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## MINERAL MASK. Intensive purification. Deep re-structuring



### GLAMOOR MINERAL MASK

incorporates the latest advance in cosmetics based on **epigenetics**. In addition to **protecting against electromagnetic radiation and blue light** emitted by our **smartphones and electronic devices**.

It is a **purifying, regenerating and moisturizing mask that detoxifies the skin** and restores it in depth.

It combines the efficacy of ingredients of botanical and marine origin with **Epigenetic Science**.

Epigenetics is the new scientific discipline that allows influencing the behavior of genes to achieve optimal performance.

Today we know that the environment, our lifestyle, emotions ... in definitive, the history of the skin, generates epigenetic factors that influence decisively in our way of aging, more than the genetic inheritance itself.

The key? **COBIOGENOL**, an active ingredient from marine origin that acts like a chemical switch activating the genes "off" by certain epigenetic factors. Normalizing the generation of proteins necessary for the rejuvenation and regeneration of the skin, neutralizing oxidative stress generated by exposure to light and blue light, and re-structuring the stratum corneum, the outermost layer of skin, key in maintaining its Barrier and protective function.

### BIOACTIVE INGREDIENTS IN GLAMOOR MINERAL MASK:

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#### COBIOGENOL: Electromagnetic protection, protection against Blue-Light. Epigenetic Science

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**First active ingredient** focused on reducing the biological disorders produced by exposure to **Electromagnetic Radiation**.

Electromagnetic waves are a form of energy consisting in vibrations of

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electric and magnetic fields. We live in a sea of invisible electronic pollution, which is becoming toxic to our health.

We do not see or perceive them but are increasingly present in our domestic environment. Wherever we might be, non-ionizing radiation is all around us. We are constantly exposed to magnetic fields generated by appliances and domestic electrical installations: mobile phones, WIFIs, microwaves, television, radio, computers, etc.

As technology advances and the use of these devices increase, both at the workplace or private areas, our exposure to non-ionizing radiation is likely to intensify further.

### ▪ Oxidative Stress

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The “digitization” of our world means that our cells are exposed to a continuously increased level of non-ionizing radiation, for which they have not adapted. In the last decade, EMR (Electromagnetic Radiation) levels have increased dramatically, and we are starting to realize its negative consequences. EMR is an environmental stress factor for human health, and skin as a physiological barrier is the first

objective of this radiation.

This exogenous stress leads to oxidative cellular stress, the formation of excessive reactive oxygen and nitrogen species and reaction products. It leads to a mitochondrial metabolic dysfunction: ROS causes a disruption of Mitochondrial function and cellular ATP Levels.

The massive oxidative cell stress leads to chronic inflammation. Several studies [1][1][3] have shown that skin exposure to cell radiation suffers several biological parameter alterations:

- ✓ Massive increase in free radical production (ROS)
- ✓ Massive Increase of pro-inflammatory cytokines
- ✓ Decrease in cell regeneration
- ✓ Reduction in structural proteins: key molecules involved in the stratification of the epidermis

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- ✓ Lost in cohesion between keratinocytes
  - ✓ TEWL increase: dehydration, the skin becomes more vulnerable and sensitive
  - ✓ Stratum corneum weakening
  - ✓ Disturbed skin refraction: lost in brightness, becoming dry and uncomfortable

**COBIOGENOL**, is a functional ingredient proved to reduce the skin biological alterations, resulted from the exposure to EMR.

**It helps at the restoration process of the skin**, being a specific anti-stress agent. It is a **concentrated solution of purified marine glycogen**, ready to use at cosmetic skin care preparations.



Glucose is the most important sugar at the cellular level. It plays a very important role in the energetic metabolism of the cells. Its energy is used at the restoration process of the skin.

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## CLINICAL EFFICACY TESTS:

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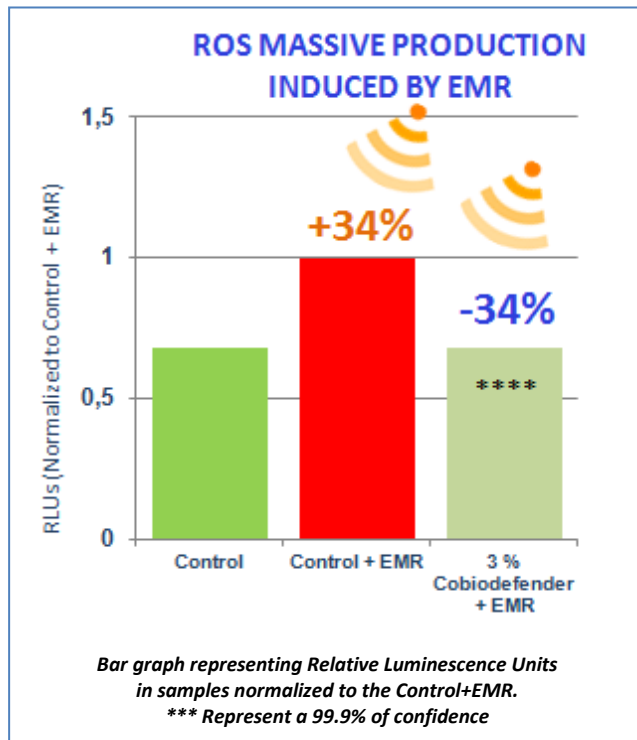
- **Effects of COBIOGENOL Preventing and protecting from Electromagnetic radiation-induced oxidative stress:**
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Several exogenous stimuli such as ionizing radiation, EMR, UV light, smoke, inflammatory processes and some human diseases trigger off free radicals production, causing severe damage in the mitochondrial membranes provoking the massive release of free radicals (ROS).

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The goal of this study was to evaluate the capacity of COBIODEFENDER EMR in protecting cells from the damage caused by induced electromagnetic radiation (EMR), by reducing oxidative stress (ROS).



To this end, Human keratinocyte cells were exposed to 6 hours of EMR generated by a mobile phone to assess the response of skin cells to the induced oxidative stress and test the potential of COBIODEFENDER EMR to prevent EMR-induced ROS.

After 6 hours exposition, EMR induced ROS accumulation  $34,26 \pm 3,13\%$  and treatment with COBIODEFENDER EMR **reduced EMR-induced ROS production  $34,82 \pm 3,12\%$**  indicating a protective effect.

## ■ Cellular epigenetic rejuvenation

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### Epigenetics is a new paradigm in the Science of Anti-Aging.

It is the study of the mechanisms involved in the regulation of gene activity: the biological mechanisms that will switch genes on and off without altering their sequence.

Epigenetic change happens regular and naturally but can also be influenced by several factors including age, the environment (UV radiation, pollution...), lifestyle, emotions and diseases and much more that are yet to be discovered.

These factors discussed above, have the ability to "turn" or "turn off" certain genes, whose effects will be observed physically or physiologically.

The "on" or "off" effect of genes can be accomplished by three mechanisms:

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## 1) MicroRNAs

- 2) Histone modification
- 3) DNA mutation

## What are miRNAs?

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MicroRNAs (or “miRNAs”) are chemical “switches”. They are small fragments of RNA responsible for protein synthesis. These control mechanisms are key elements of epigenetic regulation. Its production is constantly modified by the environment and living conditions, including our emotions. MicroRNAs turn on and off numerous biological processes such as cell survival, skin repair, processes, hair growth...

## Epigenetics and the future of skin care

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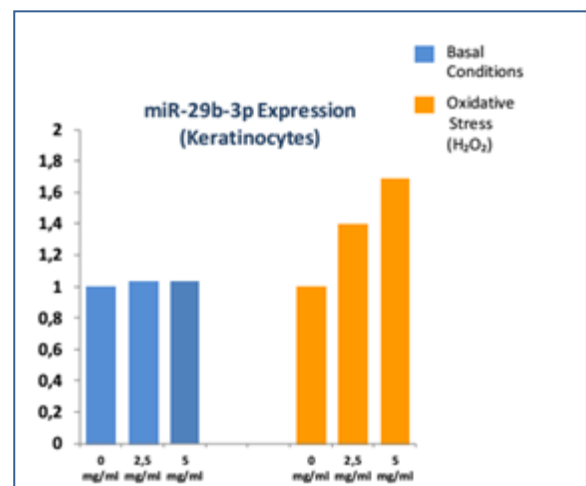


We can regulate microRNA expression to rejuvenate. miRNAs are involved in regulation processes such as cell cycles, DNA repair systems, reactions to oxidative stress, apoptosis, etc.

During aging and other external aggressions, chromatin ( the genetic material in the nucleus of our cells) becomes senescent and disorganized contributing to premature aging.

**COBIOGENOL is a natural epigenetic active ingredient** that can regulate microRNA expression. This means that it has the ability to act on the expression of miRNAs and **"switch on" or "switch off" certain genes.**

- By **in vitro assays in human keratinocytes** (skin cells), COBIOGENOL has been shown to have the ability to **rejuvenate cellular chromatin, making aging cells acquire characteristics of young cells.**



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COBIOGENOL increases the expression of miR-29b-3p, a miRNA that "**switch on**", or "activates" the synthesis of protein P53: **Protein guardian of genetic material**, which has a **potent antioxidant, anti-stress and anti-aging activity**.

• Under conditions of cellular stress induced by photo-oxidation (photo-aging) and oxidative stress, (by hydrogen peroxide), COBIOGENOL reduced the levels of **H3K79me3**, a miRNA considered as an **aging clock, inducing a cellular rejuvenation**.

### Summary of COBIOGENOL activity:

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- ✓ Protection of oxidative stress caused by electromagnetic radiation
- ✓ DNA protection and rejuvenation
- ✓ Anti-aging activity
- ✓ Aged cells acquire characteristics of young cells

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### PURE ARGAN OIL: Skin barrier restoration

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**100 % Pure Argan Oil: Ecocert Certificate**, extracted from the Argan tree kernel fruit (**Argania Spinosa**) using only mechanical cold pressure, being therefore a pure active ingredient, ecological cosmetic, chemical-free and deodorized.

**Argan oil is made up to 80% of essential fatty acids:**

- **50% linoleic acid, 15% alpha-linolenic acid, 12% oleic acid:** Biological precursors of intracellular hormones such as prostaglandins (key regulators of different cellular systems, including all membranous exchanges). They stimulate intracellular oxygenation, improving the restoration of the hydro-lipidic film increasing the nutrient content of skin cells and ensuring the necessary skin moisture.
- 1% Arachidonic acid
- 3% Linolenic acid
- 5% Tocopherols (Vitamin E). **The main representatives of this class of compounds found in Argan oil are alpha-tocopherol or vitamin E (5%), gamma-tocopherol (83%) and**



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**delta-tocopherol (12%) which are natural antioxidants and vitamin precursors.**

- **Ferulic acid:** It is the compound found in greater proportion. It promotes blood circulation, thereby increasing the arrival of nutrients. Stimulates intracellular oxygenation, neutralizes free radicals and protects the connective tissues.
- **Phytosterols:** Delta-7-sterols are inhibitors of the 5-alpha-reductase enzyme, which converts testosterone into dihydrotestosterone (DHT), largely responsible for acne and hair loss.
- **Squalene:** Present in 25% of human lipids, by binding to the cell membrane, helps to eliminate toxins and neutralize free radicals.
- **Lupeol:** has anticancer properties and enhances proliferation of keratinocytes which produce keratin in hair, nails and skin.

All these elements give it high antioxidants, anti-inflammatory, re-structuring, regenerating and anti-aging properties. Restores skin and protects it from oxidation caused by free radicals.

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### **ILLITE or SEA CLAY: Revitalizing and re-mineralizing**

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The color of this clay is because it is **very rich in chlorophyll**. It is very rich in **antioxidant minerals (selenium, copper and manganese)**, so it is ideal for **mature skin with a tendency towards oily skin**. It is also rich in **calcium, phosphorus and potassium**.

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It is very **revitalizing and remineralizing**, with properties that reinforce collagen and

It is one of the clays with **greater drag power**. So it will be the most appropriate for people with oily or very oily skin, even affected by acne. It is also **the most depurative, the most effective getting the epidermis rid of toxins and impurities**.

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### **KAOLÍN: Astringent, détox, purifying**

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Kaolin is a **very pure white clay composed of kaolinite** used in cosmetics as an absorbent of **oil secretions, moisture and impurities** that clog the pores and cause the formation of **imperfections**.

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It has **softening properties** of the skin, has a **slight astringent effect and activates the blood circulation**.

By its gentle **exfoliating action**, it renews the cellular surface of the skin, eliminating impurities and dead cells.

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### ROSMARINIC OIL: Antiseptic, tonic-stimulant, soothing

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It is an **antiseptic, healing and tonic agent for the skin**. It has **stimulating properties and is a circulating activator**, as well as an **antifungal agent**.

The **anti-inflammatory properties of rosmarinic acid** are based on the **inhibition of leukotrienes**, the

complement system and free radicals.

Its **antioxidant action is due to carnosol and carnosic acid**, two active compounds capable of inhibiting the peroxy radical. **Due to its triterpene content, it has an intense soothing and anti-irritant activity**.

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### TOCOFEROL (VITAMIN E): Anti-free radicals

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Vitamin E is a **key ingredient in the structure of cells**. It is a **powerful antioxidant** that acts **against the free radicals, being an essential component for the care of the skin**, that delays the cellular aging caused by oxidative damages.

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### SWEET ALMOND OIL: Restoring the skin barrier

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It exhibits a **potent restorative activity** in the skin's barrier function. Sweet almond oil is an oil with a **strong emollient power** on the skin that favors the **regulation of the lipid phase of the skin mantle**, due to its content in unsaturated fatty acids. By increasing the cutaneous levels of these **essential fatty acids**, increases the production of **beneficial**

**eicosanoids with anti-inflammatory effect**.



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The **unsaponifiable fraction** of the sweet almond, consisting mainly of **squalane, tocopherol and phytosterols**, guarantees to the skin the contribution of highly nutritive substances, acting on the dermic connective tissue, favoring the tone and the **elasticity of the skin**.

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### **BEE WAX: Anti-inflammatory, antibacterial**

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Beeswax or alba wax is a **highly hygroscopic substance** that **retains and maintains moisture in the skin**, taking care of the most **sensitive and dry skins**.

It has **anti-inflammatory, antibacterial, anti-allergic and antioxidant properties**.

It brings elasticity to the skin, because of its **great capacity to retain moisture**, it maintains a hydration of the surface layers of progressive and lasting skin.

### **References:**

[1] Exposure to Electromagnetic Radiation Induces Characteristic Stress Response in Human Epidermis *Journal of Investigative Dermatology* (2008) 128, 743–746.

[2] Non-thermal activation of the hsp27/p38MAPK stress pathway by mobile phone radiation in human endothelial cells: molecular mechanism for cancer- and blood-brain barrier-related effects. Leszczynski D1, Joenväärä S, Reivinen J, Kuokka R.

[3] Mobile phone radiation might alter protein expression in human skin. Anu Karinen, Sirpa Heinävaara, Reetta Nylund and Dariusz Leszczynski.

[4] **Potential of herbs in skin protection from ultraviolet radiation.**

Radava R. Korać and Kapil M. Khambholja. *Pharmacogn Rev.* 2011 Jul-Dec; 5(10):164–173.