

Supernatural Sleeping Mask



Working with the skin to enhance pre-existing biological processes is a powerful way to develop skincare technology that delivers maximum benefit, without compromise. The Emma Lewisham Supernatural Sleeping Mask recognises that the skin and its responses to the environment are intertwined with the body's circadian rhythm¹. As a counterpart to the Emma Lewisham Supernatural Day Crème, which supports biological processes associated with daytime function, the Emma Lewisham Supernatural Sleeping Mask supports biological processes associated with nighttime function. By targeting the skin's melatonin receptors, this unique formulation first supports restoration of the skin's own beneficial nocturnal behaviour (a foundation of the skin's condition) before further enhancing the complexion. By first targeting an elevation of the skin's own behaviour, the formulation aims to deliver an elevation of what can be achieved by an overnight treatment.

Formulation Design & Delivery

Physiology Synchrony Unlock Method™

This formulation has been engineered in line with the Emma Lewisham P/S Unlock Method™ of product design. This method is anchored on the skin's physiology, piecing together novel combinations of up to 25 scientifically researched ingredients to work in symphony and trigger a coordinated response from the skin. This synchronous activity is designed to deliver formulations that both enhance the skin's condition and amplify its response to achieve leading results.

Why did we develop this product?

At Emma Lewisham we believe that harnessing the power of nature and working with the skin is the best way to develop skincare technology that can provide maximum benefit without compromise. We developed the Emma Lewisham Supernatural Sleeping Mask with the intention of harnessing biological rhythms. It is a recent discovery in the scientific world that skin function follows a biological rhythm from day to night². By harnessing the power of nighttime regenerative processes, the Emma Lewisham Supernatural Sleeping Mask is designed to provide a rapid elevation in skin complexion to deliver observable improvements from the first application.

Circadian rhythm and the skin - nighttime melatonin receptor activation and counteracting age-related melatonin decrease

Our skin is the interface between our internal and external environments, tasked with adapting to changes in each zone. One of the ways our skin is able to recognise changes in the environment is by following the body's internal clock, commonly known as the circadian rhythm. This rhythm is influenced by light and darkness and helps the skin to adapt accordingly by triggering synchronised biological processes over a 24-hour period. During the day, an upregulation of processes associated with protection from external aggressors can be observed. This biological behaviour interestingly marries the skin's activity to its environmental exposures. During the night, the skin appears to increase the biological processes focused on restoration and regeneration. The skin's ability to follow this rhythm and respond to upstream cues such as light exposure are linked to several regulatory factors³, such as the presence of melatonin receptors in the skin. The skin's melatonin receptors are thought to help synchronise the relationship between the skin's activity and the body's circadian rhythm, so during the overnight hours when we are resting, the skin demonstrates a higher level of repair and cellular proliferation associated activity^{4,5}. It has been observed that humans experience an age-related decrease in melatonin,

meaning that as we age there is an associated decline of the level of melatonin released during evening hours. Activation of these melatonin receptors is shown to drive the restorative and regenerative biological processes that are commonly associated with the skin's overnight restorative activity. Because of this, a key target for the Supernatural Sleeping Mask design was activation of the skin's melatonin receptors to support the restoration of the skin's own beneficial overnight activity. Restoration of this key skin foundation provides an elevated springboard for the remaining complexion-enhancing actives within this formulation to act. In doing so, this formulation targets an elevation of what can be achieved by an overnight treatment.

There are many restorative and regenerative biological processes the skin undergoes at night, ranging from wound healing to changes in cutaneous blood flow⁶. Melatonin has been demonstrated as a factor that can link our centralised circadian rhythm with this beneficial skin activity. The Emma Lewisham Supernatural Sleeping Mask uses crocin, a natural compound found in the *Gardenia Jasminoides* plant. When crocin is applied to the skin it undergoes an enzymatic reaction where it loses its attached sugar molecule. This process is the conversion of crocin to crocetin, which shows affinity for melatonin receptors. Through identification of this unique bioactive offering from nature, the restoration of the skin's beneficial nocturnal activity can be targeted.

Complexion enhancement and strengthening the dermal matrix

Achieving a glowing complexion can be influenced by many factors including environment, diet, and lifestyle choices. Typically, complexion presentation can be linked to a range of key mechanisms that occur within the skin.

A fibroblast is a type of cell that plays a crucial role in maintaining the underlying 'structure' of the skin. This is associated with the skin's 'landscape' – its grooves, and where it lifts or droops. Fibroblasts are powered by ATP, a compound produced and utilised throughout the body as an energy currency. Using ATP, fibroblasts are able to conduct their function of collagen synthesis, where they allow for the formation of collagen that is subsequently responsible for lifted and firm skin.

With a strong focus on creating a glowing

complexion, the Emma Lewisham Supernatural Sleeping Mask focuses on the role of fibroblasts in collagen synthesis. Using ribose, this formulation supports the fibroblast's mitochondrial ATP-generating processes. The purpose behind targeting this activity is to support the energy-intensive processes that the fibroblast performs, such as synthesis of collagen.

Combining fibroblast energy support with ingredients that demonstrate an ability to trigger an increase in collagen synthesis, this formulation targets elevated impact to achieve an increase in collagen. In addition, this formulation harnesses dipalmitoyl hydroxyproline which focuses on fibroblast activity with it being demonstrated to have a stimulatory effect on fibroblasts and their synthesis of collagen. Together with ribose, Emma Lewisham's Supernatural Sleeping Mask intensifies a pre-existing biological process by supporting both the energy source of the fibroblast as well as triggering an increase in the fibroblast function, allowing for a rapid elevation in complexion.

Further to stimulating fibroblast activity and collagen synthesis, consideration was given to the protection of the skin's collagen, recognising the importance of decreasing its degradation. Using a bookending approach, a botanical blend incorporating specific ingredients such as microencapsulated CoQ10 were harnessed to target a decrease in the processes that lead to collagen degradation. By both increasing collagen synthesis and decreasing its degradation, the skin's collagen inventory is elevated.

To boost the skin's barrier function and deliver a plump and bouncy complexion, the Emma Lewisham Supernatural Sleeping Mask also places emphasis on hydration. Conventional Hyaluronic Acid shoulders limitations of duration and extent of impact. For this reason, a moisture-lock system was designed, comprising of Hyaluronic Acid, ingredients that can stimulate further Hyaluronic Acid synthesis (Saccharide Isomerate, Dipalmitoyl Hydroxyproline), and Ceramides. The system is designed to increase moisture, increase synthesis of the skin's own Hyaluronic Acid, and reduce loss of moisture across the skin barrier. Through this coordinated approach, conventional hydration limitations are overcome for hydrated, complexion-enhanced skin that's plumped from within.

Additionally, AHA compounds from Hibiscus are included to enhance the mask's surfacing effect, harnessing a micro dose of AHA to liberate dead skin cells from the surface to reveal fresh skin by morning.

Formulation Validation

To validate the target formulation enhancements at a mechanistic level, independent *in vitro* testing was carried out. This research was focused on collagen synthesis and protection, along with impact on the collagen-producing cells, the fibroblasts.

Impact Investigated	Methodology Summary	Results
Upregulation of collagen synthesis	Independent <i>in vitro</i> test (2022) investigating the production of Type I collagen by human skin fibroblasts.	Confirmation of increase in collagen production.
Impact on key enzyme responsible for collagen degradation	Independent <i>in vitro</i> test (2023) investigating the activity of matrix metalloproteinases in human skin cell fibroblasts.	51.6% reduction in fibroblast MMP activity over 24 hours.
Direct impact on cultured human skin fibroblasts	Independent <i>in vitro</i> test (2023) investigating the proliferation of human skin cell fibroblasts.	71.9% increase in the population of human skin cell fibroblasts over 24 hours.

Supernatural Sleeping Mask Summary

Through a deep understanding of the skin's circadian rhythm, the Emma Lewisham Supernatural Sleeping Mask enhances the pre-existing biological processes associated with the skin's nighttime function. By targeting epidermal melatonin receptors, this unique formulation first supports restoration of the skin's own beneficial nocturnal behaviour (a foundation of the skin's condition) before further enhancing the complexion by supporting and increasing collagen synthesis and increasing longer lasting hydration. This intelligent formulation delivers an elevation of what can be achieved by an overnight treatment for firmer, more lifted, hydrated, healthy and glowing skin.

References

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All Emma Lewisham products are formulated according to Regulation (EC) N° 1223/2009 which is the main European regulatory framework to strengthen the safety of finished cosmetic products. Emma Lewisham products have been independently reviewed by an expert safety assessor according to these regulations and issued a safety certificate. As part of this review, they have confirmed there are no groups of people, such as pregnant or breastfeeding women, for which Emma Lewisham products would be unsafe.

emmalewisham.com
Auckland, New Zealand
hello@emmalewisham.com