

zoom

BY SKINOBS

#19

5
years!

edito

For 5 years Skinobs launched the Clinical Testing Platform at in-cosmetics Paris! Since then, the number of referenced methods and testing laboratories has greatly increased, and we were glad to launch the **Preclinical Testing Platform** last June. You will find, at the bottom of the page, **the figures representing the high activity** of the platforms. In this ZOOM we speak about **skin imperfections**.

Maskne is under every lips and clinical testing laboratories around the world have designed new studies to answer this new evaluation need. «In vitro» and «ex vivo» testing laboratories develops innovative ways to assess this claim using new models of skin, mimicking biological changes in the skin physiology.

In this new ZOOM edition, we will share with you, information about the **evaluation of skin imperfections and blemishes** through both preclinical and clinical objectivations.

As usual we are glad to give direct news from our partners: C+K, Complife, Ellead, Eurofins, Helioscreen, Intertek, Microfactory, Miravex, Phylogene, Pixience, Validated Claim Support and Zurko.

Anne Charpentier, CEO



We thank all our partners for their trust. They enable us to offer the Cosmetics Community an easy tool to help in the claim substantiations. We are really glad to share this success with you.

Two Testing Platforms to Accelerate your Claims Substantiation

As always, we keep an eye on both **latest technological innovations and marketing claims** to enrich the database with the relevant testing methods and instrumentations. Our work is still collaborative with the several stakeholders of this sector to build a robust bridge between science and marketing.

The access to the Skinobs platforms enables you to get a **unique panorama of the testing field** for **skin, hair, and nail analysis**:

- Identify for a **specific claim** the best methods and relevant testing laboratories,
- Directly send a **require mail** to these providers,
- Locate on the world map** the instrumentation manufacturers and CRO's,
- Use a **global company's directory**,
- Find visual and **technical descriptions** of tests.

Login now to access the search or send us your specific request directly at contact@skinobs.com. Just let us know what testing you need, and we will help you to find the right ones!

Already 5 years!

17 614
CONNECTIONS

5.2
MINUTES*

145 000
PAGES VIEWED

+ 82%
USERS*

*average session lasting

*for 1st quarter 2021
vs 2020

Easily retrieve the methods and the CRO's which support your product claims.

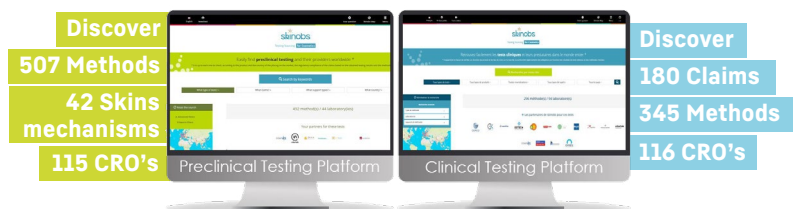
轻松找到支持您化妆品
声明*的方法与供应商

귀사의 코스메틱 제품이
주장하는 효능을 뒷받침해
주는 실험 방식과 제공 업체를
간편하게 검색하세요

Encontrar fácilmente los métodos y los proveedores que apoyan las declaraciones de los cosméticos.

Einfaches Auffinden der Methoden und Dienstleister, die Ihre kosmetischen Claims unterstützen.

貴社製品の試験に協力
可能なパートナー、メ
ソッドを簡単に検索



SKINOBS.COM

BLEMISHFREE A BROAD FIELD OF CLINICAL STUDIES

Skin imperfections cover a wide range of visible skin alterations with a variety of causes depending on age, skin type, ethnicity and associated disorders, lifestyle, hormonal balance, heredity or exposome. The list is long and includes **acne, blackheads or comedons, scars caused by these acne phenomena, pore size, hyperpigmentation, senescence stains, white spots, darts, exema, rosacea, cellulite, stretch marks...** These imperfections depending on their severity can have a significant impact on the well-being of men and women, altering their image and interfering in the relationship with others.

The wearing of the mask, sometimes counting in many hours daily, becomes a new parameter to be taken into consideration in assessing the **blemishfree claim**. The resulting **change in the skin ecosystem** is significant and can be akin to close pollution due to the promoted development of bacteria, friction of tissue, increased Co2 as well as temperature and sebaceous secretion.

Not so easy to classify all claims related to skin imperfections.

These claims can use the term «anti» or terms related to restoration, improvement. We can distinguish between different categories of claims that can be studied clinically and causally related to different skin signs:

1. Imperfections and acne-prone skin

- **related to skin pores:** Blackheads, Anti-Black spots, Unclog pores, Keratolytic, Non-Comedogenic ...
- **seborrhic status:** Matifying, Purifying, rebalancing, Seboregulator
- **microbiota:** propionibacterium acnes

2. Imperfections and surface condition: Anti-orange skin, anti-stretch-marks

3. Color changes

- **Anti-Rosacea, Anti-Redness, Anti-Inflammatory**
- **Hyperpigmentation** Skin spots: Anti-stains, Lightening...

4. Skin healing: Skin Barrier Status, Anti-Cracking, Hydration-TEWL, Repairing Effect



A WORD OF EXPERT



SÉVERINE MATHÉ
Brand Accelerator North America
Lubrizol Life Science
The Lubrizol Corporation

As an expert in product development for Skin Care brands in North America, **the Inclusivity Trend** is strongly growing and addresses dark skin problems, in particular pigment imperfections and hyperpigmentation. Beyond the radiance benefit, the consumer is looking for a homogeneous complexion. How to formulate ad hoc skin care while considering the different mechanisms of action involved in hyperpigmentation issues such as **post-acne scars, age dark spots, or hormonal change spots...**?

The selection of ingredients considers the physiological causes to be treated and the complete ritual that should be part of the solution. In addition to target and treat hyperpigmentation, it is important to strengthen the skin's barrier function. **This means protecting the epidermis from environmental exposures as well as strengthening the microbiome barrier.** The targeted ingredients were tested in-vitro and in-vivo, at the recommended concentration, to confirm their benefit. For the assessment of the performance of the formula, in-vitro tests can allow to highlight activities on specific mechanisms and **clinical tests to evaluate properties under normal conditions of use, in consumer tests or using biometrological measures.**

Performance of a care product can also be attributed in the lexical field to other corollary or indirect actions such as : Homogeneity of complexion, Anti-drying, Moisturizer, Anti-pollution, Respect the skin pH, Anti-UV, Antioxidant, Anti-prurit, Soothing, exfoliating, covering effect, BB-cream effects, Antioxidant,

What methods should be used to clinically support these claims?

In the attached table, we summarize the methods related to the analysis of acne-related imperfections.

SKIN IMPERFECTIONS & PRONE TO ACNE SKIN CLINICAL EVALUATION	
Studied Effect	Methods
Skin conditions Blackheads, Anti-Black spots, Unclog pores, Comedolytic, Keratolytic, Non-Comedogenic ...	Quantitative: DermaTOP-HE-60 (Eotech), SpectraCam (Newtone), C-Cube (Pixience), Visiopor PP34, Visioscan and MoistureMap MM 100 (C+K), TiVi 60 Skin Damage Visualizer (Wheelsbridge), Antera 3D (Miravex)...
Anti-bacterial & Biofilm Anti-Bacterial	Propionibacterium acnes quantification, Visiopor PP34 (C+K) Microbiota and biofilm by counting Microbiota by genomic: 16S-rRNA, RT-qPCR, DNA High-speed Sequencer Microbiota by metagenomic:DNA Microarray Sequencing
Skin topography Blackheads, Unclog pores, Comedolytic...	Images acquisition and analysis AEVA-HE (Eotech), ColorFace (Newtone technologies)...
The sebum Matifying, Purifying, rebalancing, Seboregulator...	Lipids quantification Shotgun Massspectrometry, Quantiseb, Dermalab, Sebumeter (C+K), Sebum Scale (Delfin)...
The entire face	Photo bench, VisioFace (C+K), AEVA-HE, Dermatop-HE (Eotech), ColorFace (Newtone),
Quality of life & well-being	<ul style="list-style-type: none">• Cognitive component: self-assessment, quality of life questionnaire...• Physiological component: EEG, FEMG, cortisol dosage, skin conductance...• Behavioral component: eye-tracking, facial expressions, prosody, gestures...

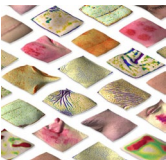
Clinical Evaluation and Skin Imperfections in The Spotlight of Eurofins



Skin imperfections are a group of undesirable **skin variations** that tend to draw the eye to a certain area of the body or face. Many have they are between the imperfection and non-affected skin. The cosmetic and personal care market exists to **reduce visual contrast** such as dark circles, texture influence, cellulite, wrinkle size and depth, along with mottled pigmentation and blotchy skin. There are varieties of non-invasive skin **measurement techniques** employed in the industry by research firms to objectively quantitate these imperfections as a discreet point of focus or together for an overall cumulative holistic effect. Eurofins Cosmetic and Personal care testing services can provide solutions-based claims validation to evaluate technologies/solutions focused on mitigating these skin imperfections. www.eurofins.com/cosmetics

Corporate and testing sheet: www.skinobs.com/labo.php?id=26

Clinical Evaluation of Skin Imperfections by Miravex



One of the bigger challenges of skin clinical evaluation is to quantify subtle imperfections, which are difficult to show with conventional high-definition photography.

Antera 3D allows you to **capture real 3D images**, allowing you to measure skin imperfections due to **texture irregularities**. Most importantly, the Antera 3D provides highly repeatable measurements taken at different time points, allowing an objective comparison of skin images and quantification of the improvements of the products under test.

No significant difference between before and after images was visible using conventional photography.

Instead, the **Antera 3D images demonstrate a clear improvement of skin texture roughness Ra.** www.miravex.com

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

PRECLINICAL CONCEPT OF PROOF FOR PRONE TO ACNE SKIN

Imperfections assays can be conducted on several supports from in tubo to sebaceous glands and skin explants. Generally, all cells and models are human:

- 2D cells line, well characterised cells or primary coming from surgery operation, Keratinocytes, Sebocytes derived from human iPSC and 2D co-culture
- 3D spheroids scaffold-free
- 3D skin models, epidermis, or full thickness, 3D sebocytes micro-tissue models

Skin material can be also removed by non-invasive swabbing, then several assays can be performed such as lipids composition and protein content.

CUTECH, an Italian CRO part of the Symrise group, has set up a **tissue-based screening tool by using micro-dissected human sebaceous glands**, aimed to test potential modulators of sebogenesis. This model allows to reproduce the metabolism and organization of the whole organ, thus being representative of the in-vivo situation. The modulation of sebum can be measured, and additional specific pathways can be investigated.

The prone to acne testing can be conducted following several cutaneous mechanisms of action analysing the **hyperseborrhea and the various functions that can be affected**. Depending on the end points and biomarkers studying, some inducers (UV, IL-1a, SDS, arachidonic acid) and **stimulating factors** (testosterone, arachidic acid, linoleic acid) can be integrated in the assay design to amplify the biomechanical reactions. Here are some of the most classical assays conduct to better understand the activity of ingredients or formulation considering the several mechanism types studied:

1. The modification of epidermal differentiation and dysregulation of the proliferate process of follicular keratinocytes:

- Turn off the expression of K5 and K14 and
- Expression of the differentiation-specific keratin K1 and K10, K19

2. Inflammatory responses with or without pro-inflammatory stimuli

- Bacteria proliferation: cytokines, chemokines and bêta-défensine 2 other peptides. Cathelicidin antimicrobial protein [CAP18]
- Measurement of pro-inflammatory interleukins: IL-1a, IL-8, IL-6, TNF- a,...
- Healing phenomena and inflammatory response through the measurement of arachidonic acid mediators: Prostaglandins PGE2, LTB4,...

3. Seboregulation: the production of sebum is ensured by **sebocytes** through a process of cell **differentiation** and lipogenesis. Sebum consists mainly of triglycerides, diglycerides and monoglycerides, waxes, squalene, and sterols. Sebum and androgens regulation via sebocytes lines:

- **5- α -reductase** converse DHT and testosterone
- Markers of the **sebocytes differentiation**: KRT15, KRT7, EMA

- Markers of the **sebogenesis**: Stimulation du PPAR via linoleic acid and arachidonic acid, Perilipin
- Synthesis of triglycerides (DGAT2), Arachidonic acid receptor (PPARG), Lipoprotein, lipase (LPL),
- Synthesis of the sapienic acid (FADS2), squalens (FDFIT1), wax esters (AWAT1),
- Maturation of lipid droplets (PLIN2), of sebocytes (MUC1),

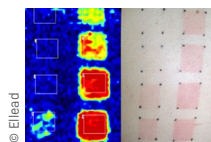
4. Antioxidant performance reducing the lipids peroxidation. Squalene for example is highly sensitive to peroxidation and generates reactive oxygen species,

- **Free Radical Scavenging** in tubo assessment and oxidation reduction of several reactive species: dimethylsulfoxide (DMSO), malondialdehyde (MDA), **Arachidonic Acid peroxidation (AAP)**, nitro-blue tetrazolium (NBT reduction), DPPH,
- **antioxidant enzymes activities** in cells after ROS-induced oxidative stress : Superoxyde Dismutase activity (SOD), Catalase activity(CAT), Gluthation Peroxidase activity (GSH-PX), Gluthation Reductase activity(GSSG-R)
- **AGE Advanced Glycation End products**

5. Anti-microbial activity with the quantification of the Cutibacterium Acnes proliferation.

An alternative way to test activity of prone to acne skin is to define the study protocol without any preliminary focus on claims using untargeted genomics, metabolomic or proteomics approach. Moreover, the best way to define the right protocol is to discuss with the CRO's about the mechanisms of action of your product, the evaluation goals, the context of use and the marketing needed.

Ellead Conducts the Clinical Evaluation and In-Vitro Test of Anti-Inflammation



Inflammation causes the skin disfunction and skin barrier damage. Skin erythema is one of the symptoms of inflammation. Ellead has been evaluating the **blood circulation and skin redness** using Laser Doppler Perfusion Imaging and colorimeter respectively. Recently, Ellead established in-vitro model to elucidate the potential of cosmetic ingredients **against fine dust-induced inflammatory and impaired skin barrier functions**. mRNA or protein expression of inflammatory cytokine and skin barrier factor

can be measured to detect anti-inflammatory and skin barrier reinforcement potential of cosmetic ingredients.

www.ellead.com/index_en.php

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

Understanding the mechanisms of the skin inflammation in acne by Phylogene



Skin is the largest organ to repel attacks from external agents and functioning as both a physical and immunological barrier, performing a wide range of innate and adaptive immune functions. Its glandular nature and bacteria rich composition is making it **prone to inflammation and infections**. In the recent years, the **human microbiota and its modulation of the inflammatory response** have become the subject of intensive research. Although the microbiome and its multiple roles in the gastrointestinal tract

came into light, the role of the skin microbiota remain far less understood. **Metagenomic analysis** such as 16s ribosomal gene sequencing provided **tremendous insights into taxa' ecosystem** on the skin while **metaproteomic analysis** could unravel **functional interactions between microbiota and hosts**, paving the way for understanding the mechanisms of action underlying skin inflammation in acne.

www.phylogene.com

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

Partners key figures

1h

to screen your antiperspirant by
MICROFACTORY

8

locations around the world for
COMPLIFE GROUP

25%

of women use photo filter
due to 'imperfections' by
EUROFINS COSMETICS & PERSONAL CARE

35

years of expertise to be number 1 on the
market by **C+K**

50

skin parameters analysed by the Antera 3D,
MIRAVEX

65%

of incoming clinical requests in 2020
referenced one or more skin imperfections
for targeted treatment by
VALIDATED CLAIM SUPPORT

72

in vitro and in vivo different tests by **ELLEAD**

97%

correlation with a spectrophotometer by
PIXIENCE

600m²

of premises by **INTERTEK**

+7 000

tested products by **ZURKO**

+20 000

in vitro solar tests by **HELIOSCREEN**

Articles

PCA GLOBAL

Anti-pollution
APRIL Evaluation

COSSMA

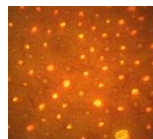
Hydration
APRIL Quantification

**INDUSTRIES
COSMÉTIQUES**

Sensitive Skin
APRIL Objectivation

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

Imperfections Assessed by Classical Methods By C+K



Imperfections of the skin can manifest in different forms such as **blemishes, dilated pores and discolorations**. They have always been a subject in beauty and clinical evaluation. With today's onset of "mascne", their measurement has gained momentum. Assessment of skin's hydrolipid film composition by **Corneometer®** (hydration) and **Sebumeter®** (sebum) shows imbalances. Measurement of the acidic mantle, typically with the **Skin-pH-Meter**, adds to this information. Other important parameters are **skin barrier function** (Tewameter®) and **colour measurements** (erythema and melanin level with Mexameter®).

Special cameras such as **Visiopor®** show the activity of the **acne bacteria** as fluorescent lesions. Pore size, lines and evenness of coloration analysis with the VisioFace® complete the picture. www.courage-khazaka.de/de

Corporate and testing sheet: www.skinobs.com/instrumentation.php?id=80

Cosmetic Products for Skin Imperfections - Which Techniques To Evaluate These Effects? By Intertek



Skin imperfections are a daily concern for many young people, but also for men and women over 25 years old.

Some cosmetic products are designed to **reduce these imperfections and/or to limit/delay their appearance or to mask them**.

Several technics are used to evaluate these effects, the **clinical evaluation** to identify and **score** these imperfections, but also the **image analysis** with the possibility to follow them day by day. Today, they can also analyze the **skin microbiota** that may be the cause of these imperfections.

Depending on your needs, Intertek's experts can help you with tailor-made protocols. www.intertek-france.com/etudes-cliniques

Corporate and testing sheet: www.skinobs.com/labo.php?id=29

Skin Blemish and Inflammation Analysis With C-Cube By Pixience



An exclusive method of metric and color calibration makes **C-Cube Clinical Research** the only **dermoscope** to provide reproducible colors, **correlated with a spectrophotometer**.

Accurate and reliable color measurements allow the evaluation of many of the skin's characteristics such as **inflammation, pigmentation, evenness, radiance**, etc. And working on photographs means that you can improve the sensitivity of your measure by **circling, or targeting, precise regions of interest**.

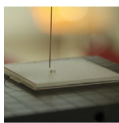
Moreover, given its ease of use and flexibility, C-Cube Clinical Research seamlessly and painlessly integrates your clinical trials.

- CIE L*a*b* average & variance
- Evenness of redness and/or pigmentation.

www.pixience.com

Corporate and testing sheet: www.skinobs.com/instrumentation.php?id=107

An Exclusive Involvement in Sun Protection Testing by Helioscreen

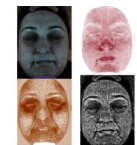


Regarding the different in-vivo, in-vitro, hybrid, in-silico or ex-vivo models for UV testing, all these methods have the same goal: **a reliable measurement of the sun protection performance**. In a worldwide harmonization vision throughout ISO system, historically, **In Vivo models are used as a reference** (SPF ISO 24444 and UVAPF ISO 24442) and recently introduced new methods for Water Resistance evaluation (ISO 18861 & ISO 16217). Trend is moving toward with **alternative methods** delivering reproducible and equivalent results to reference values (i.e. In Vivo) such as in-vitro UVAPF ISO 24443 and future in-vitro SPF ISO 23675. In parallel, **interesting hybrid method** is currently in progress (HDSR ISO 23698 project). By means of an **exclusive involvement in sun protection** testing since 1999, HelioScreen is a trusted and global partner to help companies in the selection of the best method(s) for the development or claiming of sunscreens. www.helioscreen.fr/en

Corporate and testing sheet:

www.skinobs.com/preclinical/labo.php?id=201

Clinical Evaluation of skin Imperfections using Scales and Image Analysis by Zurko Research



At Zurko Research we use both validated scales developed according to the needs of the project as well as other widely known scales for evaluation of different aspects including **hyperpigmentation, xerosis, wrinkles, etc.** The clinical evaluation by **dermatologists or trained technical personnel** is considered the main evaluation parameter for an efficacy study, but it can also be used as a support in the study of parameters for which there is no specific equipment. The results obtained through clinical evaluation correspond to **discrete quantitative variables**, whose scientific rigor is comparable to the results obtained mechanically, applying the **most appropriate statistical analysis**. In addition, we also have the Visia equipment, which allows us to observe facial images under different types of light and filters, facilitating clinical evaluation while also serving as a marketing support tool.

www.zurkoresearch.com/en

Corporate and testing sheet: www.skinobs.com/labo.php?id=88

SOD4 Technology Mimicking Sweat Mechanism by Microfactory



The contact of an antiperspirant on the skin can cause irritation and in some cases inflammation. That is why it is important to combine a healthy composition

with the effectiveness of the product. Our SOD4 technology accompanied by its Smart-Pore™ consumable **evaluates in-vitro, the performance of your antiperspirants**. While **controlling humidity and temperature**, this technology mimics the human sweat mechanism and analyses the **interaction of sweat with the product**. To do so, this machine measures the burst pressure required to expel the plugs formed during sweat/antiperspirant contact in the synthetic microfluidic pore. SOD4 and Smart-pore will allow you to enhance your new actives and **optimize your formulas in a fast way**. www.microfactory.eu

Corporate and testing sheet:

www.skinobs.com/preclinical/labo.php?id=266

Imperfections Analyze For Marketing Level Images by Validated Claim Support



Skin imperfections are a common set of issues anti-aging products attempt to tackle. **Unevenness of skin tone, wrinkles, and hyperpigmentation** are among the more prevalent

addressed. Utilizing Validated Claim Support's **fully controlled high-resolution photography**, they are able to capture all visible skin imperfections and accurately analyze any changes to them over time. This allows us to **showcase product efficacy** with **marketing level images**. Instrumentation such as Cutometer and **Expert Visual Grading** can also be used to capture data and support claims of this type. All evaluations are performed under standardized and controlled conditions to ensure the utmost accuracy. www.validatedcs.com

Corporate and testing sheet:

www.skinobs.com/labo.php?id=222&idt=2867

Clinical Evaluation of Skin Imperfections by Dermatec Complife Group



When we want to study the skin barrier damaged, we have a whole range of methods allowing both to **calibrate the stimulus** (stripping, laser, peeling...)

and to **give relevant parameters** ranging from the best known to the most innovative (exploration of the skin-by-skin imaging to study microcirculation by opto-acoustic or the measurement of the thickening of the layers by LC-OCT). **DERMATEC**, a clinical research center **specializing in innovation**, can support R&D laboratories to best meet their needs and expectations on all these themes. By joining the **COMPLIFE group, the offer is expanding**, in terms of target panels and availability. www.complifegroup.com

Corporate and testing sheet:

www.skinobs.com/labo.php?id=33

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