in vivo Test are Performed by Ellead.



In June 2021, MFDS in Korea announced a clinical test method for functional cosmetics that restores the function of the skin barrier and helps improve itchiness. If you feel itching due to the problem of the skin barrier, symptoms can be improved just by using moisturizer. In particular, atopic skin is a representative case, in which the relief of symptoms through cosmetics is standardized through clinical evaluation. In addition, through in vitro test, it is possible to **verify the skin barrier strengthening potential** of cosmetic ingredients by providing Filaggrin and Involucrin mRNA expression analysis services, which are representative skin barrier factors.

www.ellead.com | [Corporate and testing sheet :](#)
www.skinobs.com/labo.php?id=72

HelioScreen is approved by the French Ministry of Research



HelioScreen received the **Research Tax Credit accreditation** by the French Ministry of Research. The research tax credit (CIR) is a generic measure to support the research and development (R&D) activities of companies. Companies that incur expenses for fundamental research and experimental development can benefit from the CIR by deducting them from their tax under certain conditions. The CIR rate varies according to the amount of investments.

www.helioscreen.fr/en | [Corporate and testing sheet :](#)
www.skinobs.com/preclinical/labo.php?id=201

U-Skin™: The Latest Microfactory's Innovation by Microfactory



This new technology is a fast and innovative screening solution for evaluation of makeup lasting performance. U-Skin™ mimics some skin

properties like pore density, the roughness or the hydrophobicity properties. Coupled with a measuring instrument, U-Skin™ can reproduce in a biomimetic and controlled way the production of sebum or sweat. This key microfluidic innovation which creates an environment **biomimetically similar to human skin** evaluates makeup resistance visualizing and quantifying of the color and gloss evolution of the makeup over time. Discriminate better formulations, avoiding clinical tests on not-resistant formulations. In this way, reduce the time to market of your new products.

www.microfactory.eu | [Corporate and testing sheet :](#)
www.skinobs.com/preclinical/labo.php?id=266

Over Washing the Skin What Consequences? By Validated Claim Support



There is such a thing as cleaning your body too much. As counterintuitive as it sounds, over washing can strip your skin of natural oils and your

degenerate skin barrier (otherwise known as the part of the dermis that retains skin moisture and protects from harmful environmental variables). How do I know if my skin barrier is compromised? A few telling signs include dryness, redness/erythema, and itching discomfort, however, often these symptoms are delayed onset. At VCS we can deploy **several instrumental assessments** to determine barrier compromise sustainability at the time of product application or insult, as well as over time.

www.validatedcs.com | [Corporate and testing sheet :](#)
www.skinobs.com/labo.php?id=222

Skinobs map:
a worldwide view
of your testing
partners



CONTACT US

contact@skinobs.com | www.skinobs.com

19 boulevard de la Mer Caspienne
73370 Le Bourget-du-lac
FRANCE