



BCN INTENSE REPAIR

Concentrated prebiotic formula

BCN INTENSE REPAIR is an intensive prebiotic, moisturising and repairing treatment. Due to its rich formula, it works best as a night cream or as an extra-calming, refreshing mask.

An intense prebiotic skin recharging treatment that rebalances the skin and strengthens its protective barrier.



100ml tube | 3.38 fl. oz.

BCN PREBIOTICS

Beautiful skin is healthy and protected skin. With this philosophy in mind **Institute BCN** has developed **BCN Prebiotics**, an innovative line of products centred on prebiotic actives that help rebuild the skin's microbiome while providing a nutritional boost to balance the skin. In addition to this cocktail of prebiotic actives, **BCN Prebiotics** products also contain **powerful anti-ageing non-prebiotic ingredients with antioxidant and highly moisturising properties**.

The new **BCN Prebiotics** line is suitable for all skin types, and especially recommended for the daily care of:

- **sensitive skin and conditions such as acne and rosacea**, offering impressive results without damaging the skin barrier.
- **skin that has developed sensitivity**.
- **skin that has undergone aggressive medical-aesthetic treatments**, which can affect the skin's microbiome.

INDICATIONS

BCN Prebiotics' ultimate aim is **beautiful and luminous skin** that helps us feel good about ourselves; skin with minimal signs of ageing. In order to achieve this, the skin needs to be healthy and well-protected.

Institute BCN believes that the best way to tackle ageing is to strengthen the skin with highly effective, skin-identical and biocompatible products.

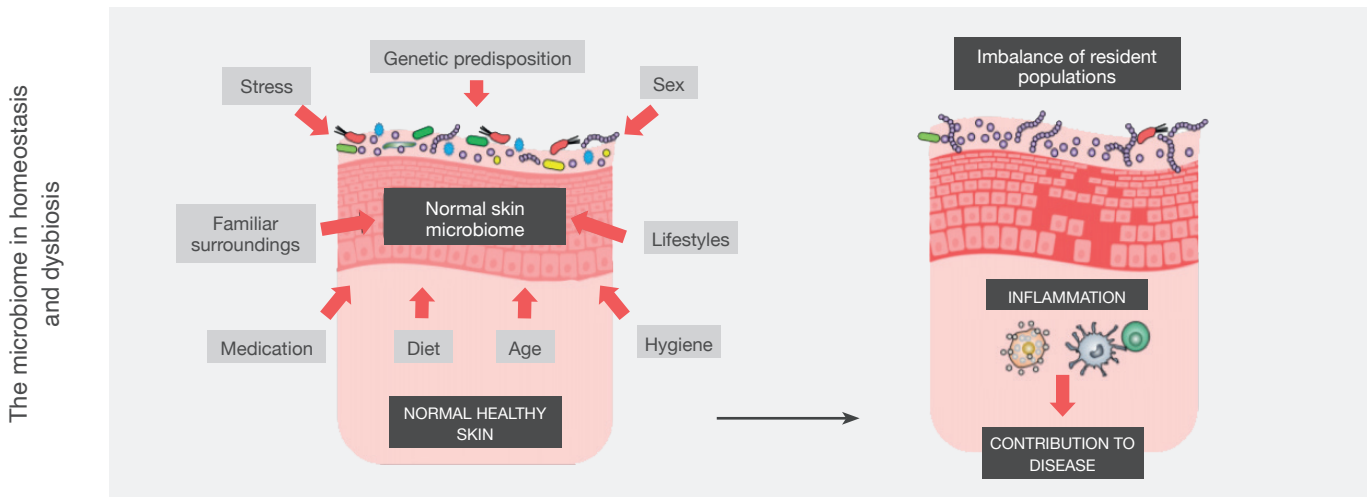
Our skin's main protective systems compared to the phenomena that can affect these systems are:

BALANCED MICROBIOTA VS DYSBIOSIS

The balance — or eubiosis — between the different groups of bacteria that make up the **microbiota or skin flora** can become unstable due to genetics and exposure to environmental aggressors (pollution, solar radiation and overexposure to electronic devices).

Medical and aesthetic radiofrequency treatments, facial dermabrasion, peels, microneedling and mesotherapy can also alter skin flora.

When the microbiome balance is disturbed, **dysbiosis occurs, which can cause irremediable changes in the skin's natural defences**, causing premature ageing, sunspots and irritations such as redness, inflammation, flaking and itching.



To **remedy this dysbiosis** or imbalance in the cutaneous microbiota, **Institute BCN** has formulated a whole line of **skincare products containing prebiotic actives**, the natural food sources of ‘good’ bacteria in the saprophytic flora..

The BCN Prebiotics line contains the right combination of nutrients to encourage the growth of ‘friendly’ bacteria populations, helping to fight harmful bacteria and **restoring the skin’s microbial balance**.

WATER BALANCE VS ALTERATIONS IN THE BARRIER FUNCTION

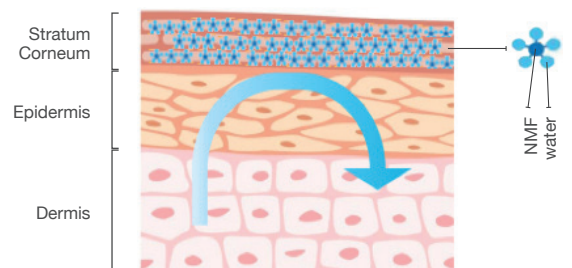
Hydration is the process of restoring the skin’s water balance to protect us from dryness and prevent premature signs of ageing.

As we age, the skin loses its natural humectants and the skin’s barrier function is weakened, meaning that **we lose more water through diffusion and TEWL** (TransEpidermal Water Loss).

The **water content** of the stratum corneum in **well-hydrated** skin is about **10 to 20%**. When the skin lacks water for whatever reason, the skin’s natural hydration levels decrease, causing the skin to become dehydrated. When the **water content** of the stratum corneum is **below 10%**, **the skin is dehydrated**.

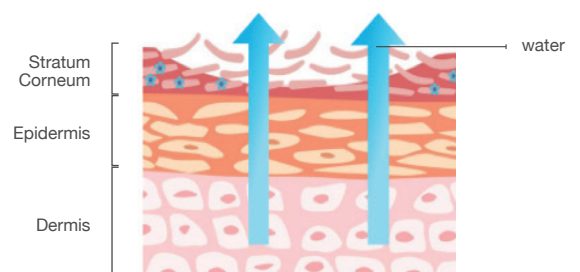
All skin types are prone to dehydration, including combination and oily skin. In oily skin-types, the body produces an excess amount of lipids, but this doesn’t mean it can’t lack water and be dehydrated in certain circumstances or seasons.

The manifestation of this **skin dehydration** is called **xerosis**, which is extremely dull and unhealthy skin. The main tell-tale sign for this is usually a **lack of glow**. Dehydrated skin also has **less elasticity** and a more or less intense and persistent feeling of **tightness** that can lead to **flaking**. This loss of elasticity usually results in physical changes and accelerates the appearance of signs of ageing like wrinkles and bags.



MOISTURIZED SKIN

Some of the water in the deep layers is drawn and retained by the NMFs in the superficial layer.



DRY SKIN

The stratum corneum is thinner and there are less NMFs left so the water in the skin is evaporating faster.

Structural changes derived from the loss of hydration in the skin

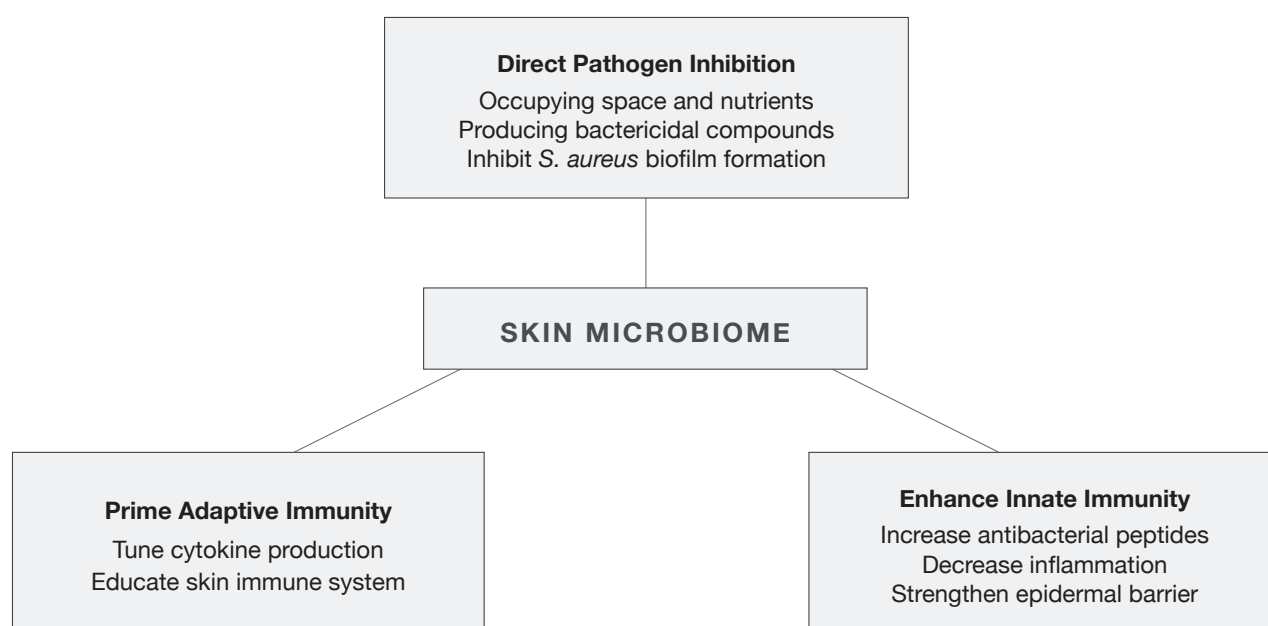
CORRECT IMMUNE REACTION

The skin is the largest organ in the human body and is an active element of the immune system. It is our **first line of defence** against external aggressors to the skin tissue and has its own evolved system to prevent infection and maintain the balance between beneficial and harmful species.

The mechanisms of resistance to infections can be divided into **innate and adaptive immune responses**.

Innate immunity, also known as natural immunity, **is the protection we are born with** and is our first line of defence against harmful pathogens. The innate immune response consists of cellular defences that react non-specifically to certain aggressors by secreting **an arsenal of antimicrobial peptides (AMPs)**. This family of molecules is produced at different concentrations and has a wide range of antibacterial activities, thus acting as a primary defence mechanism.

The skin's **adaptive immunity** is composed of a series of antigen-specific mechanisms that are carried out by cellular components of the epidermis and dermis, which are also used by the immune system in other organs and systems, and whose key characteristics are specificity and memory.



In short, **there is a crucial collaboration between the cutaneous microbiota and the skin's immune system** that helps maintain balanced and healthy skin capable of fighting off infections and inflammation (inflamm-ageing).

ACTIVE INGREDIENTS

BCN INTENSE REPAIR contains very high concentrations of the following active ingredients:

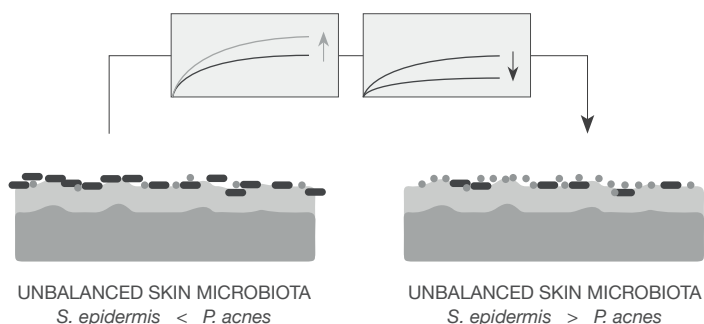
- **Broad-spectrum prebiotic complex** containing active ingredients that act as superfoods for beneficial bacteria, to the detriment of pathogens.

The combination of Prebiotics designed by **Institute BCN** specifically for the new **BCN Prebiotics** line is made up of:

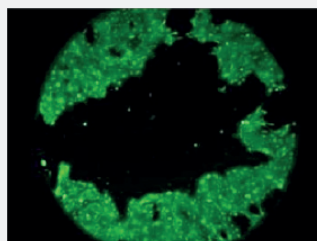
BIOALGAE: This is the **main prebiotic compound** of the line and is obtained from freshwater microalgae *Chlorella Vulgaris*. It is considered a **superfood** for the skin due to its nutritional properties. In addition to its prebiotic action, several studies show that it has even more benefits for the skin:

- **Helps stimulate cell regeneration** and can even improve the EGF (Epidermal Growth Factor) *

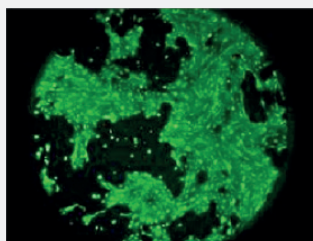
Prebiotic active or nutrient that promotes growth of beneficial microbiota & inhibits detrimental



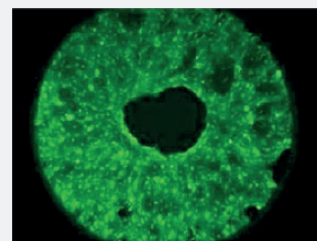
Rebalancing effect of Prebiotics on an altered microbiome



BASAL LEVEL



EGF (100 ng/ml)



WITH PREBIOTIC ACTIVE

The rapid migration and renewal of keratinocytes stimulates the regenerative and reparative properties of the skin barrier.

* An *in vitro* wound-healing test was performed on human keratinocytes demonstrating the enormous potential of Bioalgae to stimulate and promote epidermal regeneration in just 18h.

- Helps **calm and prevent inflammation** caused by microbiome imbalances to fight conditions like inflamm-ageing (visible or invisible chronic inflammation that accelerates premature ageing of the skin).
- Helps **balance oily skin**, reducing sebum production and the appearance of comedones, commonly called blackheads.

INULIN AND YOGURT POWDER: This mixture of Prebiotics **combines the skin benefits of yogurt with the prebiotic activity of inulin**, a fructose polysaccharide produced by plants.

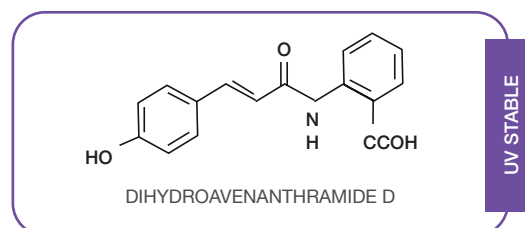
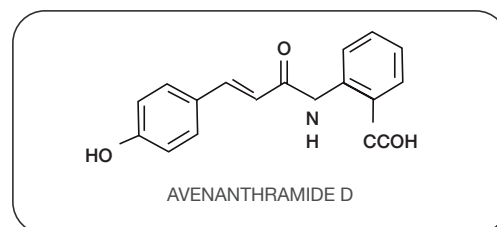
Most of the Prebiotics used today are short-chain carbohydrates that are naturally found in fruits and vegetables. Within this category, inulin is considered one of the most effective.

- **Super-hydrating biomimetic complex, Hydraskin24**, combines physiological molecules that are naturally present in the skin with natural hydrating actives.
 - **NMS: Natural Moisturising Sugars.**
Plant-based saccharides trehalose, fructose and maltose are excellent natural moisturisers with low molecular weights that can deeply penetrate the skin.
 - **NMF: Natural Moisturising Factors.**
NMFs are a collection of free amino acids (serine, glycine, alanine, histidine) and other ingredients such as urea, allantoin, etc. They are low molecular weight filaggrin degradation products located in the stratum corneum. NMFs are water-soluble and have excellent hygroscopic or water-retaining properties. As such, they are highly humectant physio-moisturising molecules that retain moisture in the stratum corneum and help maintain the skin's flexibility. They compose about 20-25% of the dry matter of corneocytes.
 - **Urea** is highly moisturising and penetrates deep into the epidermis.
 - **Allantoin** promotes cell proliferation, has a calming effect and increases the skin's hydration levels. It also has keratolytic properties.
 - **Glycerin** is an excellent moisturiser that acts on the surface of the skin, providing long-lasting moisture.
 - **Sodium lactate / lactic acid** is an NMF with rejuvenating properties.
 - **Hyaluronic Acid** is a glycoaminoglycan (GAG) distributed widely throughout neural, connective, and epithelial tissues. It is found naturally in the skin and is involved in tissue repair and hydration.
- **Aloe Vera concentrated base** made from the dehydrated powder of the inner cut of fresh aloe vera leaf contains up to 10 times more active substances than regular aloe vera. The dehydration process is carried out at low temperatures to preserve the maximum concentration of polysaccharide molecular structures.

- **Dihydroavenanthramide D (DHA_v D):** synthetic derivative of avenanthramide D with the same **antihistamine activity**.

Avenanthramides are a group of phenolic compounds found mainly in oats (mostly avenanthramides A, B and C), very effective **at relieving skin conditions such as itching, redness and weals in a dose-dependent manner. In fact, they are the main soothing active component of oats.**

However, avenanthramides present a double challenge: there are only very small amounts of avenanthramides in oat extract and synthesising them is expensive. For this reason, and after an exhaustive screening of more than 40 synthetic avenanthramides, **dihydroavenanthramide D has been selected as the most sustainable, stable, effective and safe alternative.**



In addition to the active ingredients found in the **BCN Prebiotics line**, the **BCN INTENSE REPAIR** formula also contains:

- **Chia Oil (Salvia Hispanica)**, which is obtained by cold pressing chia seeds, a herbaceous plant belonging to the mint family. Chia seeds are one of the best known **superfoods**: its oil **contains essential fatty acids** (up to 60% omega-3) as well as **polyunsaturated acids, palmitic acid and vitamin E**. It is also rich in **minerals such as calcium, zinc, iron, phosphorus, magnesium and potassium**. As if that weren't enough, it's also rich in **phenolic acids and isoflavones**, which are powerful antioxidants.
- **Bisabolol**, which is a plant extract widely used in cosmetics for its **regenerative properties**. It's derived from chamomile essential oil and its most bioactive stereoisomer, alpha-bisabolol, is a super versatile active ingredient.

RESULTS

Due to the content of the formula, **BCN INTENSE REPAIR** offers the following results:

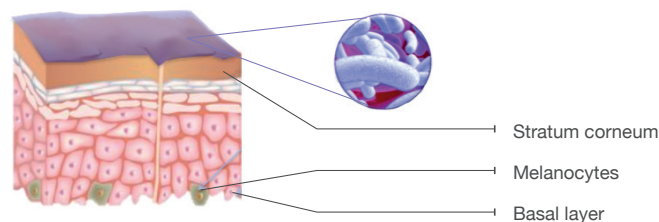
- a complete prebiotic action:
 - restores and maintains a healthy microbiome balance.
 - boosts the skin's immune response.
 - facilitates cell renewal, repairs the skin barrier, and diminishes the appearance of scars.
 - revitalises and strengthens the skin
- hyaluronic acid, sugars and natural moisturising factors:
 - prevents dry skin and provides long-lasting comfort
 - short and long-term double moisturising action that lasts up to 72 hours *.
- due to aloe vera and α -bisabolol:
 - moisturising, calming and antioxidant properties.
- for its content in avenanthramide D:
 - reduces itching, discomfort, and redness in sensitive skin.
- due to chia oil:
 - repairs the skin barrier, balances the skin's natural water levels, and strengthens the skin's natural defence system.
 - improves skin elasticity, firmness, and texture.
- for its content in α -bisabolol: in addition to the anti-inflammatory, calming and antioxidant effects described above,
 - treats hyperpigmentation.
 - antimicrobial action
 - better topical absorption of the formulation

*results of an *in vivo* test performed on the ingredient with an instrumental analysis by panellists.

DETAILED INFORMATION

EPIDERMIS AND SKIN MICROBIOTA

The **epidermis** or external part of the skin is the body's most important protective barrier against the environment, on which **more than 1000 different species of microorganisms** (bacteria, fungi and viruses) coexist. This huge, invisible and complex community is called the **cutaneous microbiota**. The cutaneous microbiota forms an ecosystem whose balance is essential for the proper functioning of our skin and our body.



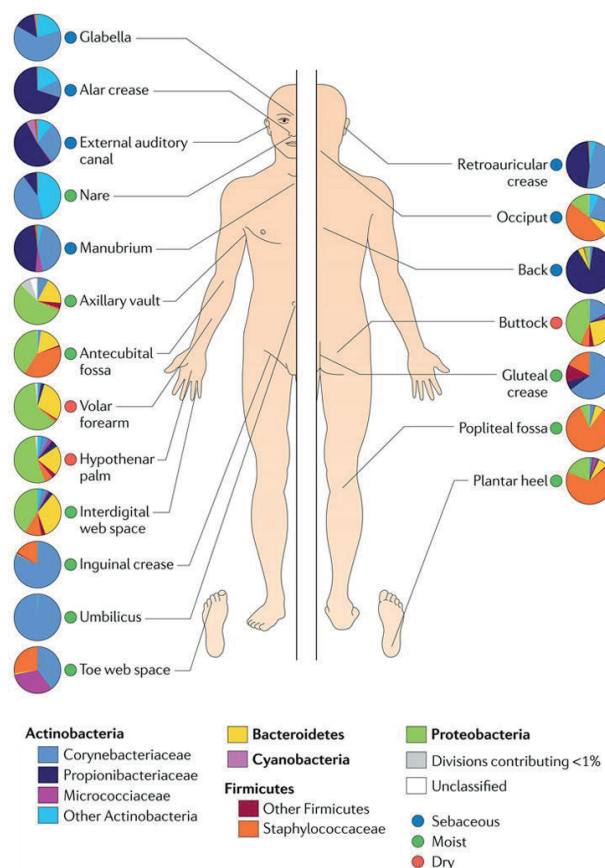
Stratum microbium, the very thin outer layer of the **stratum corneum**.

MICROBIOME AND MICROBIOTA

Although the terms are often used interchangeably, there is a slight difference between microbiome and microbiota: while the term **microbiota only refers to microbes**, the term **microbiome** encompasses **microorganisms and their genes**.

The **skin microbiome** is made up of a **limited number of microbial types**, mainly resident microbial species such as *Staphylococci* (*Staphylococcus epidermidis*...) and *Propionibacteria* (*P. acnes*, *P. avidum* and *P. granulosum*). There are beneficial or neutral species such as *S. epidermidis* and other species that can become harmful in certain conditions such as *P. acnes* and *malassezia* sp. Beneficial species prevent the proliferation of harmful ones by occupying physical space and chemically inhibiting the growth of competing species. In other words, **the resident microbiota is symbiotic with our skin and occupies space that could otherwise be colonised by aggressive pathogenic microorganisms that cause infections**.

The **functions of the microbiota** are very varied and range from synthesising vitamins to producing antimicrobial peptides and anti-inflammatory molecules that help **fight biological imbalances**.

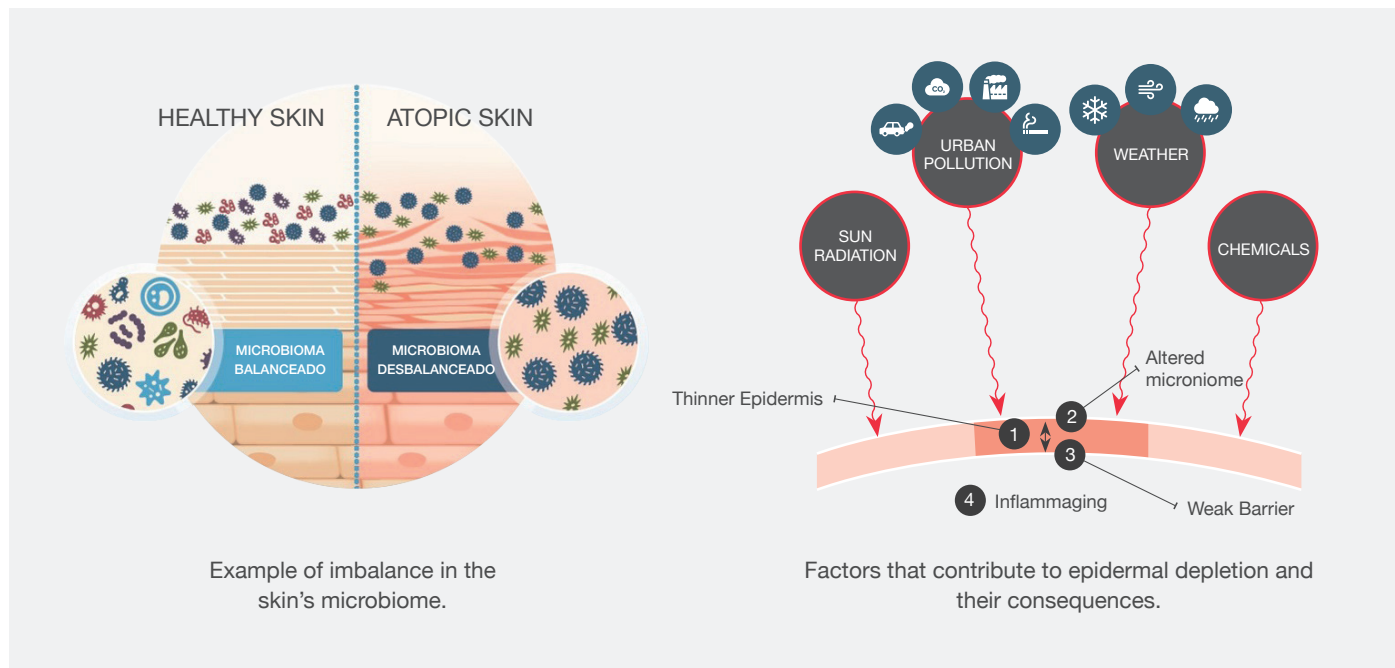


Study of bacterial communities in the skin: reveals several different skin microbiomes with fairly consistent patterns of microbial composition *E Grice et al, Topographical and temporal diversity of the human skin microbiome, Science 324 (5931) 1190-1192 (2009)*.

EUBIOSIS AND DYSBIOSIS

The skin barrier's condition is key to preventing the proliferation of harmful species, which thrive when the skin barrier is damaged and can cause different skin problems. The most common non-pathological consequence of an **imbalanced microbiota** or **dysbiosis** is referred to as inflamm-ageing (ageing due to chronic inflammation).

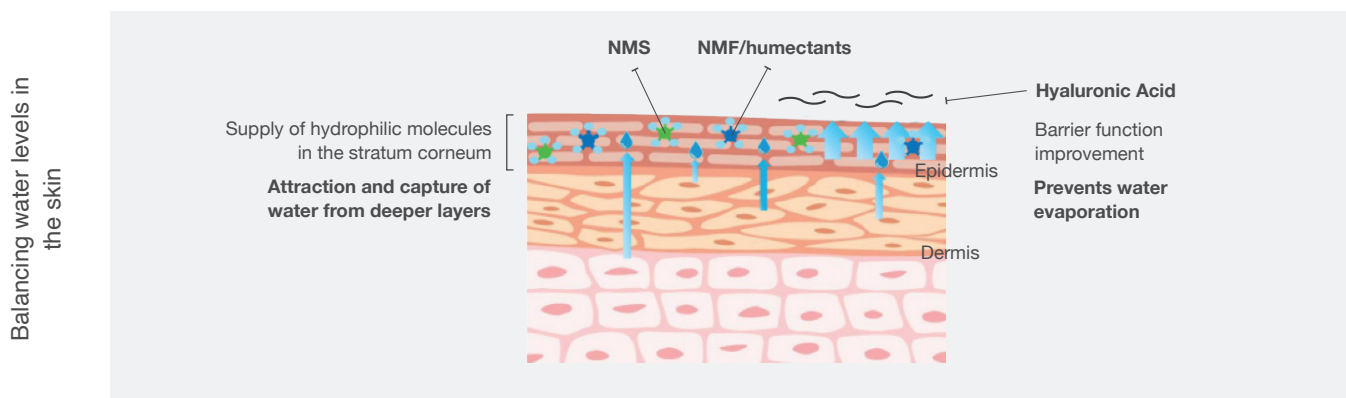
The outside environment can be hostile and throw the delicate epidermal ecosystem out of balance. Solar radiation, air pollution, harsh climates, irritating chemicals and aggressive medical-aesthetic treatments are some of the factors that can weaken our skin.



Ultimately, these **epidermal depletion factors** lead to **damaged and aged skin with sunspots, redness, flaking and/or itching**.

THE ACTION OF BCN INTENSE REPAIR

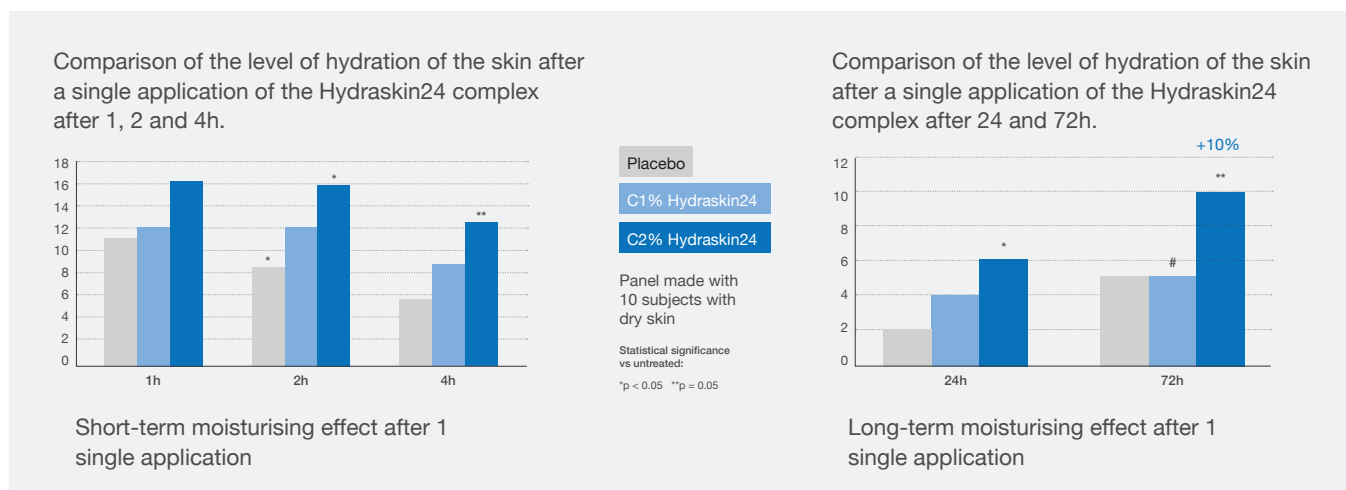
1. The **prebiotic complex** used in the **BCN Prebiotics** line is a naturally-occurring, sustainable compound with broad-spectrum prebiotic properties that **provide a number of skin benefits**:
 - **Direct prebiotic effect:** reduces pathogenic microbial species and protects beneficial ones.
 - **Indirect prebiotic effect:** promotes the synthesis of antimicrobial peptides.
 - **Powerful EGF-like properties:** stimulates cell renewal.
2. The powerful **combination of HA + NMF + NMS** with biomimetic mechanisms of action and excellent biocompatibility with the epidermis, **provides complete hydration** to the skin through different mechanisms of act:
 - **Small hygroscopic molecules (NMF and NMS)** penetrate the epidermis **to provide instant hydration** that immediately relieves the skin. Thanks to their hygroscopic nature and ability to attract and retain water, they are also a **continuous source of bioavailable hydration**, helping to restore the skin's water reserves.
 - **Hyaluronic Acid (HA)**, known for its **abilities to hold impressive amounts of water**, is that of high molecular weight in this formulation which means that forms a film on the surface of the skin that **prevents transepidermal water loss (TEWL) and improves the skin's barrier function**.



Thus, with this effective combination of moisturising actives and their different mechanisms of action, a **double moisturising effect** is achieved that restores the skin's water, prevents dryness and slows signs of ageing.

- 1. SHORT-TERM EFFECTS—RAPID HYDRATION** prevents skin dryness and provides immediate comfort.
- 2. LONG-TERM EFFECTS—LONG-LASTING HYDRATION (48–72 hours*)**: improves the skin's own internal hydration management and prevents water loss.

* results of an *in vivo* test performed on the ingredient with an instrumental analysis by panellists.



- The dehydrated Aloe Vera powder from which **the Aloe Vera concentrate is reconstituted is a rich source of the pattern recognition molecule mannose**. Mannose-binding proteins, also known as Mannan-Binding Proteins (MBP), play an important role in the first wave of the body's immune response to external pathogens (bacteria, viruses, etc.).
- Laboratory studies have shown that **DHAV D (dihydroadvenamin D)**, as well as being a **powerful antioxidant**, is a **histamine inhibitor**. Histamine is a hormone produced in the cells of our immune system — specifically mast cells and basophils (among others) — that acts as an inflammatory mediator in allergic reactions. Histamine is involved in the regulation of the immune system.
DHAV D, as well as **reducing ROS-induced damage**, can also: **minimise inflammation, reduce itching** and possible **irritation** from applying AHA peels or other medical-aesthetic treatments. Also alleviates extreme dryness, all thanks to its **antihistamine** properties.
- Chia Oil (Salvia Hispanica)**, acts as a **powerful anti-ageing** agent fighting wrinkles, acne, blemishes and helping the skin appear smooth and supple, thanks to its high omega 3 content. It is also ideal for sensitive, dry and irritated skin since it is rich in **minerals and vitamins** that help to **hydrate the skin and retain the skin's hydration levels**. The **vitamin E** found in this product **has rejuvenating and antioxidant** benefits, which help fight the harmful effects of free radicals. In addition, tocopherols, phytosterols and essential fatty acids found in this powerful oil **help reduce inflammation and soothe the skin**.

6. **α-Bisabolol** is a very versatile active ingredient known for its **calming and anti-inflammatory properties**. It also **protects the skin from free radicals and keeps the skin feeling healthy**. Therefore, it has different mechanisms of action within the cell, depending on the biological function it's carrying out.
- **Anti-inflammatory activity:** α-Bisabolol is involved, initially, in the release of certain inflammatory mediators such as cytokine IL-1α and leukotriene B₄^[1]. These two molecules are involved in reactions associated with skin hypersensitivity. α-Bisabolol **acts at the source of inflammation** by limiting the release of these pro-inflammatory mediators, which is why it has the ability to effectively soothe **skin irritations** ^[2].
 - **Antioxidant activity:** scientific studies show that bisabolol is an excellent biological antioxidant **because it reduces the production of free radicals inside the cell**, restoring the redox balance and preventing oxidative stress. **It also interferes in the production of ROS** (Reactive Oxygen Species), which disturb the chain of reactions that cause free radicals^[3]. It decreases redness and helps soothe irritated skin (redness, itching, tightness, stinging)^[4]. α-Bisabolol can thus also relieve UV- or temperature-induced erythema.
 - **Reduces hyperpigmentation:** bisabolol **inhibits melanin synthesis**. The mechanism of action works to inhibit cAMP response elements (CRE: Cyclic AMP Response) involved in the production of melanocyte-stimulating hormones (MSH). Bisabolol blocks the transcription of these genes and prevents melanin synthesis.
 - **Antimicrobial:** bisabolol also has powerful **fungicidal and bactericidal properties** against certain strains of fungi and bacteria. Bisabolol **induces apoptosis** (programmed cell death) by reducing oxygen consumption in cells by altering the structure and function of the **mitochondrial permeability transition pore** (mPTP), a structure formed in the **mitochondria** that communicates the mitochondrial matrix directly with the cytoplasm. Similarly, bisabolol also induces apoptosis in fungi and bacteria by interacting with cell membranes and fungal hyphae.

As if all this were not enough, one of bisabolol's lesser known properties is its ability to **increase and improve the topical absorption** of other beneficial ingredients in the cosmetic formulation.

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