skinobs

Skin, Hair, Nail Testing platforms

NEWSLETTER #18 - 02/2021

ZOOM BY SKINOBS #18

edito

A new year to follow the developments in the field of testing! In vivo, clinical or biometrological evaluation protocols adapt as much to new cosmetic uses as to mask wearing. The skin physiology is thus studied in the light of **the varied impacts of this unprecedented lifestyle**. In-vitro and ex-vivo assays developed based on **antibacterial activities** of course but also on the analysis of skin biomarkers with 3D skin models -bioprinted or not - increasingly specific and sophisticated.

In this newsletter we will share with you the good traffic increase of the platforms during 2020, mirror of our commitment to improve the search ergonomy and update the database with the latest technologies.

Thus, we will **focus on the microbiota evaluation and propose a discussion on the *in-vivo, ex-vivo and in-vitro* testing**. As always we will give direct news from our partners: Cerco, Ellead, Eurofins, Evalulab, Helioscreen,Intertek, Microfactory, My Microbiome, Phenocell, Phylogene, Validated Claim Support, Zurko.

Anne Charptentier, CEO

Two Innovative Platforms to Connect testing Science and Beauty Communication

Five years ago, Skinobs launched the **1st platform dedicated to "Clinical Testing"** referencing methods, devices and CROs all over the world to substantiate ingredients and finished products. You can easily identify all the clinical tests in 5 sections: **Tolerance assessment, Consumer tests, Efficacy on skin scalp and nail, Testing on fibres and Sensory analysis.**

The **second platform dedicated to "Preclinical Testing"**, launched in June 2020 enables the search on: **stability, composition, biodegradability, ecotoxicity, microbiology, interaction content containers, safety, efficacy and UV tests.**

The unlimited access to both Testing Platforms, enables you, in few clicks, to:

- Identify for a specific claim **all existing methods** and the relevant providers,
- Find visual and **technological method descriptions**,
- Directly send **a request mail** to these providers,
- Locate on a **world map** all the testing stakeholders,

Our approach has been always collaborative, integrating information from all stakeholders to build a useful and easy-to-use tool for all cosmeticians. Let ask specific requests at contact@skinobs.com.

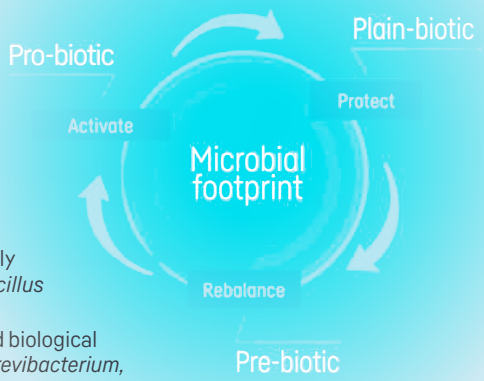
SKINOBS.COM

2020 Statistics of the platforms

3 800	6	42 000	+ 120%
USERS	MINUTES*	PAGES VIEWED	SESSIONS

*average session lasting

THE SKIN MICROBIOTA AND THE BEAUTY



Since the discovery of the intestinal microbiota, the question of the skin microbiota (micro-organisms, bacteria, viruses, fungi, yeasts), is under every lip. 100 trillion of bacteria are living in our bodies and everybody wants to know more about the impact of the cosmetics use on the skin bacteria ecosystem and how these phenomena can be measured?

The microflora is usually subdivided in two groups that generally co-exist in a balanced manner:

- the **transient flora**, saprophytic and pathogens microorganisms whose proliferation tends to negatively impact the skin health: *Staphylococcus, aureus, Escherichia coli, Pseudomonas aeruginosa and Bacillus species...*
- the **resident flora**, pathogenic and commensal microorganisms that live in harmony with the skin cells and biological cycles, with *Proteobacteria, epidermidis, S. hominis Propionibacterium, Corynebacterium, Dermabacter, Brevibacterium, Micrococcus, P. aeruginosa, Pityrosporum, Malassezia, Demodex...*

This bacteria ecosystem synthetizes a myriad of elements which have an important metabolic activity for our skin health.

A WORD OF EXPERT

DR. RACHIDA NACHAT-KAPPES
Cosmetic Claims Substantiation Scientific Consulting, communication and education

The evaluation of the effect of dermocosmetics or active products on the skin microbiota is evolving into more and more complex models. And yet, these never reach the **sophistication of the ecosystem of the bacterial biofilm of the skin**. In addition, it is now known that the skin microbiome is subject to intra-**individual variations** depending on the body areas and inter-**individual** according to genetic, intrinsic and environmental factors.

Healthy skin promotes a skilled balance of the different bacteria present and vice-versa, skin **homeostasis involves a diverse** and highly controlled microbiome. Sometimes the simple decrease of one species can benefit others, which then become potentially pathogenic. 2D or 3D models including the inoculation of one or more microorganisms, living or inactivated, allow to progress on specific problems, such as those associated with dysbiosis such as acne, atopic dermatitis, psoriasis, or scalp disorders... These approaches, which can sometimes be considered «reductionist» as the bacterial ecosystem of the skin is complex, remain unavoidable and contribute to the advancement of knowledge in the fields of skin **biology and microbiology**. Cosmetics should preserve the **bacterial balance of healthy skin** as varied as it may be and allow **fragile and injured skin to regain a natural biofilm**.

It could be necessary **to protect, to rebalance and activate it** on the cosmetics side. Simply said the aim for personal care could be to reduce the "bad" bacteria and protect the "good" ones! But the notion of "bad" or "good" is relative depending on the physiological state of the skin. Now things are not so simple!

The balance of cutaneous microflora (500 bacteria species) is dependent of the several conditions of its ecosystem: temperature, pH, hormones, light, UV, lipids, proteins, water... It is mainly influenced by the genetic, the lifestyle, the age, the hygiene, and the diet. Each person has their own skin flora composition, distributed from the epidermis until the dermis, which is lifelong qualitatively stable, like a **personal microbial footprint**.

This skin microflora is fundamental for the skin homeostasis and participates to the immune and barrier functions. Situations where pathogenic bacteria overwhelm commensal bacteria are often associated with drier and sensitive skin conditions. And various bacteria disorders might be considered as a source of cutaneous dysfunctions like acne, eczema or atopic dermatitis modifying this precious balance.

The beauty industry seeks to offer 3 main benefits around the skin microbiota

- The rebalancing,
- The probiotic-like
- The anti-microbial effects.

What methods exist today to evaluate the cutaneous microbiota thanks to human testing?

As the important intra-individual diversity of the cutaneous flora is also associated with a high level of inter-individual variability, the protocols will compare the skin swabbing of the treated zone and of the non-treated or placebo zone, before and after treatment. It is possible to evaluate the changes balance. To go deeply in this objectivation, is it also possible to study the microbiome and the skin simultaneously and investigate what are the functions and the metabolic pathways impacted.

Two main diagnosis opportunities:

- **Counts method at cell level**
- **Quantitative methods at molecular level**

The assays enable the taxonomic analysis of the bacteria, identifying what are the bacteria that can be found. Then the genome of the bacteria to better know their action. Now a major part of the skin bacteria is known.

- PCRs
- rRNA,
- S16 rDNA + ITS sequencing
- Mass Spectrometry:
- High-resolution Nano LC-MS/MS
- Multi-omics approach

The microbiota will play a key role in the cosmetics of tomorrow. We move towards personalized and preventive cosmetics. Claim substantiation will evolve with the regulation and the products development. We must keep in mind the diversity and the balance of the skin flora in the future developments of actives and personal cares.

Microbiome Friendly Characterized by Phylogene's Expertise

© Phylogene

PHYLOGENE
It's time to think out of the box...
with OMICS for substantiation

The "Microbiome" and the concepts of therapeutic opportunities around it have been trendy the past decade. Pharmaceutical, cosmetic and food industries have seized the moment to push for more **"dysbiosis restoring" therapies or "microbiome friendly" skin products**, opening new markets and niches for innovative drugs and diets. Improving our understanding of the microbiome, **deciphering the mechanisms of action** of "microbiome friendly" for skincare products and therefore raising new standards is a must do, for treatments and for continuous skin healthcare improvement. With Phylogene, you can characterize and **understand the microbiota metabolism.**

High-resolution nano LC-MS/MS quantitative proteomics and HolXplore™ data processing, Bacterial 16s rDNA and fungal ITS sequencing with OTU-based estimation to investigate microbial communities' diversity and determine taxonomic composition: The efficient tools for discovery. www.phylogene.com

Corporate and testing sheet: www.skinobs.com/preclinical/labo.php?id=222

Microbiome Friendly Seal for High-quality Beauty Products by MyMicrobiome

© MyMicrobiome

Microbiome friendly

For optimum beauty results, every cosmetic product should follow the approach of **fostering the natural homeostasis of skin and hair** instead of imposing additional stress with aggressive chemicals. This is achieved best by exclusively high-quality ingredients that **enhance the microbes dwelling** on the skin. The skin's microbiome differs significantly between the various body parts. To make sure a product does not harm the microbiome, MyMicrobiome has developed **seven different standards:** face and body; scalp; infant skin; private parts; foot; nasal and oral microbiome. The seal is awarded after successful completion of strict test runs. www.mymicrobiome.info

Corporate and testing sheet: www.skinobs.com/preclinical/labo.php?id=349

A UNIQUE VIEW OF THE PRECLINICAL TESTING

The dermocosmetics industry needs testing alternatives especially in toxicology, to replace animal testing that are just not anymore ethically acceptable. For **efficacy objectivation**, these methods represent often quicker, cheaper and a reliable proof of concept as predictors of on human efficacy. The preliminary discussions with each CRO's to design the protocol is crucial to select the best analyses adapted to the searched biomarkers.

The new «Preclinical Testing» platform is, like the 1st one, a tool **accessible free of charge** and without business commission. In 2 clicks, each user can find the various tests corresponding to his objectivation project and **directly contact each test provider** using the several menus:

- **Test category:** Analytical tests, Stability, Content-container interaction, Ecotoxicity and Biodegradability tests, Safety tests, UV tests, Efficacy tests...
- **A keyword search** for an easy search.
- **Claim:** anti-ageing, anti-pollution...
- **Test support:** cell cultures, 3D skin models...

A "New" service called ***"Claim and testing support"*** dedicated to **Consultants is now online** including 3 supports. Just select the type of support you need and contact theme directly to find the relevant solution for your product evaluation:

1. **Method and support choice:** Scientific definition of the testing project,
2. **Assay and data Monitoring:** Coordination of the tests with the CROs
3. **Scientific communication:** Marketing valorisation of the assay results,

Special mention for efficacy tests

The cosmeticians find the laboratory that meets their test criteria based on:

- **Mechanisms of action:** Acne, Adipocytes, Anti-Aging, Bioavailability, Skin Renewal, Free Radicals and Oxidation, Hydration, Inflammation, Biomechanical Integrity, Microbiota, Pigmentation, Pollution, Barrier Function, Regeneration...
- Analysis of **80 biomarkers**: cytokeratin, collagen, Metallopeptidases-proteases, interleukins, hyaluronic acid, integrins, Interleukins...
- **Quantitative and/or visual analysis methods:** gene expression, histology (morphology and imaging), protein and metabolic analysis...
- Choice of **3 levels of custom testing:** custom protocol, 100% R&D studies and non-targeted «omics» tests.

To become comprehensive, the referencing of **CROs is continuous to bring together, gradually,** all the global partners specialised in the preclinical evaluation of active and finished products on the skin, sebaceous glands, and hair.

All *in-vitro* and *ex-vivo* assays can be considered as a fantastic value for the beauty care and actives objectivation and a great contribution to the constant innovation on their performance. They remain an irreplaceable component of the working tools in the skin and hair testing field. It has never been easier to identify the tests needed for your projects, thanks to the links **Skinobs has made between methods and product claims, mechanisms of action and test solutions.**

The study of the cutaneous microbiota, 16SRNA or qPCR: which approach to choose in clinical studies? By Intertek

© Intertek

Thanks to its experts, Intertek offers you a global solution to guarantee the best approach according to your objectives.

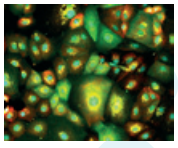
To describe skin bacteria, 16SRNA and qPCR are two different molecular approaches using close technologies.

- qPCR is **quantitative and selective** for a unique predefined bacterial target. You see only what you search and already known.
- 16SRNA gives, in a single slot, a **global bacterial picture** using Mocks, **standards preparation of bacteria from quantified bacteria mix**. It reveals the whole biodiversity without any prejudice.

If you want to reveal one specific bacteria, use qPCR approach. To obtain a broader approach and therefore closer to the reality of the skin, 16SRNA is today the best tool. www.intertek-france.com/etudes-cliniques

Corporate and testing sheet: www.skinobs.com/preclinical/labo.php?id=209

Inflammation objectivation by Cutibacterium acnes in Human iPSC Sebocytes by Phenocell



© Phenocell

The skin microbiome is a main actor in inflammatory acne. Wearing a mask as a protection against COVID-19 infection leads to increased cutaneous inflammation and exacerbation or appearance of acne and rosacea. To help understanding these pathological mechanisms, Phenocell has developed a unique assay based on activation of inflammation by *Cutibacterium acnes* in human sebocytes derived from iPSC (www.phenocell.com/dermo-cosmetics/acne-oily-skin). The pro-inflammatory response is followed at gene and protein levels and can be completed with analysis of sebum production. The iPSC technology allows modulation of sebocyte phototype to better approach ethnic (African, Caucasian, Asian) variations to skin inflammation.» www.phenocell.com

Corporate and testing sheet: www.skinobs.com/preclinical/labo.php?id=215

Carrying out microbiome *in-vitro* studies to analyze microorganism under the face mask by Zurko

© Zurko

The fact that the skin microbiome or **microbiota is now also correlated to many diseases** has led to an increase in the amount of research being done in this field. Although beneficial relationships predominate in the skin ecosystem, when a change in a one's routine occurs, a microorganism can be transformed into a pathogen, resulting in a disease such as acne, atopic dermatitis, or rosacea.

Our team at Zurko Research has come up with the most innovative proposals in the cosmetic industry and has carried out a test to evaluate how the skin flora behaves in the area under the mask. www.zurkoresearch.com

Corporate and testing sheet: www/skinobs.com/preclinical/labo.php?id=223

Partners key figures

1
new acquisition, Derma Tronnier, for **EUROFINS COSMETICS & PERSONAL CARE**

5%
only margin of error for **MICROFACTORY**

20
years of experience for **HELIOSCREEN**

20
years of expertise for **ELLEAD**

20
years of proven clinical claims for **EVALULAB**

55%
The percentage of women under 25 who experienced increased acne as a consequence of anti-covid mask wearing by **PHENOCELL**

58%
of our panellists have "self-assessed" moderate to severe fine lines or wrinkles for **VALIDATED CLAIM SUPPORT**

60%
increase of the study number in 2020 by **ZURKO**

270
studies performed in 2020 for **INTERTEK**

1 400
new panel registrations in 2020 for **CERCO**

Agenda

PCA GLOBAL FEBRUARY Healthy Skin Evaluation

COSSMA APRIL Hydratation Quantification

INDUSTRIES COSMÉTIQUES APRIL Sensitive Skin Objectivation

Read the latest news on cosmetics testing.
www.skinobs.com/news

Cosmetics and Cannabis by Eurofins Cosmetics & Personal Care

© Eurofins

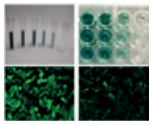
Many players in the cosmetics industry offer product ranges which incorporate hemp (*Cannabis sativa L.*) and CBD. Cannabis sativa includes several varieties of hemp, distinguished by their THC and CBD contents, and subject to strict control measures.

In a strict regulatory context, it is essential to select raw materials which are fully compliant to **ensure the safety of the product and its efficiency.** To achieve this, Eurofins supports customers at every key stage of the product development process, from:

- Consulting and Regulatory & Toxicology services (toxicological profile of ingredients, regulatory compliance files, MSDS, labelling validation...)
- Analytical tests (heavy metals, pesticides, impurities, protein / THC assays...)
- *In-vitro* studies (Skin/eye irritation, Ames test, Micronucleus test...)
- Clinical studies to support cosmetic claims **www.eurofins.com/cosmetics**

Corporate and testing sheet: www.skinobs.com/labo.php?id=260

The «Nonstop» Assessment of Anti-oxidation in-vitro and in-vivo Tests from Ingredients to Cosmetics by Ellead


© Ellead

The antioxidation is the top topic in cosmetics and skin research.

Ellead, with 20 years of experience, provides professional ***in-vitro* and *in-vivo testing*** services in respective laboratories where **safety and efficacy testing** for ingredients and cosmetics can be conducted. Ellead offers **DPPH, SOD and cellular ROS assays** to estimate the antioxidant activity of cosmetic ingredients. In addition, the antioxidant capacity of cosmetic product can be tested by measuring **neutralization of free radicals.** A fluorescence microscope is used to evaluate the changes in specific proteins in the corneocyte collected from skin before and after the use of cosmetics. **www.ellead.com/index_en**

Corporate and testing sheet: www.skinobs.com/labo.php?id=72

Repeatable and Reproducible in-vitro Sunscreen Tests by HelioScreen

© HelioScreen

Automated spreading has been demonstrated as a key parameter for improving repeatability and reproducibility of **the in-vitro UV tests** compared to manual spreading. The HD-SPREADMASTER from HelioScreen is a robot which carries out the **automatic spreading of the sunscreen** on the substrate. It allows a total control of the product spreading and ensures the reproducibility of the in-vitro UV testing with a very low variability range. The specifications of this appliance are

- robot with 6 independent motors,
- spreading step using 3 circular strokes (three 90° rotations) and 3 linear strokes (three 90° rotations) within 1 minute,
- silicone finger tool's hardness between 20-25 shores,
- a spring and a pressure level approximately 6 Newtons. **www.helioscreen.fr/en**

Corporate and testing sheet: www.skinobs.com/preclinical/labo.php?id=201

Study Impact of Subjective Panels versus Expert/Objective Assessed Conditions by Validated Claim Support

© Validated Claim Support

Although Subjective panels and Expert/Objective panels may appear and sound remarkably similar, in fact they mean two quite different things.

- **Subjective** refers to information that is based on personal opinions, and are characterized by the past **experiences, knowledge, perceptions, understanding and desires of the subject**. These statements are exclusively based on the ideas of the subject making it, as there is no universal truth.
- **Objective** refers to information that is based on **factual evidence.** As the information is entirely facts based, it can be **observable, quantifiable, and provable.** In most cases objective statements contain statistics so it is helpful in rational decision making. **www.validatedcs.com**

Corporate and testing sheet: www.skinobs.com/labo.php?id=222

Optimize the Development Time by Adopting Smart-pore™ and SOD4 by Microfactory.

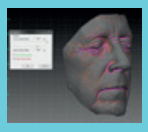
© Microfactory

This technology allows to **discriminate the antiperspirant efficiency** of the antiperspirant products as soon as the formulation phase is over!

Thanks to the high repeatability of our Smart-Pore™ and SOD4 technology, you can serenely evaluate the **effectiveness** of your antiperspirant products with an error margin of ±5%. SOD4 is like these **in-vitro technologies** able to evaluate the effectiveness of antiperspirants **without volunteers** especially in this period of COVID. **www.microfactory.eu**

Corporate and testing sheet: www.skinobs.com/preclinical/labo.php?id=266

The Choice of the Relevant Techniques by CERCO


© CERCO

Wrinkles are the first visible sign of aging and concern women and men very early on. The choice of technique is major in the evaluation of anti-wrinkle effects:

- **2D photography** combined with image analysis or clinical scoring,
- **3D profilometry** with or without contact;

We can used the **projection of fringes** associated with the skin replica , the **high-resolution photography** combined with **image analysis or clinical scoring.**

The next step is the assessment of **the variations of the folds in «dynamic» mode** ; This will be a major breakthrough in the impact of a cosmetic anti-wrinkle effect. **www.cercotests.com**

Corporate and testing sheet: www.skinobs.com/labo.php?id=10

Irritation and Sensitization Clinical Testing by Evalulab

© Evalulab

All testing experts agree on the need for safety testing. While a company may have a tight budget, cutting corners when it comes to safety testing is ill-advised. There is a **necessity for the assurance of safety** for products of all companies, indie brands, or global market firms. **The HRIPT is a study** that is commonly used in the industry to determine the **potential for irritation, sensitization, and allergic contact** of a topical product. If the formula passes, the claims "Hypo-allergenic"*, "Non-irritant" and "Dermatologist tested" may be labeled. (*except in Europe). Evalulab provides **scientific knowledge** and expertise, helping clients stand out from their competition via clinically proven claims! **www.evalulab.com/en/clinical-testing/services/product-safety-testing/hript-test**

Corporate and testing sheet: www.skinobs.com/labo.php?id=38

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