NEWSLETTER #20 - 09/2021

skinobs

Skin, Hair, Nail Testing Platforms

zoom #20

edito

In this digitally favorable period, Skinobs is enthusiastically settling into the global landscape of evaluation testing of cosmetic active ingredients and finished products. Through **diligent collaborative work** with laboratories and instrumentation manufacturers, we share **sorted and qualified technological information with more than 4000 cosmeticians of 85 nationalities.** It has never been easier to identify the **best methods** and be in contact with **the most relevant providers.** Each month, you can join the **Live webinars** presenting best practices to accelerate your search of testing solutions. For this ZOOM, we discuss the **objectivation of the effect on cutaneous Biomechanical Properties using both in-vivo studies and in-vitro and ex-vivo assays.** Please find in this newsletter the latest news of our partners': C+K, CIDP, Complife, Ellead, Eotech, Eurofins, FEBEA, Helioscreen, IEC, Intertek, **Princet on Consumer Research,** Phenocell, Phylogene, **Zurko**.
Happy reading!

Anne Charpentier, CEO

Skinobs Platforms, two Unique Tools to Accelerate your Testing Research

In 2020, Skinobs launched the Preclinical Testing Platform, four years after the Clinical one. This new tool dedicated to **in-vitro and ex-vivo testing** already cumulate more than 1,000 users and 26,000 page viewed. The access to the platforms is free **and reserved to cosmeticians.**
As in the Clinical Testing Platform, you can **search your tests by claim,** and find all the assays and their providers **around the world.** You can also have a direct contact by email with the testing laboratories, without any commission. For both platforms, each referenced test is validated by its provider, offering **robust and reliable information.**

We are proud to offer the Beauty industry **a unique 360°** vision of testing possibilities. We continually update the testing solutions to share with you all the new trends of the dermocosmetics testing field. In July, we just added **two new categories on the Preclinical Testing Platform referencing Regulatory & Toxicology consulting.**
We remain available to answer you at contact@skinobs.com, we would be glad to help you in your testing projects. See you soon on the platforms!
Skinobs Platforms, two Unique Tools to Accelerate your Testing Research

1st Semester 2021

+ 42% USERS*	6 MINUTES*	+ 33 000 PAGES VIEWED*	+ 44% SESSIONS*
* From January to July 2021 vs 2020	* From January to July 2021 vs 2020	* From 1st January 2021	* From January to July 2021 vs 2020

Accelerate your search on Biomechanical properties evaluation

For **in vinvo tests** you find in the result search:

+ 31 Methods | + 64 Testing labs | + 29 Countries

For **in-vitro and ex-vivo** you find in the result search:

+ 27 Methods | +24 Testing labs | + 8 Countries

538 Methods
44 Skins mechanisms
150 CRO's

186 Claims
363 Methods
121 CRO's

SKINOBS.COM

BIOMECHANICAL PROPERTIES OF THE SKIN: IN VIVO EVALUATION

Personal care products offering an efficacy on the skin biomechanical properties are often linked to anti-ageing claim category. These products are associated to various functionalities such as, **lifting, firming, remodeling, plumping, sculpting, restructuring or tonic.** The firmness and the tonicity are skin attributes that are constantly impacted by the exposome (concept developed by Dr Jean Krutman in 2016) and all the non-genetic factors that influence the skin ageing.

What methods exist today to assess the performance of skin care on biomechanical properties of the skin?
Beyond the consumer tests and the scorage by experts we have categorize the assessment of the biomechanical properties of the skin in 2 parts: one dedicated to the direct measurements and the second one dedicated to the indirect evaluation.

Direct biometrological assessments are designed to measure the **elasticity and the firmness of the dermis** through various instrumentations that enable quantification on several regions of the face and the body:

- **Dynaskin** by Eotech, Orion
- **SkinFlex** by Orion
- **Ballistometer** by Dia-Stron
- **Cutometer and Cutiscan** by Courage & Khazaka
- **Elastimeter** by Delfin
- **DermaLab Elasticity** by Cortex
- **Indentometer** by Courage & Khazaka

A **real-time deformation** using several techniques -ballistometry, suction, indentation, or air flow- is implemented one or several times on the skin surface. Then, the biomechanical behavior induced is measured trough optical or fringe projection principle.
The **scorage by experts using specific visual and tactile scales** are complementary analysis that can be also completed by auto-evaluation of the volunteers or specific consumer studies.
Indirect measurements, analyze the assessment of parameters that are linked to the biomechanical properties of the skin and give information on:
Collagen, Face analysis and volume, molecular composition, proteomics and metagenomics, dermis size and shape, Skin aspect and structure.
You can retrieve the several methods of analysis on the table below or connect to the **Clinical testing platform**.

A WORD **OF EXPERT**

Cyril Messaraa

Principal Research Project Lead - Ori-Derm,
Claims & Communication. ORIFLAME COSMETICS

The efficacy of skin care on the firmness, elasticity or tonicity are part of the big family of the anti-ageing care. Through the standardized analysis of the compression, the stretch, or the twisting, we can evaluate the several deformations of the skin. The ability to withstand these deformations are attributes of a youthful and healthy skin. Breakthrough innovation in this field of objectivation remains challenging, as there is limited new instrumentations brought to the market. Still, some recent devices with no contact technologies, such **as wave propagation or air pulse**, are worth consideration. **Image analysis** is a relevant addition to biomechanical approaches, to describe the state of the skin at rest. Moreover, **specific scores** by experts that are very appreciated by the **Chinese market** generally give good results, in various part of the face. Today the challenge of the biomechanical properties objectivation is to succeed to translate the efficacy of the products in an easy manner for the consumers. Brands have always to reinvent their **scientific communication with creative concepts** and vulgarisation of biomechanical results with illustrations.

BIOMECHANICAL PROPERTIES CLAIM SUBSTANTIATION CLINICAL AND INSTRUMENTAL ASSESSMENTS

STUDIED EFFECT	Methods and Devices
BIOMECHANICAL PROPERTIES	**Cutometer, Cutiscan, Indentometer IDM800 (C+K), Dynaskin (Orion, Eotech), SkinFlex (Orion)**, Ballistometer (Dia-Stron), Elastimeter, **DermaLab Elasticity (Cortex)**
FACE MORPHOLOGY AND VOLUME	**ColorFace (Newtone), AEVA-HE, Dermatop-HE (Eotech)**, Vectra, Olé, Primos (Canfield), Observ 320 (Innofaith), **HeadScan (Orion)...**
SKIN SURFACE	**SpectraCam (Newtone), Epsilon (Biox), Dermatop-HE (Eotech)**, Visia-CR, **Visioface and Visioscan (C+K),** SiaScope (MedXhealth), ViewSkin, **C-Cube (Pixience), Antera 3D (Miravex), TiVi80 (Wheelsbridge)**, Clarity 3D Mini, SIAScope, and all videomicroscopes...
SKIN STRUCURE, DERMIS SIZE & SHAPE	**Dubskin-scanner, Dermatop-HE (Eotech), LC-OCT (Damae)**, Antera 3D (Miravex), Sonde Raman (Horiba Jobin), Vivascope (Mavig), Vivosight (Michelson), TiVi80 (Wheelsbridge), Dermascan (Cortex)
SKIN MOLECULAR CONTENT	LC-OCT (Damae), Sonde Raman (Horiba Jobin), **FibroTX (Eotech)**, Raman spectroscopy gen2-SCA, Genomic, **metabolomic, proteomic analysis (Phylogene)**...
METAGENOMIC	Genomic, metabolomic, and proteomic analysis using **MS/MS-16S rRNA-PCR (Phylogene)...**
COLLAGEN	SIAScope, Dermo...
GLOBAL ASPECT	**Visual and tactile objectivation with Scoring** by technician experts and dermatologists using specific scales and photos, **Consummer Tests** to evaluate the level satisfaction of the biomechnaical **Sensory analysis** by trained panels or naïve subjects, Emotions evaluation by I.A,

Biomechanical Properties of the Skin: Interest of the Tactile Clinical Approach by Eurofins

eurofins

Due to the Covid-19 pandemic, the visual clinical examination of the skin was often chosen instead of the tactile examination. However, **the tactile clinical assessment** is still valuable for assessing the biomechanical properties of the skin. This evaluation will first **stretch the skin slightly, then relax it, to assess the firmness, elasticity, tonicity and suppleness.** Then they look for dehydration lines, by slightly mobilising the skin surface on the cheeks. Finally, the passage of **the finger over the skin surface** allows them to feel any wrinkles, defining the roughness, or on the contrary the softness, and the smoothness in the absence of perceptible wrinkles.

The lack of references in tactile evaluation makes the notion of **training the evaluator essential**, reinforcing the **«memory of tactile sensation»**, with precise scoring grade. This tactile approach completes the visual, subjective, and instrumental evaluations, demonstrating the completeness of the offering proposed by Eurofins.

www.eurofins.com | **Corporate and testing sheet**

IEC: Biomechanical and Dynamic Expertise of the Skin since 1994

iecfrance

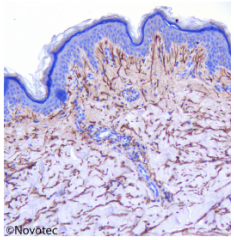
The exploration of cutaneous biomechanical properties has always been a subject of great interest for IEC for a better understanding of **flexibility, firmness, elasticity, and tonicity** constants in cosmetic evaluation, in **addition to a clinical expertise by tactile scoring:**

- 1994: Suction measurement, Cutometer® (C&K), Short podium communication IFSCC Cannes 1998: investigations on stretch marks, tensing, firming products.
- 2007: Non-contact measurement, Dynaskin® (Orion/Eotech), Communication ISBS Lisboa 2016: immediate and long-term effects with illustration of skin deformations.
- 2018: Dynamic non-contact measurement, SkinFlex® (Orion TechnoLab), Engineering thesis with Orion, 2020. Compact device for multicenter and multiethnic studies in the 9 IEC global centers.

www.iecfrance.com | **Corporate and testing sheet**

BIOMECHANICAL PROPERTIES AND THE EXTRA-CELLULAR MATRIX

The personal care objectives are to maintain the skin in good conditions and preserve its elasticity and its resistance. "Firmness" performance enhances the **density of the dermal extra-cellular matrix** [ECM]. This "renowned" matrix plays one of the essential roles of the physical and **biomechanical properties of the dermis** with this intricate **network of extracellular macromolecules** providing **cells structural, bioactive molecules and biochemical support.**
The ECM composed of hundred proteins is a dynamic network controlling the **proliferation, adhesion, migration, differentiation, and apoptosis of the cells.** The in-vitro or ex-vivo assays can target the various biological mechanisms providing a limitless opportunities of claims support.



What are the major components of the ECM that can be studied?

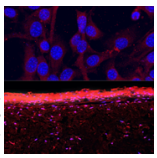
- *Collagens*, backbone of the tissue architecture, are categorized into 3 main sorts:
  - **fibril-forming** collagens (types I, II, III)
  - **network-forming** non fibrillar collagens (type IV), that composed a non-fibril network
  - **fibril-associated** collagens (types IX, XII), and others (type VI)

- *Glycosaminoglycans* (GAGs) are polysaccharides and help to keep water:
- *hyaluronic acid*
- *keratan sulfate*
- *chondroitin/dermatan sulfate*
- *andheparan sulfate*

- The *laminins* forms networks that remain in close association with cells through interactions with cell surface receptors.
- The role o f the *fibronectin fibrils* is the attachment and migration of cells, **like a "biological glue".**
- *Elastin* fibers confer elasticity and through cross-links with *tropoelastin* mediated by LOX finally form *desmosine* or *isodesmosine.*

In conclusion, this incredible network, substrates for matrix metalloproteinases (MMPs), stocks bioactive fragments, and adhesive proteins. It is also modulated by **exogenous environment. The own biochemical properties of the ECM** can be studied in many ways through the analyse of its various components and their interactions and constitute a "gold" support to substantiate ingredients and finished product claims.

Preclinical Testing: Which Assays to Analyse the Cutaneous Mechanical Integrity with Complife Group


complifegroup

The mechanical behaviour of skin such as **plasticity, elasticity, or viscoelasticity** is very important for its **barrier function and cosmetic appearance.** The application of skin care improves biomechanical properties of the skin through different mechanisms mainly by **increasing its hydration and by boosting structural components,** such as **hyaluronic acid, collagen, and elastin fibers. In-vitro preclinical tests** take advantage of **innovative tools** allowing to **quantify gene and protein expression by molecular** (real-time PCR, ELISA) **or imaging** (immunohistochemistry, immunofluorescence) assays, as well as **skin barrier integrity** (TEER), in keratinocytes and dermal fibroblasts cell cultures, reconstructed human skin tissues or ex-vivo skin.

www.complifegroup.com | **Complife Group's corporate sheet**

Application Gestures and Biomechanical Properties by Intertek

intertek

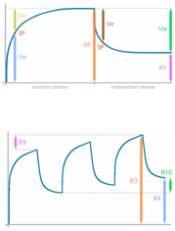
It has been proved that the correct application of products helps to improve the biomechanical properties of the skin. At Intertek, they propose you to test:

- **your massage routines** for the body or the face, via a specific protocol carried out by our **qualified beauticians**
- your application gestures, performed directly by our volunteers and controlled by our clinical research technicians.

Their team uses several instrumentation depending on the body area to be evaluated: the **Cutometer, the DTM, the Dynaskin...**
With these methods you can claim the effectiveness of your products: balm, oil, serum, essence...
Their centre based in the heart of Paris also assists you with your **tolerance and efficacy studies** in the anti-aging, hair care and sun care fields...

www.intertek-france.com | **Intertek corporate sheet**

Skin Biomechanical Properties and Anti-aging Products by Princeton Consumer Research


princetonconsumer

A widely used approach for determining the mechanical characteristics of healthy and diseased skin is the **suction via Cutometer®**. A negative pressure is applied on the skin surface through an aperture of the suction device and skin tissue is drawn into the probe cavity. The elevation of the skin tissue is quantified, and tissue stiffness determined from the ratio of negative pressure and skin displacement. Along with stiffness, certain other **parameters of viscoelastic and viscoplastic behaviour of skin can be determined.** Anti-aging product testing is a hallmark at Princeton Consumer Research, with various types of formulations containing routine and novel ingredients with claims of (restoring firmness and/ elasticity) being tested with the Cutometer® MPA 580, (Courage + Khazaka Electronic GmbH in Germany). This a highly efficient tool in terms of qualifying these claims.

www.princetonconsumer.com | **Corporate and testing sheet**

PARTNERS KEY FIGURES

2
new acquisitions
for EUROFINS COSMETICS & PERSONAL CARE:
Bioskin and Alba Science.

4.0
version
of the AEVA software by EOTECH

8
years
of experience for the Shared Audits Services by FEBEA

14
CRO's
around the world for COMPLIFE GROUP

25
Clinical Experts
involved in the INTERTEK clinical team

40
preclinical and clinical trials
of protective and repairing effects against exposome by CIDP

100
Preclinical assays
available on 3 different ethnic skin models by PHENOCELL

149
years
of cumulative expertise in the 7 centers around the world by IEC

1 000
publications
in cosmetics and dermatology by C+K

20,000
solar tests
carried out by HELIOSCREEN since 2001

NEWS

Read the latest news on cosmetics testing.
Subscribe to the online Newsletter:
www.skinobs.com/news

Omics Analysis of the Extra-cellular Matrix Components by Phylogene

phylogene

Skin is the largest organ to repel attacks from external agents and functioning as both a **physical and immunological barrier.** Its protective layer essentially composed of proteins and lipids such as Keratins, Fillagrins, Involucrins are essential component of the cornified envelope. Collagen and Elastin are found in the deep layers of skin (extra-cellular matrix-ECM) and are among others principally engaged in **skin mechanical properties.** As a rule of thumb, UV induced Oxidative stress as well as post translational protein modifications (PTMs), could affect **skin elasticity and its mechanical integrity.** Self-renewing and lipids production impairment, barrier functions loss, dark spots appearance are common signs of aging skin.

www.phylogene.com | **Corporate and testing sheet**

A New in-vitro Microbiome Model to support Skin Imperfection Claims by Phenocell

phenocell

It is well-known that **skin microbiome dysregulation** causes acne. Excessive sebum production by sebocytes leads to C.bacterium over-proliferation inside the hair follicle. Among others, this causes skin inflammation, redness, and pimples. Active ingredients modulating unbalanced microbiome effects can help restore a healthier skin. To help identify such ingredients and evaluate their efficacy, Phenocell has developed an **innovative model, based on sebocytes** and supernatant from acne inducing C.bacterium strains. In this model, **pro-inflammatory cytokine secretion** can be evaluated in parallel with sebum production, over a range of ethnic background (Caucasian, Asian and African).

www.phenocell.com | **Corporate and testing sheet**

New in-vitro Sand Resistance Method for Sunscreen Products by Helioscreen

helioscreen

Beyond the static sun protection performance provided by sunscreen products against UV radiations, the photoprotection is challenged by consumers under real conditions of use (such as the Water Resistance) but none standardized nor harmonized in-vivo, or in-vitro method are available today concerning the **Sand Resistance assessment.** For this purpose, HelioScreen developed a **new relevant and reliable in-vitro method** to allow the evaluation of the Sand Resistance percentage of a sunscreen product by comparing the in vitro SPF before and after a specific agitation in a standardized sand. Therefore, we are delighted to announce the arrival in our catalog of the in vitro Sand Resistance test!

www.helioscreen.fr | **Corporate and testing sheet**

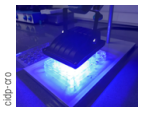
Ellead Conducts the Skin Penetration in-vivo Test Through Raman Spectroscopy

ellead

Cosmetics contain ingredients with effects such as **skin moisturizing, whitening, anti-wrinkle.** To maximize the efficacy of cosmetics, the absorption of active ingredients is very important. For several years, Ellead has accumulated **optimal know-how** while conducting an evaluation that non-invasively measures the depth and amount of skin absorption of the target material through **the latest Raman spectroscopy** (gen2-SCA, RiverD, Netherland), which is the ultimate version that can check the **depth of up to 500µm in the skin.** In addition, the change in NMF in the skin and the amount of water concentration can be measured through the library provided by the analysis tool.

www.ellead.com | **Corporate and testing sheet**

Anti-Blue Light and Explant Assays by CIDP



cidp-cro

CIDP has developed **monochromatic lamps which mimic blue light** obtained from the sun and digital devices. Using these blue light sources, the **protective and/or repairing effect** of cosmetic products can be demonstrated using **skin explants** and further be confirmed with the different **clinical methodologies** developed at CIDP. Biological markers such as **ROS, lipid peroxidation and protein carbonylation** can be used to evaluate the efficacy against the **oxidative stress induced by blue light.** More downstream effectors such as the **collagenase MMP-1, pro-collagen and collagen** can also be monitored. The protection against the **pigmenting effect of blue light** can also be evaluated. All protocols proposed by CIDP include a combination **of biophysical and biochemical evaluations** to objectively demonstrate the performance of cosmetic products. The CIDP team offers guidance and editorial support for all scientific writing.

www.cidp-cro.com | **Corporate and testing sheet**

Audit your Solar Test Providers with FEBEA

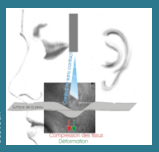
febea

FEBEA, the French Federation of Beauty, provides a service of **shared audits.** Since 2014, any operator of the cosmetic industry can benefit from the **mutualization of quality audits** of suppliers and distributors of cosmetic products. The service is now open to laboratories performing tests of sun protection products. Join the service and benefit from:

- **Shared audit costs:** one audit of one laboratory is operated for several customers.
- Expertise of **recognized Auditors**
- Audit guide complying with **in-vivo and in-vitro standards** in force, updated according to the latest versions
- Absolute **confidentiality.**

www.febea.fr | **Corporate and testing sheet**

Skin Firmness Evaluation with the DynaSKIN -2 by Eotech

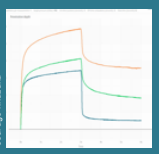


eotech

Since more than 14 years, Eotech in collaboration with Orion-Concept had developed a **unique and innovative system to measure skin firmness,** the DynaSKIN! This system combined **Air projection hardware with a 3D sensor** based on fringe projection technique which acquire images synchronously during the air flow. This solution is very **sensitive and robust in the firmness measurement** obtained by the volume calculation of the air depression, as many articles promoted it. As the demand for this measurement remains strong, Eotech decided to create a **new version** and the **DynaSKIN-2** is born! They made the air blowing system independent and coupled to the head block system of all **positioning benches.** This block **guaranties** the volunteer and the device accurate positioning to make reproducible measurementshading and not shading the 3 sensors.

www.eotech-sa.com | **Corporate and testing sheet**

Gold-standard in measuring the mechanical properties of skin by C+K



courage-khazaka

The Cutometer® is the **world's most-used instrument in this field.** Over 1000 publications proof its being a benchmark tool for every researcher in cosmetics and dermatology. Frequently, people apply the term "cutometry" when talking about skin elasticity measurements. The principle is based on **drawing the skin with negative pressure** into the probe aperture. Touchlessly, an optical system determines **the skin's ability to resist the suction and to recover** when the pressure ceases. From the real time curve, interesting calculation parameters **mirror firmness, elasticity, viscoelasticity, fatigue, skin energy, biological skin age** and the brand-new parameter **maximum collagen power.**

www.courage-khazaka.de | **Corporate and testing sheet**

How to evaluate the Biomechanical Properties of the skin? By Zurko research

zurko research

At Zurko Research they quickly and easily carry out the evaluation of the biomechanical properties of the skin through the **Cutometer® dual probe MPA 580** (Courage + Khazaka). By **customizing suction and relaxation cycles on the skin,** they measure the firmness, elasticity and fatigue of the skin in different anatomical regions. From Zurko Research they recommend, whenever possible, to carry out the measurements **in a treated area and a control area** (placebo or non-treated area) with the aim of solely and exclusively attributing the results obtained to the effectiveness of the tested product and controlling extrinsic factors.

www.zurkoresearch.com | **Corporate and testing sheet**

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