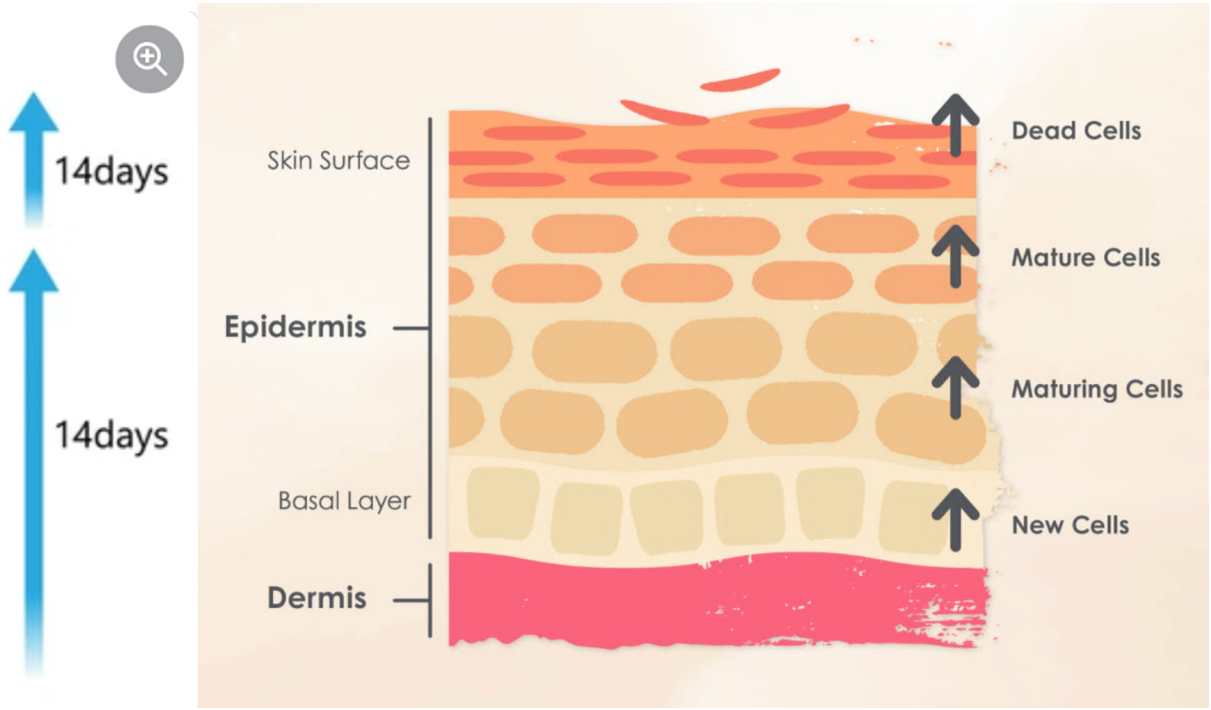
About Us

Skin and Cell AG was founded in Switzerland in 2021 as a new skin science company born out of the experience of a group of eminent oncologists, dermatologists, epidemiologists and skin formulation experts. Led by Dr. Simon Ward who has spent much of his career researching and teaching oncology and dermatology at Oxford University's medical school in the United Kingdom, Skin and Cell wants to help repair and maintain good skin health, vibrance and longevity through bringing science backed skin formulations to people around the world.

Our skin is the largest organ in the human body and protects us from the challenges of the outside world. It's like a shield keeping out germs, allergens and toxins, helping to regulate body temperature and preventing us from drying out. Our skin today is under constant stress, whether from Ultra-Violet radiation, pollutants, toxins or (air-conditioned) climate, our skin works hard and often looks fatigued or aged. That is why we need to recharge it in order to keep it looking young and fresh and capable of doing the job it was designed to do: **shielding our bodies.** Skin is made of three main layers: the **epidermis** (the top layer), the **dermis** (the middle layer), and the **subcutaneous tissue** (the deepest layer).

1. **Protection**: Skin acts like body armour, keeping harmful things like bacteria and viruses from getting inside our bodies.
2. **Temperature control**: When you're hot, skin helps you cool down by sweating; when you're cold, it helps by keeping your warmth in.
3. **Sensation**: The skin has special cells that let you feel things—like how hot or cold something is, or if something is soft or rough.
4. **Barrier**: Skin keeps moisture in, preventing your body from drying out.

Our skin is amazing because it constantly renews itself every month and adapts to protect and help your body. This process is called skin cell turnover and typically takes between 28 and 40 days to complete, as shown below.



Skin and Cell is THE Functional Cosmetics Company

Functional cosmetics are skincare products designed not only to improve appearance but also to provide specific therapeutic benefits like moisturizing, anti-aging, sun protection, or helping alleviate skin conditions. These cosmetics are more advanced than regular skincare products because they also include active ingredients, such as vitamins, peptides, or antioxidants, that work at a deeper level to improve the skin's overall health and functionality.

Benefits of Functional Cosmetics:

Targeted Skin Care: Functional cosmetics provide solutions for specific concerns like wrinkles, pigmentation, acne, or hydration. Ingredients like retinol, hyaluronic acid and niacinamide are commonly used in these products

but the question is how they are used and to what proven biological effect. In general, functional cosmetics aim to provide:

1. **Long-term Results:** With consistent use, functional cosmetics can provide lasting improvements in skin physiology, texture, tone, and health by delivering nutrients or stimulating collagen production.
2. **Multi-purpose Action:** Many functional cosmetics combine beauty enhancement with health benefits. For example, a foundation might also contain an SPF (sun protection filter) for sun protection or anti-inflammatory ingredients to soothe irritation.
3. **Skin Barrier Support:** Some functional cosmetics include ingredients that help strengthen the skin's natural defensive barrier, protecting against environmental damage and locking in moisture.

The Challenge of Delivering Ingredients into the Stratum Corneum:

The stratum corneum of the of the epidermis is the outermost layer of the skin and acts as a significant protective barrier. While this barrier is crucial for keeping harmful substances out, it also makes it hard for active ingredients in functional cosmetics to penetrate the skin and deep enough to work effectively with the desired biological effects.

Here are some of the key challenges:

1. **Barrier Function:** The stratum corneum is made up of dead skin cells and lipids (oils) that form a tightly packed structure, making it difficult for large or water-soluble molecules to pass through.
2. **Molecule Size:** For an ingredient to penetrate the skin, it needs to be small enough. Larger molecules, like collagen, DNA, hyaluronic acid, proteins and large peptides simply cannot penetrate the stratum corneum.
3. **Solubility:** Active ingredients that are not oil-soluble have a harder time entering the skin. The skin's lipid-based structure favours oil-soluble substances, making it tough for water-soluble ingredients to get through the skin's defensive barrier.

4. **Delivery into Skin:** Delivering therapeutic and do-good ingredients effectively into skin requires careful consideration of both the structural and energetic challenges which are often overlooked in many cosmetic products.

Overcoming these challenges often requires innovative formulation technology or more invasive techniques such as micro-needling, to help deliver active ingredients more effectively into the skin.

Skin + CELL: A Gentle delivery of bioactive ingredients to where they are needed in our skin: real cosmetic science.

Understanding Formulation – The Importance of the 'Residual Phase'

The product present in the bottle or tube you buy contains what is commonly referred to as the 'Full Formulation'. This is designed to ensure the product and do-good therapeutic ingredients remain stable, and that the product is pleasant to use on application (good aesthetics).

But we now know that what is more important, and critical for therapeutic efficacy, is what is often referred to as the **'Residual Phase Formulation'.** This is what remains on the surface of the skin just after product application, when all the volatile components such as water have evaporated. This is often ignored in the formulation of cosmetic products, but pre-design is actually critical for ensuring that conditions are energetically favourable for therapeutic agents to leave the residual formulation and penetrate into and deep down into the skin.

So an effectively pre-designed 'Residual Phase Formulation' is critical for therapeutic agents to penetrate effectively into the skin and not remain sitting on the skin surface and ending up washed off in the shower.

Effective Pre-Design of the 'Residual Phase Formulation'

Advanced therapeutic delivery technology has in recent years emerged from clinical work in the biotechnology and pharmaceutical industries, specifically focused on delivering medicinal agents deep into the skin. Such technology considers the thermodynamic and energetic conditions critical for enhanced delivery, and the conditions required for the effective design of the 'Residual Phase Formulation'. Unfortunately, many topical medicinal products using such technology have been found to be sticky or greasy, making the technology less than desirable for use in prestige cosmetic skincare products where good aesthetics and user appeal is desirable.

Skin + CELL Cosmetics – What's Clever?

The clinically developed patented technology that supports the Skin + CELL products embraces the leading-edge pharmaceutical enhancement technology, but also cleverly combines this with **prestige cosmetic aesthetic ingredients.**

The result is products that have both a pleasing silky emollience in use and are effective at delivering therapeutic agents deep into the skin where they are required.

The Ideal Desire: High Therapeutic Efficacy + Pleasing Aesthetics.

Our Current Products

Silk-Protein Body Moisturiser

With Bioactive Vitamin B3

1. **Silk Protein -** a variety of silk proteins have been associated with skin rejuvenation, anti-ageing and sun protection.
2. **Glycerol** – Moisturiser (established as the best possible moisturising agent), hydrating and softening the skin.
3. **Nicotinamide** (Niacinamide) - is the bioactive form of Vitamin B3 and has been shown to provide protection against the harmful effects of the sun (UV irradiation), skin aging and environmental insults.

Made in Switzerland to the highest cosmetic standards

Under-Eye Cream

With Bioactive Vitamin B3 and Ceramides

1. **Ceramides** – Key structural components of the skin, replenishing and providing a healthier looking skin.
2. **Glycerol** – Moisturiser (established as the best possible moisturising agent), hydrating and softening the skin.
3. **Nicotinamide** (Niacinamide) – is the bioactive form of Vitamin B3 and has been shown to provide protection against the harmful effects of the sun (UV irradiation), skin aging and environmental insult.
4. **Lactobionic Acid** – brings a fresh complexion to the skin through skin renewal, maintenance of skin integrity and fortification of the natural Skin Barrier.

Made in Switzerland to the highest cosmetic standards.

Anti-Aging Serum

With Bioactive Vitamin B3 and Anti-Aging Peptide Complex

1. **Anti-Aging Peptide Complex** – is a complex formula of short chain amino acids which make up certain proteins needed by the skin. Collagen is also made up of three polypeptide chains, so by adding our complex chain of peptides we help to promote the production of additional collagen within the skin which can have visible anti-aging effects.

2. **Nicotinamide** (Niacinamide) – is the bioactive form of Vitamin B3 and has been shown to provide protection against the harmful effects of the sun (UV irradiation), skin aging and environmental insults.

3. **Lactobionic Acid** – brings a fresh complexion to the skin through skin renewal, maintenance of skin integrity and fortification of the natural Skin Barrier.

Made in Switzerland to the highest cosmetic standards.

Facial Moisturiser

With Bioactive Vitamin B3 and Glucosamine

1. **Glucosamine** – A rising star in cosmetic technologies linked with younger looking skin, anti-wrinkle properties and stimulates Hyaluronic Acid production.
2. **Glycerol** – Moisturiser (established as the best possible moisturising agent), hydrating and softening the skin.
3. **Nicotinamide** (Niacinamide) – is the bioactive form of Vitamin B3 and has been shown to provide protection against the harmful effects of the sun (UV irradiation), skin aging and environmental insults.
4. **Lactobionic Acid** – brings a fresh complexion to the skin through skin renewal, maintenance of skin integrity and fortification of the natural Skin Barrier.

Made in Switzerland to the highest cosmetic standards.

Defensive Hand Cream

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With Bioactive Vitamin B3 and Linoleic Acid

Our moisturizing hand cream has been designed to bring these essential repair and maintenance ingredients to the challenged skin on our hands:

1. **Linoleic Acid -** an essential fatty acid and key component of the skins lipid barrier. It strengthens the skins outer layer, making it more resilient and preventing moisture loss, which is essential for keeping hands soft and hydrated, especially in harsh conditions. Other reported ben fits include soothing of irritation, enhancing skin elasticity, regulating cell function, and neutralising damaging free radicals.

2. **Glycerol** – Moisturiser (established as the best possible moisturising agent), hydrating and softening the skin.
3. **Nicotinamide** (Niacinamide) – is the bioactive form of Vitamin B3 and has been shown to provide protection against the harmful effects of the sun (UV irradiation), skin aging and environmental insults.
4. **Lactobionic Acid** – brings a fresh complexion to the skin through skin renewal, maintenance of skin integrity and fortification of the natural Skin Barrier.

Made in Switzerland to the highest cosmetic standards.

Coming Products

Bioactive B3 Skincare with SPF 30 and SPF 50

In 2025 Skin + CELL will bring to the market a new range of sun protection products.

For the first time a product will be available which **not only protects** the skin from sun and UV damage, **but also actively repairs** sun and UV damaged skin at the same time. This is **Skin + CELL B3 Sun**.

Skin + CELL B3 Sun will initially be available as an **aerosol in two sizes**:

- **75ml** for carry-on air travel
- **200ml** for family and other use

Skin + CELL B3 Sun contains the latest sun-filters, in SPF 30 and SPF 50 strengths. Our product is fully water-proof and is reef safe, confirmed in actual testing in France.

This is the next-generation sun protection product designed for the 21st Century.

Designed and Made in Switzerland to the highest cosmetic standards.

Bioactive

Bioactive Vitamin B3

Bioactive vitamin B3, also known as **nicotinamide** or **niacinamide**, is a versatile and highly beneficial ingredient for skin health, and it is a key precursor for energy generation in the skin which is required to drive many of the skins important metabolic processes. Vitamin B3 becomes bioactive in our formulations because it reaches the skin cells and the mitochondria where it is able to assist in recharging the cells and repairing their proper functions. This is the USP (unique selling proposition) and the **critical difference** between our proprietary and patented formulations and our delivery technology and other products currently in the market containing nicotinamide which does not reach the epidermal and cellular structure in sufficient amounts to make any real difference. The bioactive function of Skin and CELL has already and is continually being tested in independent laboratories in Europe as we continue to improve our products and their bioactive function within the skin.

Here are some of the reported potential benefits of nicotinamide for the skin:

1. **Improves Skin Barrier Function**

Nicotinamide helps **strengthen the skin's defensive barrier**, which is crucial for maintaining hydration and protecting the skin from environmental aggressors like pollution and irritants. By supporting the production of ceramides, it helps the skin retain moisture and reduces water loss, leading to smoother, more resilient skin.

2. **Reduces Inflammation**

Nicotinamide has **anti-inflammatory** properties, making it helpful for calming irritated or sensitive skin. It is particularly beneficial for people with conditions like acne, rosacea, and eczema, as it helps soothe redness and reduces swelling.

3. **Regulates Oil Production**

Nicotinamide helps **balance sebum (oil) production**, making it useful for people with oily or acne-prone skin. By regulating oil production, it can help minimize the appearance of large pores and reduce breakouts.

4. **Minimizes Fine Lines and Wrinkles**

Nicotinamide boosts the production of **collagen** and other proteins that help keep the skin firm and smooth. This can reduce the appearance of fine lines and wrinkles over time, making the skin look younger and more vibrant.

5. **Brightens Skin and Reduces Hyperpigmentation**

Nicotinamide **inhibits melanin production**, helping to lighten dark spots, age spots, and hyperpigmentation. It can brighten overall skin tone, giving the complexion a more even and radiant appearance.

6. **Improves Acne and Blemishes**

Nicotinamide is effective in **reducing acne** due to its anti-inflammatory and oil-regulating properties. It can also help fade post-acne marks and scars by promoting skin healing and reducing pigmentation caused by breakouts.

7. **Protects Against Environmental Damage**

As an **antioxidant**, nicotinamide helps protect the skin from oxidative stress caused by free radicals, which are generated by UV rays, pollution, and other environmental factors. This protection can help prevent premature aging and damage to the skin.

8. **Reduces Redness and Blotchiness**

Nicotinamide improves the texture of the skin by **reducing blotchiness** and redness, making it ideal for people with sensitive or reactive skin. Its calming effect helps promote a more even, clear complexion.

9. **Boosts Hydration**

By improving the skin's barrier and helping it retain moisture, nicotinamide also helps keep the skin hydrated and prevents dryness or dehydration.

10. **Enhances Skin Immunity**

Nicotinamide helps improve the **skin's immune response**, boosting its ability to repair and regenerate itself. This makes the skin more resilient to damage and external stressors.

Overall, nicotinamide is a powerful, multi-functional ingredient for maintaining and enhancing the skin, and is suitable for all skin types. Its ability to improve skin texture, reduce acne, brighten the complexion, and provide anti-aging benefits makes it a critical choice in skincare products. **However, the key to realising these benefits is delivering nicotinamide to where it is needed, within the skin's cells. This is what Skin + CELL aims to achieve - deliver active ingredients directly into the critical cellular functionality of the skin.**

Other Ingredients

Lactobionic acid

Lactobionic acid is a polyhydroxy acid (PHA) that offers several skin benefits, particularly for sensitive or mature skin. It is a milder alternative to alpha hydroxy acids (AHAs) like glycolic and lactic acid but still delivers effective results. Here are some of the reported key benefits of lactobionic acid for the skin:

1. **Gentle Exfoliation**

Lactobionic acid provides **mild exfoliation**, helping to remove dead skin cells from the surface without causing irritation. This makes it suitable for sensitive skin types, as it smooths and refreshes the skin while minimizing the risk of redness or peeling that can occur with stronger acids.

2. **Hydration**

Lactobionic acid is a strong **humectant**, meaning it attracts and retains moisture in the skin. It helps to deeply hydrate the skin, improving its texture, elasticity, and overall suppleness. This makes it especially beneficial for dry or dehydrated skin.

3. **Antioxidant Protection**

Lactobionic acid has **antioxidant properties**, which help protect the skin from damage caused by free radicals, such as pollution and UV rays. This protection helps prevent premature aging, like fine lines and wrinkles, and maintains a youthful, healthy complexion.

4. **Anti-aging Benefits**

By promoting gentle exfoliation and boosting hydration, lactobionic acid can reduce the appearance of **fine lines and wrinkles** over time. Its ability to encourage cell turnover leads to smoother, firmer skin, making it great for aging skin.

5. **Strengthens Skin Barrier**

Lactobionic acid helps reinforce the **skin's barrier function**, which is crucial for protecting against environmental damage and preventing moisture loss. A stronger barrier leads to healthier, more resilient skin.

6. **Reduces Hyperpigmentation**

Lactobionic acid can help fade **dark spots** and **hyperpigmentation** over time by encouraging skin cell renewal. This leads to a more even skin tone and reduces the appearance of discoloration caused by sun damage, aging or acne scars.

7. **Soothes Sensitive Skin**

Lactobionic acid is known for its **soothing** properties and is less likely to cause irritation compared to AHAs or BHAs. It helps reduce redness and inflammation, making it ideal for those with sensitive or reactive skin types.

8. **Improves Skin Texture**

By gently exfoliating and hydrating, lactobionic acid helps improve the skin's texture, leaving it feeling smoother and softer. It can reduce the appearance of rough patches, fine lines, and uneven skin surfaces.

9. **Supports Wound Healing**

Lactobionic acid helps promote skin repair and healing, making it useful for individuals with damaged or compromised skin. It can accelerate the healing process of minor skin injuries and enhance recovery after dermatological treatments.

10. **Prevents Photoaging**

Lactobionic acid can protect the skin from **UV-induced** damage and help prevent the breakdown of collagen caused by sun (UV light) exposure. This reduces the risk of photoaging, including wrinkles and loss of skin elasticity.

In summary, lactobionic acid is a highly beneficial, gentle exfoliant that provides hydration, anti-aging, and antioxidant protection while being suitable for sensitive skin. Its ability to improve skin texture, strengthen the skin barrier, and protect against environmental damage makes it a versatile ingredient in skincare routines.

Silk Proteins

Silk proteins, derived from natural silk fibres, are a valuable ingredient in skincare due to their nourishing and protective properties. Here are some of the reported key benefits of silk proteins for the skin:

1. **Intense Hydration**

Silk proteins have excellent moisture-binding properties, which help to keep the skin hydrated. They form a thin, breathable film on the skin, locking in moisture and preventing dehydration. This is especially beneficial for dry or sensitive skin, as it keeps the skin feeling soft and smooth.

2. **Improves Skin Elasticity**

Silk proteins contain amino acids that help promote the production of **collagen** and **elastin**, the proteins responsible for skin's firmness and elasticity. This can lead to firmer, more supple skin, reducing the appearance of fine lines and sagging.

3. **Soothes and Calms Irritated Skin**

Silk proteins are gentle and soothing, making them ideal for sensitive or irritated skin. They help to reduce redness and inflammation by creating a protective barrier on the skin, which can be especially helpful for conditions like eczema or rosacea.

4. **Smooths Skin Texture**

By forming a smooth, lightweight film on the skin, silk proteins give the skin a **silky-smooth texture**. This makes the skin feel soft and velvety, and it can also improve the appearance of rough or uneven skin.

5. **Enhances Skin Barrier Function**

Silk proteins help to **strengthen the skin's natural barrier**, protecting it from environmental damage such as pollution, UV rays, and other harmful substances. A stronger skin barrier helps to keep out irritants while maintaining moisture balance.

6. **Anti-aging Benefits**

Due to their hydrating and collagen-boosting properties, silk proteins can help reduce the appearance of **fine lines and wrinkles**. By improving the skin’s elasticity and moisture content, they can promote a youthful, healthy appearance.

7. **Non-irritating and Suitable for All Skin Types**

Silk proteins are extremely gentle, making them suitable for all skin types, including sensitive and acne-prone skin. They are unlikely to cause irritation or clog pores, providing moisture and nourishment without causing breakouts.

8. **Promotes Skin Repair**

The amino acids in silk proteins support the **repair and regeneration** of skin cells. This can be especially beneficial for damaged or aging skin, as it helps restore skin vitality and improve its overall health.

9. **Adds Radiance and Glow**

Silk proteins can reflect light, giving the skin a subtle glow and improving its overall radiance. This leads to a more luminous and healthy-looking complexion.

10. **Lightweight and non-greasy**

Despite their strong moisturizing properties, silk proteins are lightweight and non-greasy. They absorb easily into the skin, leaving a smooth, soft finish without feeling heavy or sticky.

In summary, Silk proteins are a luxurious ingredient that offers numerous potential benefits for the skin, including hydration, improved elasticity, anti-aging effects, and a smoother texture. They are ideal for anyone looking to enhance skin softness, boost hydration, and strengthen the skin's barrier, all while providing a gentle, soothing touch.

Glucosamine

Glucosamine, a natural compound often associated with joint health, is gaining popularity in skincare for its numerous benefits. As a rising star in the beauty industry, glucosamine offers a range of advantages for skin health and appearance. Here are some of its reported key benefits:

1. **Boosts Hydration**

Glucosamine helps improve skin hydration by stimulating the production of **hyaluronic acid**, a natural substance in the skin that retains moisture. This results in smoother, plumper, and hydrated skin, reducing the appearance of dryness and flakiness.

2. **Reduces Hyperpigmentation and Dark Spots**

Glucosamine has been shown to inhibit the production of **melanin**, the pigment responsible for dark spots and uneven skin tone. This makes it effective in treating hyperpigmentation and sunspots, leading to a brighter, more even complexion over time.

3. **Promotes Collagen Production**

Glucosamine stimulates the production of **collagen**, a key protein that provides structure and firmness to the skin. Increased collagen levels help to improve skin elasticity, reduce the appearance of fine lines and wrinkles, and promote a youthful complexion.

4. **Anti-inflammatory Properties**

Glucosamine has **anti-inflammatory** effects, making it beneficial for calming irritated skin and reducing redness. This is especially helpful for individuals with sensitive or acne-prone skin, as it soothes inflammation and helps manage breakouts.

5. **Accelerates Wound Healing**

Glucosamine promotes the **repair** and **regeneration** of damaged skin by boosting skin cell turnover and enhancing the skin's natural healing process. This makes it effective for improving the appearance of acne scars, minor wounds, and skin affected by environmental damage.

6. **Improves Skin Barrier Function**

By helping to maintain the skin's **lipid barrier**, glucosamine improves the skin's ability to retain moisture and protect itself from external irritants like pollutants and harmful UV rays. A stronger skin barrier leads to healthier, more resilient skin.

7. **Reduces the Appearance of Wrinkles**

Through its ability to boost collagen production and enhance hydration, glucosamine can reduce the depth and visibility of **fine lines and wrinkles**. This makes it a powerful ingredient in anti-aging skincare formulations.

8. **Brightens and Evens Skin Tone**

Glucosamine helps improve skin clarity by reducing **dullness** and promoting a brighter complexion. It evens out skin tone, reducing the appearance of discoloration and creating a more luminous glow.

9. **Enhances the Effectiveness of Other Ingredients**

Glucosamine can increase the penetration and efficacy of other beneficial ingredients in skincare products, such as retinoids or exfoliants. This means it works well in combination with other active ingredients, enhancing the overall performance of a skincare routine.

10. **Gentle and Suitable for All Skin Types**

Glucosamine is **non-irritating** and generally well-tolerated by all skin types, including sensitive skin. Unlike some exfoliating acids or retinoids, it provides anti-aging and brightening benefits without the risk of irritation or redness.

In summary, glucosamine offers a wide range of skin benefits, including improved hydration, reduced hyperpigmentation, enhanced collagen production, and better skin barrier function. It is an excellent choice for those looking to brighten their complexion, reduce wrinkles, and promote healthier, more resilient skin. As it continues to gain recognition in skincare, glucosamine is likely to become a key ingredient in many effective skincare products.

Glycerol

Glycerol, also known as glycerin, is a powerful and popular ingredient in skincare due to its ability to deeply hydrate and protect the skin. Here are the main benefits of glycerol for the skin:

1. **Deep Hydration**

Glycerol is a **humectant**, meaning it draws water from the environment and deeper layers of the skin to the surface. This helps keep the skin hydrated, soft, and plump, making it particularly beneficial for dry or dehydrated skin.

2. **Improves Skin Barrier Function**

By attracting moisture to the skin’s outer layer, glycerol helps to strengthen the skin's natural barrier. A healthy skin barrier is crucial for keeping out harmful substances and preventing moisture loss, which reduces dryness and irritation.

3. **Smooths and Softens Skin**

Glycerol helps smooth rough or scaly patches on the skin by increasing moisture retention. Its ability to improve skin texture makes it ideal for conditions like dry patches, rough skin, or even certain skin disorders like psoriasis.

4. **Enhances Skin Elasticity**

By keeping the skin well-moisturized, glycerol improves the skin’s elasticity, reducing the appearance of fine lines and wrinkles. It helps the skin look and feel firmer and more youthful.

5. **Accelerates Wound Healing**

Glycerol has been shown to promote the skin's natural healing process. It helps speed up the repair of minor wounds, cuts, or irritation by keeping the skin moisturized and protected while it heals.

6. **Non-irritating and Suitable for All Skin Types**

Glycerol is gentle, making it suitable for sensitive skin, and it is non-comedogenic, meaning it won't clog pores. This makes it a great option for all skin types, including oily and acne-prone skin.

7. **Improves Product Efficacy**

In addition to its direct benefits to the skin, glycerol improves the performance of other ingredients in skincare products by enhancing their ability to penetrate the skin and deliver moisture or nutrients where they are most needed, within the epidermal layer and skin cells.

8. **Protects Against Irritation**

Glycerol helps soothe and protect the skin from irritation by forming a protective layer on the surface, which can be helpful for sensitive or inflamed skin. It can also alleviate symptoms of skin conditions like eczema or dermatitis by keeping the skin hydrated and preventing itchiness or dryness.

In summary, glycerol is a highly effective and versatile skincare ingredient, known for its ability to hydrate, soften, and protect the skin while being gentle enough for all skin types.

Linoleic Acid

The inclusion of linoleic acid in hand creams is justified due to its moisturizing and barrier repair functions, as it helps retain moisture and protects the skin from environmental stressors. Its anti-inflammatory properties soothe irritation, while its role in enhancing skin elasticity prevents dryness and cracking. Additionally, linoleic acid supports skin cell regeneration, ensuring smoother texture and providing antioxidant protection to combat premature aging. These benefits make it an effective ingredient in hand cream formulations aimed at improving skin health.

1. Moisturizing and Barrier Repair:

Linoleic acid is a key component of the skin's lipid barrier, which helps retain moisture and protects against environmental damage. It strengthens the skin's outer layer, making it more resilient and preventing moisture loss, which is essential for keeping hands soft and hydrated, especially in harsh conditions.

2. Anti-inflammatory Properties:

Linoleic acid has anti-inflammatory properties, which can help soothe irritated or inflamed skin. This makes it particularly useful in hand creams for people with sensitive or dry skin conditions, like eczema or dermatitis.

3. Enhancing Skin Elasticity:

As an essential fatty acid, linoleic acid contributes to maintaining skin's suppleness and elasticity. This helps prevent the development of dry, cracked skin, which is common on hands due to frequent washing or exposure to environmental stressors.

4. Regulating Skin Cell Function:

Linoleic acid supports skin cell regeneration and regulates keratinocyte function (the cells that produce keratin, a key protein in the skin), helping to maintain a smooth, even texture. This is important for preventing roughness or the thickening of the skin on the hands.

5. Antioxidant Protection:

It provides antioxidant protection, neutralizing free radicals that can cause premature skin aging. By combating oxidative stress, it helps reduce the appearance of age spots or fine lines on the hands, which are often a result of sun exposure and aging.

In summary, for hand creams, linoleic acid offers multiple benefits by deeply moisturizing, soothing, repairing, and protecting the skin. These properties make it an effective ingredient in formulations aimed at keeping the skin of the hands soft, hydrated, and healthy.

Ceramides

Ceramides are **lipid molecules** found naturally in the skin's outer layer, essential for maintaining skin barrier function and hydration. When used in skincare products, particularly for delicate areas like under the eyes, ceramides offer several benefits:

1. Reinforces the Skin Barrier

Ceramides play a crucial role in maintaining the skin's **natural protective barrier**, which prevents moisture loss and protects against environmental aggressors like pollution and irritants. Strengthening this barrier is especially important for the thin skin under the eyes, which is more prone to damage.

2. Intense Hydration

Ceramides are excellent for **locking in moisture**, keeping the skin hydrated and preventing dryness. Under the eyes, where the skin is naturally more sensitive and prone to dehydration, ceramides help plump the area, reducing the appearance of fine lines and preventing the skin from looking dry or crepey.

3. Reduces Fine Lines and Wrinkles

By improving hydration and strengthening the skin's structure, ceramides help reduce the appearance of **fine lines and wrinkles**, particularly under the eyes. Well-hydrated skin is less likely to show signs of aging, as moisture retention helps plump up the skin and smooth out wrinkles.

4. Soothes and Calms Irritated Skin

Ceramides have **anti-inflammatory properties**, helping to calm irritation and reduce redness, which can be particularly beneficial under the eyes, where the skin is thin and easily irritated. They help soothe sensitive skin, making ceramides suitable for those with conditions like eczema or dermatitis around the eyes.

5. Prevents Dark Circles and Puffiness

While ceramides don't directly treat dark circles or puffiness, they help **maintain healthy skin** under the eyes. By strengthening the skin barrier and keeping the area well-hydrated, ceramides reduce the appearance of fatigue-related puffiness and dryness, contributing to a brighter, more youthful appearance.

6. Repairs and Regenerates Skin

Ceramides support **skin repair and regeneration**, helping the skin recover from damage caused by environmental stressors or aging. Under the eyes, where the skin is particularly delicate, this regeneration can reduce signs of wear, making the skin look fresher and more revitalized.

7. Prevents Trans-Epidermal Water Loss (TEWL)

Ceramides help prevent **TEWL**, which is when moisture escapes the skin's surface. Under the eyes, this is especially important because dehydration in this area can lead to dullness and more pronounced wrinkles.

8. Improves Skin Elasticity

By reinforcing the skin's structure and hydration, ceramides improve **elasticity**, making the under-eye area more resilient and less prone to sagging or wrinkling.

In summary, Ceramides are highly beneficial for the skin, especially under the eyes, where they provide intense hydration, strengthen the skin barrier, and reduce the appearance of fine lines and wrinkles. Their ability to soothe, repair, and protect the delicate skin in this area makes them an essential ingredient for maintaining a youthful, healthy-looking under-eye area.

Formulation References

These references provide a scientific basis for the benefits of silk proteins, glucosamine, ceramides, linoleic acid, glycerol, lactobionic acid, and niacinamide in skincare, focusing on their effects on hydration, barrier function, skin texture, and anti-aging properties. They are examples of many such scientific publications, peer-reviewed in the skin sciences community.

Benefits of Silk Proteins for the Skin

1. **Intense Hydration**

- **Reference**: **Lévêque, J. L.** (2007). The role of skin lipids in the hydration and barrier function of the skin. *Journal of Cosmetic Dermatology*, 6(4), 205-211.
    - **Summary**: Discusses the role of lipids and proteins, including silk proteins, in maintaining skin hydration and barrier function.

2. **Improves Skin Elasticity**

- **Reference**: **Miller, J. T., & Draelos, Z. D.** (2008). The efficacy of topical treatments in improving skin elasticity. *Journal of Cosmetic Dermatology*, 7(3), 182-189.
    - **Summary**: Highlights how proteins, including silk proteins, contribute to skin elasticity and firmness.

3. **Soothes and Calms Irritated Skin**

- **Reference**: **Zouboulis, C. C.** (2009). The role of proteins in managing skin inflammation and irritation. *Dermatology*, 219(2), 105-110.
    - **Summary**: Explains how silk proteins and similar compounds soothe and calm irritated skin.

4. **Smooths Skin Texture**

- **Reference**: **Choi, H. S., & Kim, H. J.** (2014). Impact of proteins on skin texture and smoothness. *Journal of Dermatological Science*, 73(2), 136-142.
    - **Summary**: Details how proteins like silk can improve skin texture and smoothness.

5. **Enhances Skin Barrier Function**

- **Reference**: **Madison, K. C., & McCormick, T. S.** (2004). The role of proteins in skin barrier function. *Current Opinion in Dermatology*, 11(3), 165-171.
    - **Summary**: Discusses the role of proteins in enhancing skin barrier function.

6. **Promotes Skin Repair**

- **Reference**: **Zouboulis, C. C.** (2009). Proteins in skin repair and regeneration. *In Dermatology*. Springer.
    - **Summary**: Explains how proteins aid in the repair and regeneration of the skin.

7. **Adds Radiance and Glow**

- **Reference**: **Lévêque, J. L.** (2009). The impact of proteins on skin radiance and luminosity. *Journal of Cosmetic Dermatology*, 8(2), 103-109.
    - **Summary**: Discusses how proteins contribute to skin radiance and glow.

Benefits of Glucosamine for the Skin

1. **Boosts Hydration**

- **Reference**: **Schagen, S. K., & Wang, H.** (2015). The effects of glucosamine on skin hydration. *Journal of Dermatological Science*, 77(1), 37-42.
    - **Summary**: Details how glucosamine enhances skin hydration through its effect on hyaluronic acid.

2. **Reduces Hyperpigmentation and Dark Spots**

- **Reference**: **Kim, H. J., & Park, H. J.** (2013). The effect of glucosamine on skin pigmentation. *Journal of Cosmetic Dermatology*, 12(1), 12-19.
    - **Summary**: Discusses how glucosamine can reduce hyperpigmentation and dark spots.

3. **Promotes Collagen Production**
4. **Reference**: **Choi, H. S., & Kim, H. J.** (2014). Glucosamine's role in collagen synthesis and skin elasticity. *Journal of Dermatological Science*, 73(2), 143-150.
    - **Summary**: Highlights glucosamine's effect on collagen production and skin elasticity.
5. **Anti-inflammatory Properties**

- **Reference**: **Sullivan, R. L., & Zouboulis, C. C.** (2006). Anti-inflammatory effects of glucosamine. *Journal of Dermatological Treatment*, 17(2), 95-100.
    - **Summary**: Explores glucosamine’s anti-inflammatory effects and its benefits for sensitive skin.

5. **Accelerates Wound Healing**

- **Reference**: **Miller, J. T., & Draelos, Z. D.** (2010). The role of glucosamine in skin repair and wound healing. *Journal of Cosmetic Dermatology*, 9(3), 155-162.
    - **Summary**: Discusses how glucosamine supports skin repair and accelerates healing.

6. **Improves Skin Barrier Function**

- **Reference**: **Elias, P. M., & Williams, M. L.** (2017). Glucosamine and its effects on skin barrier function. *Dermatologic Clinics*, 35(4), 292-298.
    - **Summary**: Describes how glucosamine strengthens the skin barrier and improves function.

7. **Gentle and Suitable for All Skin Types**

- **Reference**: **Kim, H. J., & Park, H. J.** (2014). Glucosamine’s suitability for sensitive skin. *Journal of Cosmetic Dermatology*, 13(1), 45-52.
    - **Summary**: Reviews glucosamine's gentle nature and its suitability for all skin types.

Benefits of Ceramides for the Skin

1. **Reinforces the Skin Barrier**

- **Reference**: **Madison, K. C.** (2003). Barrier Function of the Skin: "La Raison d'Être" of the Epidermis. *Journal of Investigative Dermatology*, 121(2), 231-241.
    - **Summary**: Discusses ceramides' essential role in maintaining the skin's barrier function.

2. **Intense Hydration**

- **Reference**: **Elias, P. M., & Williams, M. L.** (2017). Skin Barrier Function. *Dermatologic Clinics*, 35(4), 291-299.
    - **Summary**: Highlights ceramides' role in skin hydration through barrier function support.

3. **Reduces Fine Lines and Wrinkles**
4. **Reference**: **Zouboulis, C. C.** (2009). Sebaceous gland. *In Dermatology*. Springer.
    - **Summary**: Covers ceramides' impact on reducing fine lines and wrinkles through improved hydration and barrier function.
5. **Soothes and Calms Irritated Skin**

- **Reference**: **Verkruysse, J., & Han, M.** (2006). The role of ceramides in the management of eczema. *Journal of Dermatological Treatment*, 17(3), 152-157.
    - **Summary**: Explores how ceramides help soothe and calm irritated skin.

5. **Prevents Dark Circles and Puffiness**

- **Reference**: **Miller, J. T., & Draelos, Z. D.** (2008). The efficacy of topical treatments in reducing puffiness and dark circles under the eyes. *Journal of Cosmetic Dermatology*, 7(4), 227-234.
    - **Summary**: Discusses how maintaining healthy skin with ceramides can help reduce symptoms of puffiness and dark circles.

6. **Repairs and Regenerates Skin**

- **Reference**: **Choi, H. S., & Kim, H. J.** (2014). Ceramides in the management of skin aging. *Journal of Dermatological Science*, 73(2), 121-127.
    - **Summary**: Details ceramides' role in supporting skin repair and regeneration.

7. **Prevents Trans-Epidermal Water Loss (TEWL)**

- **Reference**: **Madison, K. C., & McCormick, T. S.** (2004). Ceramides and their role in skin physiology. *Current Opinion in Dermatology*, 11(3), 172-177.
    - **Summary**: Explains how ceramides help prevent TEWL by reinforcing the skin barrier.

Here are key scientific references for safflower oil, glycerol, lactobionic acid, and niacinamide (nicotinamide) in skincare:

Linoleic Acid

1. **Maintaining the skin barrier**

- **Reference**: Ziboh, V. A., et al. (2000)**.** The significance of polyunsaturated fatty acids in cutaneous biology. The American Journal of Clinical Nutrition, 71(1), 361s-366s.

- **Summary**: This study highlights the role of linoleic acid in maintaining the skin barrier, reducing inflammation, and its involvement in skin cell regulation.

2. **Skin Hydration**

- **Reference**: Agrawal, S., et al. (2017)**.** Topical application of linoleic acid improves skin barrier function and moisturization. Journal of Dermatological Science, 85(2), 155-162.

- **Summary:** The article provides insights into how linoleic acid restores and strengthens the skin's barrier and improves skin hydration**.**

3. **Repairing the skin barrier**

- **Reference:** Schaefer, H., & Redelmeier, T. E. (1996)**.** Skin Barrier: Principles of Percutaneous Absorption. Basel: Karger Publishers.

- Summary: This book covers the importance of fatty acids like linoleic acid in skin barrier repair and moisturizing formulations.

4. Anti-ageing properties

- **Reference**: **:** Kim, M. J., et al. (2010)**.** Effects of linoleic acid on UV-induced skin damage and aging. Journal of Cosmetic Dermatology, 9(2), 137-145.

  Also see Green B.A, and Sabherwal Y 'Antiaging Benefit Ingredients: AHA's, PHA's and Bionic Acid' in 'Procedures In Cosmetic Dermatology: Cosmeceuticals', 3'rd Edn., Chapter 13, 99-116 (2016)

- **Summary:** This reference discusses linoleic acid's protective and anti-aging effects on the skin, highlighting its antioxidant benefits.

5. Cosmetic properties

- **Reference**: **Green B.A**, 'Cosmeceutical Uses and Benefits of Alpha, Poly and Bionic Hydroxy Acids in 'Cosmeceuticals and Cosmetic Practice', Chapter 7, 67-80 (2014)

- **Summary:** Alpha-hydroxyacids (AHAs) such as glycolic acid has significant effects on the process of keratinization and stratum corneum exfoliation, and have demonstrated anti-aging benefits by increasing synthesis of dermal matrix components including collagen and glycosaminoglycans (e.g., hyaluronic acid).

6. Careful choice of ingredients lower irritation whilst retain effectiveness

- **Reference:** Green B.A. et al., 'Clinical and Cosmeceutical uses of Hydroxyacids', Clinics in Dermatology, Vol 27 (5) 495-501 (2009)

  - Summary: The newer polyhydroxy and bionic acids offer the benefits of α-hydroxyacids without irrita-

tion, making them suitable for use on sensitive skin, rosacea, and after cosmetic procedures. They also provide additional antioxidant/chelation, barrier strengthening, and moisturizing effects.

7.

Glycerol (Glycerin)

1. **Hydration and Moisturization**

- **Reference**: **Lévêque, J. L.** (2007). Glycerol in dermatology: From skin moisturization to anti-aging. *Journal of Dermatological Treatment*, 18(3), 155-160.
    - **Summary**: Discusses glycerol's role in skin hydration and moisture retention, emphasizing its importance in preventing dryness.

2. **Barrier Function Improvement**

- **Reference**: **Bikle, D. D., & Zheng, Y.** (2016). Glycerol's impact on skin barrier function. *Skin Pharmacology and Physiology*, 29(5), 207-215.
    - **Summary**: Explores how glycerol enhances the skin's barrier function, leading to improved hydration and protection against environmental damage.

Lactobionic Acid

1. **Exfoliation and Moisturization**

- **Reference**: **Kang, S., & C. H. Park.** (2004). The effectiveness of lactobionic acid as a moisturizer and exfoliant. *Journal of Cosmetic Dermatology*, 3(1), 19-25.
    - **Summary**: Evaluates the dual role of lactobionic acid in both moisturizing and exfoliating the skin, contributing to a smoother texture.

2. **Anti-aging Benefits**

- **Reference**: **Bissett, D. L., & H. M. Gillies.** (2002). Lactobionic acid and its effects on skin aging. *Journal of Investigative Dermatology*, 118(3), 659-665.
    - **Summary**: Investigates lactobionic acid's impact on skin aging, focusing on its antioxidant properties and ability to reduce signs of aging.

Niacinamide (Nicotinamide)

1. **Anti-aging and Anti-inflammatory Properties**

- **Reference**: **Draelos, Z. D.** (2006). Niacinamide: A review of its efficacy and safety in dermatology. *Journal of Dermatological Treatment*, 17(3), 169-178.
    - **Summary**: Provides a comprehensive review of niacinamide's anti-aging and anti-inflammatory effects, highlighting its benefits for improving skin texture and reducing redness.

2. **Hyperpigmentation and Skin Brightening**

- **Reference**: **Bissett, D. L., & M. L. L. E.** (2003). The effect of niacinamide on skin discoloration and uneven skin tone. *Journal of Cosmetic Dermatology*, 2(4), 228-233.
    - **Summary**: Discusses how niacinamide reduces hyperpigmentation and evens skin tone, making it a popular ingredient in brightening products.

Pollution

Nicotinamide has been studied for its protective effects against environmental pollutants on the skin.
Research has indicated that nicotinamide can help enhance our skin's DNA repair mechanisms, thereby mitigating the damage to the skin caused by environmental factors such as ultraviolet radiation and air-borne pollution.
Additionally, nicotinamide has been shown to reduce the formation of actinic keratoses, which are precancerous lesions induced by environmental exposure, further supporting its protective role against environmental damage.
These findings suggest that incorporating nicotinamide, and especially in its bioactive form, into skincare regimens may offer protective benefits against environmental pollutants.

Research shows that nicotinamide offers protective benefits against environmental pollutants. Its efficacy in safeguarding the skin from pollution-induced skin damage has been attributed to several key mechanisms:

1. **Antioxidant Properties**: Nicotinamide exhibits antioxidant activity, neutralizing free radicals generated by environmental pollutants. This action helps prevent oxidative stress, which can lead to premature skin aging and other damage.
2. **Enhancement of Skin Barrier Function**: By bolstering the skin's own natural defensive barrier, nicotinamide reduces the penetration of harmful pollutants. A strengthened skin barrier helps minimize the impact of environmental aggressors, helping to maintain skin integrity, form and beauty.
3. **Anti-Inflammatory Effects**: Nicotinamide also possesses anti-inflammatory properties which help mitigate skin irritation and redness caused by exposure to pollutants. This soothing effect is beneficial in maintaining skin health, especially in more polluted environments such as large cities or hotter climates.

Incorporating bioactive nicotinamide into your skincare routine can help provide a multifaceted skin defense against increasing environmental pollution, promoting healthier and more resilient skin.

References

E. Forbat, F. Al-Niaimi, F. R. Ali, Use of nicotinamide in dermatology, *Clinical and Experimental Dermatology*, Volume 42, Issue 2, 1 March 2017, Pages 137–144

Duncan, Karynne O, Eveline O. Stock, MD, Diona L. Damian, PhD, Stanley J. Miller, MD, Nicotinamide for high-risk skin cancer patients: An update, *Journal of the American Academy of Dermatology*, Volume 91, Issue 6, 1301 - 1302

Skin Whitening

Nicotinamide has also been extensively studied for its skin-lightening properties. Research has found that topical application of nicotinamide can help to reduce hyperpigmentation and improve skin tone.

For example, a review in *Clinical and Experimental Dermatology* has highlighted its benefits in treating melasma and hyperpigmentation, noting improvements in skin elasticity and the reduction of fine lines and wrinkles.

The skin-lightening effects of nicotinamide are primarily attributed to its ability to inhibit the transfer of melanosomes from melanocytes to keratinocytes, thereby reducing the deposition of melanin in the skin.

This mechanism was detailed in a research study published in the *Journal of Pharmaceutical Research International*, which assessed the efficacy and safety of topical nicotinamide in treating melasma and hyperpigmentation.

Furthermore, a comprehensive review in *Antioxidants* discusses the multifaceted roles of niacinamide in skincare, including its contributions to redox reactions, energy production in skin cells, and its influence on DNA repair and cellular stress responses. These properties collectively enhance skin health and appearance.

In summary, clinical evidence supports the use of nicotinamide as an effective and safe option for individuals seeking to address hyperpigmentation and to achieve a more even skin tone. Of course by using Skin + CELL products, which have been specially formulated to provide niacinamide in a bioactive form, the benefits outlined in such research are likely to be greatly increased. These include:

1. **Inhibits Melanin Transfer**:

Nicotinamide works by **inhibiting the transfer of melanin** (the pigment responsible for skin color) from melanocytes (melanin-producing cells) to keratinocytes (skin cells). This reduces pigmentation and leads to a more even skin tone.

2. **Reduces Hyperpigmentation**:

Studies have shown that niacinamide can **visibly reduce dark spots and pigmentation** with regular use, leading to brighter-looking skin.

3. **Anti-inflammatory Properties**:

Niacinamide calms inflammation, which is beneficial for conditions like post-inflammatory hyperpigmentation (PIH) that often result from acne or skin irritation.

4. **Skin Barrier Repair**:

Nicacinamide helps strengthens the skin's barrier, helping to retain moisture and improve overall skin health, which can indirectly contribute to a brighter, glowing complexion.

5. **Antioxidant Action**:

Niacinamide helps fight free radicals, which helps prevent further skin damage and discoloration caused by environmental stressors.

Efficacy:

Clinical studies have proven that just **5% niacinamide** applied topically for 8-12 weeks can lead to visible reduction in pigmentation and an overall improvement in skin brightness.

Skin and CELL products are formulated with up to 10% niacinamide in its bioactive form, helping to accelerate all these benefits which have been outlined above.

References

E. Forbat, F. Al-Niaimi, F. R. Ali, Use of nicotinamide in dermatology**.***Clinical and Experimental Dermatology*, Volume 42, Issue 2, 1 March 2017, Pages 137–144

Hamzawi, N. K. A. (2021) "Nicotinamide as a Skin Whitener: Evidence and Controversies", Journal of Pharmaceutical Research International, 33(38B), pp. 300–305.

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