MICROBIOgen

Understand how your cosmetic ingredient works precisely in an original skin microbiota model.

The skin is colonized by a **commensal flora** made up of bacteria, fungi, viruses and mites, known as the cutaneous microbiota.

The skin microbiota **interacts with the skin cells** and the body's **immune system**, enabling the body to defend itself against pathogenic germs. An **imbalance** in the skin microbiota can lead to more or less severe **skin pathologies**.

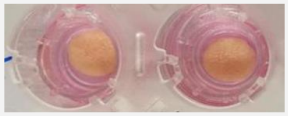
For decades, knowledge of the cutaneous microbiome has improved and over the years the cutaneous microbiota has become **a new strategic asset** in the dermo-cosmetic market.

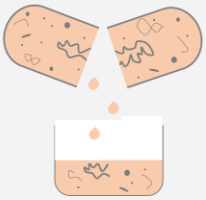
MICROBIOgen is a new service that allows you to test your active ingredients in an environment that mimics the skin microbiome.

MICROBIOgen

Test the effect of your active ingredient on skin explants or skin cell types in a specific cutaneous microbiome environment. By combining different types of bacteria. We offer relevant models such as **normal skin, atopic dermatitis or sensitive skin**.

Skin explants OR Primary cells → Introduce normal or sensitive or AD skin microbiome environment with bacterial extracts → Treatment with cosmetic active ingredients → Read-outs





- Expression profiles of key genes & miRNA
- Secretion of cytokines
- Immuno-labelling with specific markers

Your Benefits

Reliable : optimized process that guarantees fast and strong results

Tailored : adaptable to different model of skin type

Fast : accurate results delivery as from 2 months

MicrobioSAFE

Check if your active ingredient has an action on the skin's microbiota.

The skin is colonized by a commensal flora made up of bacteria, fungi, viruses and mites, known as the cutaneous microbiota.

The skin microbiota interacts with the skin cells and the body's immune system, enabling the body to defend itself against pathogenic germs.

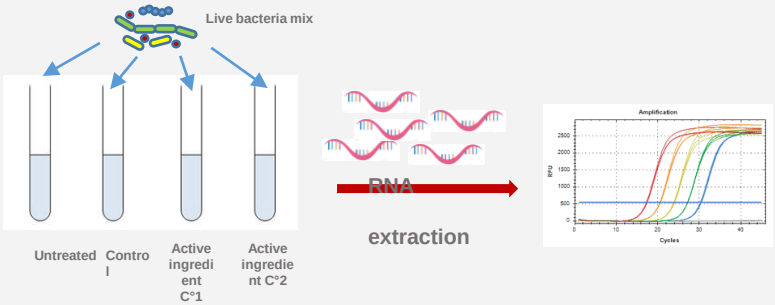
An imbalance in the skin microbiota can lead to more or less severe skin pathologies.

Today, it is important to check that active ingredients do not have a harmful effect on the skin's flora.

MicrobioSAFE is a new **service that allows you to control the safety of your active ingredients on a mix of bacterial strains representative** of a skin model.

MicrobioSAFE Method

- **We can check the impact** of your **active ingredient** on the bacterial health (toxicity, no effect or enhancer roles).
- **You can choose your skin microbiome study model** among our different models (normal, sensitive, Atopic Dermatitis, ...)



Your Benefits

Tailored: adaptable to different skin model

Fast: accurate results delivery as from 2 months

Complementary: can be carried out in parallel with our other study models

ATOPIgen

Check if your active ingredient is efficient for the Atopic dermatitis, also known as atopic eczema?

genel
THE RNAi SWITCH

CCL22 and CCL17 Immunostains

Atopic dermatitis, also known as atopic eczema, is a chronic disease characterized by severe dryness of the skin.

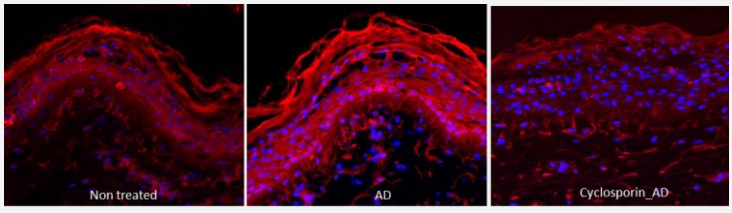
Dry skin causes particularly uncomfortable and unsightly symptoms such as itching, red patches, oozing and crusting.

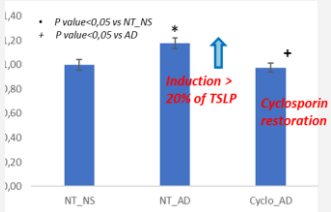
The development of products to alleviate itching and prevent new attacks is eagerly awaited by patients. However, there are few **high-performance models of Atopic Dermatitis to test** the ability of active ingredients to prevent attacks and repair skin alterations.

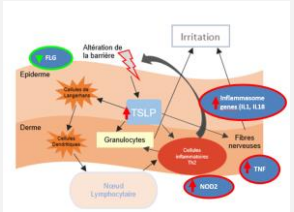
ATOPIgen is a **new skin explant study model** that perfectly mimics certain aspects of the pathophysiology of atopic dermatitis such as the induction of the **TSLP** protein and the regulation of certain key pathways.

ATOPIgen Model

- **Genel discovered** that the **cytokine Thymic Stromal LymphoPoietin (TSLP)** was induced during trauma or microbial infection.
- Monitoring the level of inflammation in **atopic dermatitis is possible**
- Evaluate the ability of your active ingredient to treat atopic eczema







Your Benefits

Reliable : optimized process that guarantees fast and strong results.

Fast: accurate results delivery as from 2 months.

Complementary: can be carried out in parallel with our other study models.

HYDRAgen

Evaluate the moisturizing power of your active ingredient.

The **superficial layer of epidermis**, the stratum corneum (SC), protects human body from external stress including dehydration.
Many mechanisms involved in epidermal barrier maintaining, contribute to the state of hydration balance: natural moisturizing factors (NMF), glycerol produced by aquaporin and the specific organization of the SC with corneocytes, **the stratum corneum and the lipids are crucial in the hydration balance**.

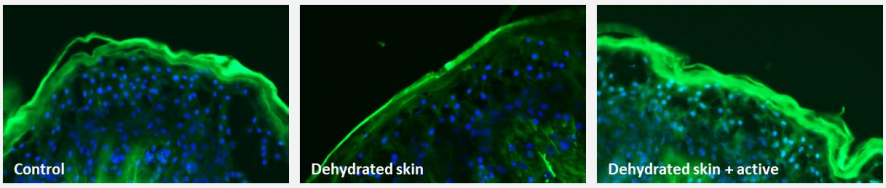
The **development** of more effective moisturizing **active ingredients is crucial** to fit with consumers' needs.

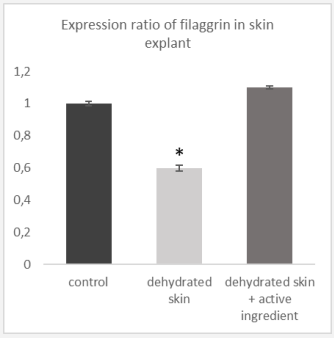
HYDRAgen allows you to evaluate the moisturizing *potential* of your active ingredient using various innovative and robust techniques.

HYDRAgen Model

The expression of the Filaggrin protein is decreased under dehydration stress conditions. The active protects/restores the stratum corneum.

Filaggrin immunolabelling





HYDRAgen is a highly efficient model thanks to the presence of the different skin constituents.
Physiologically closer to ***in vivo* conditions** and **increase efficiency** due to the presence of the different skin constituents.

Your Benefits

Relevant: from a wide range of techniques, we will precisely assess the effect of your active ingredient.

Affordable: cost effective adapted only to the techniques you'll need.

Fast: accurate results delivery as from 3 months.

Co-CULTUREgen

Understand how your cosmetic ingredient works precisely by monitoring molecular multiple cell types at the same time.

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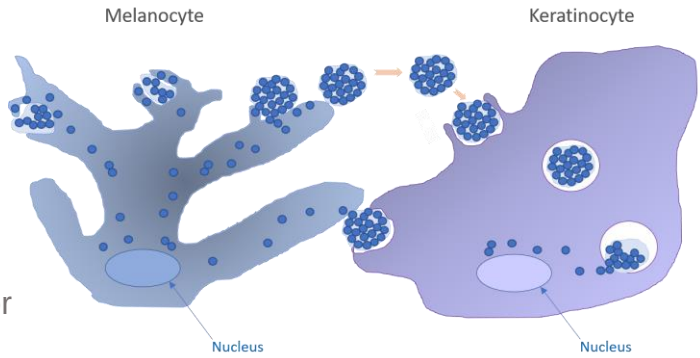
Different cell types can work in harmony with each other through cell-to-cell interaction. **Being able to co-culture multiple cell types opens** the path to new ways of studying a wide range of novel biological mechanisms. Unfortunately, by cultivating multiple cell types together it is very difficult to monitor each cell lines independently.

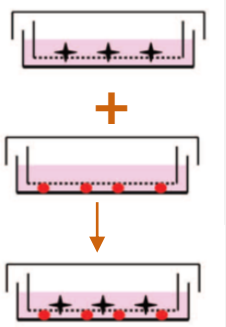
Therefore, to be **able to validate your effect independently on multiple** cell types co-cultivated would be an essential step to understand new biological pathways.



Co-CULTUREgen
is an original method designed to assess **multiple** cell types at the same time.

Co-CULTUREgen Method

- Test the ability of your active ingredient on multiple cell types at the same time and independently.
- From the same experiment, validate its effect on the crosstalk from cell-to-cell interaction.



Culture on transwell plate of the first cell type

Second cell type culture

The first culture on transwell plate is placed above the second culture to enable the crosstalk

Your Benefits

Reliable: optimized process that guarantees fast and strong results.

Relevant: Perfectly assess the efficacy of the active ingredient on cell-to-cell interaction and on multiple cell types independently.

Tailored: adaptable to any type of cells that need interaction.

MELAgen

Assess the effect of your active ingredient on melanogenesis, an essential mechanism that protect skin cells.

Melanocytes prevent the UV-dependent DNA damage in human skin by producing melanin that is synthesized and deposited in melanosomes. Melanosomes are then transferred from the melanocytes to the keratinocytes to protect them.

At the same time, uncontrolled hyper-pigmentation provokes skin disorders such as ageing, spots, and vitiligo.

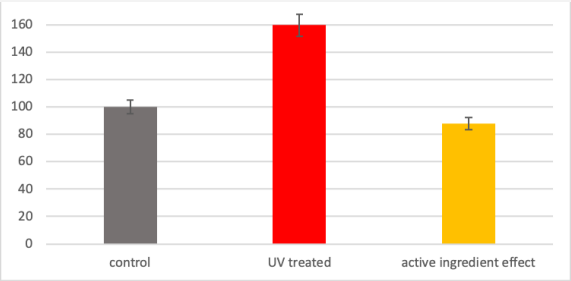
Being able to understand how melanogenesis is regulated is essential to assess for skin protection.

MELAgen will give you the keys to decrypt the precise effect of your active ingredient on melanogenesis.

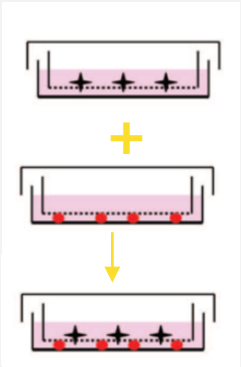
MELAgen Method

Melanin content quantification in UV-irradiated melanocyte

Co-culture of melanocytes &



The active ingredient regulates melanin synthesis in UV-irradiated melanocytes, helping the cells to protect themselves against UV-dependent DNA damage.



By assessing the effect of your active ingredient on the crosstalk between melanocytes and keratinocytes we can precisely determine its role in hyper or hypo-pigmentation.

- Test your active ingredient on multiple pathways involved in melanin regulation.
- Precisely understand how melanogenesis activity and melanin quantity are regulated by your active ingredient.

Your Benefits

Reliable: optimized process that guarantees fast and accurate results .

Relevant: From a wide range of techniques, we will precisely assess the effect of your active ingredient.

Affordable: Cost effective adapted only to the techniques you' ll need.

SENSIgen

Evaluate the response of your active ingredient and skin inflammation.

Sensitive skin are skins subject to disorders and allergic reactions such as eczema. They can be overly dry or injured, leading to skin reactions. A skin can become sensitive because of excessive exposure to skin-damaging environmental factors such as sun, excessive heat and cold as well as genetic factors like age and gender.

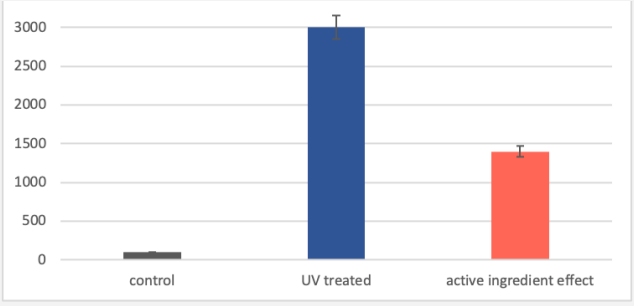
The epidermis, that represents the first line of defense against external aggression, functions as an innate immune system that activates the inflammation pathway in order to respond to these threats.

The development of active ingredients that can regulate this inflammation is crucial to understand how the skin response to these damaging factors. But the inflammation pathways are composed of multi-complex proteins and are therefore extremely complicated to understand.

SENSIgen provides a set of innovative and comprehensible tests to evaluate the role of your active ingredient on the skin inflammation response.

SENSIgen Method

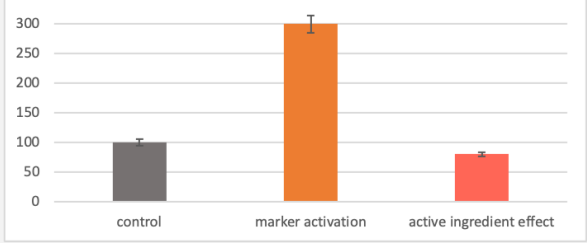
Investigate how the inflammation is activated after UV stress



The effect of the active ingredient in reducing the inflammation from UVB-radiation is determined through a caspase staining as well as ROS activation test.

Immunology test on key markers of the inflammation pathway

Key markers involved in the activation of the inflammasome are examined using ELISA tests.



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Affordable: Cost effective adapted only to the techniques you' ll need.

INFLAMMAgen

Assess how your active ingredient will regulate the inflammation and the stress response.

Oxidative stress is an imbalance between the production of reactive oxygen species (ROS) and their elimination by protective mechanisms. It can provoke chronic inflammation.

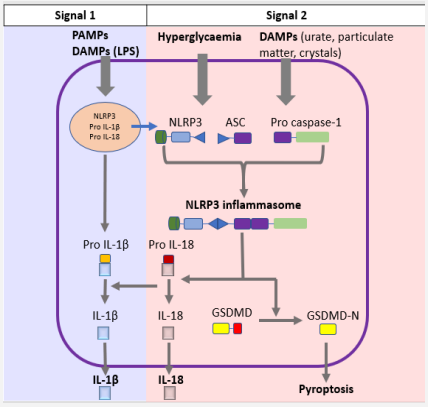
The epidermis represents the first line of defense against external aggression. Hence, keratinocytes can function as innate immune cells when they are under oxidative stress. At the same time, they are aggravating the cutaneous T-cell response that undermines melanocytes in the setting of vitiligo.

The development of active ingredients that can regulate ROS and the inflammasome is crucial to understand how skin response to damaging threats. Unfortunately, oxidative stress and the inflammasome pathways are extremely complex to understand.

INFLAMMEgen is a collection of precise and innovative tools to deeply understand how your active ingredient will act on oxidative stress and on the activation of the inflammasome pathways.

INFLAMMAgen Method

- Investigate the activation of the inflammasome after UV-stress.
- Understand how cytokines are regulated by your active ingredient.
- Assess how the caspase activity is modulated after treatment.
- Check if your active ingredient can modify the protective mechanisms against ROS.



Your Benefits

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Relevant: From a wide range of techniques, we will precisely assess the effect of your active ingredient.

Affordable: Cost effective adapted only to the techniques you' ll need.

Support

Working together as one team, we partner with you to determine the most efficient and appropriate strategy to reveal the power of your cosmetic active ingredients.

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Contact us for a free scientific diagnosis

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www.genel.fr