

Skin Reset Serum



Hyperpigmentation is a common skin concern characterised by the excessive production and accumulation of melanin. However, in the realm of skincare, simultaneously achieving efficacy, tolerability, ingredient acceptability, and luxury has long been a challenge. Furthermore, some common ingredients are contraindicated for individuals who are pregnant or breastfeeding. Emma Lewisham's Skin Reset Serum has been designed to interact with multiple points of the skin's pigmentation process to result in a concert-like inhibition and dispersion of visible pigment on the skin. The resulting formulation demonstrates an ability to deliver validated results using ingredients that are safe and tolerable for the general population.

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?

Emma Lewisham's Skin Reset Serum was designed to provide a solution to the efficacy versus tolerability compromise commonly observed in products that target hyperpigmentation. Hyperpigmentation is a common occurrence for individuals from a range of ethnicities and locations, and importantly is often associated with negative impacts on an individual's wellbeing. In spite of this, readily available cosmetic treatments appear to carry limitations, with some ingredients being contraindicated during times when hyperpigmentation can be amplified such as pregnancy¹. Emma Lewisham has sought to provide a solution that overcomes the trade-off between efficacy and tolerability to deliver both reparative and preventative results without the associated compromise.

How hyperpigmentation occurs

The pigmentation pathway involves a multitude of steps, from pigment synthesis to its presentation on the surface of the skin. This function can be upregulated by various factors including UV radiation, hormonal influences, and inflammatory mediators².

Melanin, the natural pigment in skin, is synthesised within cells called melanocytes that reside at the base of the epidermis. A key step in melanin synthesis involves the activity of the enzyme tyrosinase, which acts on a resident cellular amino acid called tyrosine. Within the melanocyte, melanin-containing 'packages' called melanosomes are then created. Once matured, these melanosomes are transported into neighbouring cells called keratinocytes. As keratinocytes migrate towards the surface of the skin, the pigment is presented and becomes visible^{3,4}.

By designing this formulation from a 'skin first' position and utilising the P/S Unlock Method™, Emma Lewisham was able to identify a way to construct a multi-point interaction to deliver independently proven results without compromise. The delivery of this product took 57 iterations of formulations before a luxurious skin feel and stability clearance was achieved. This meticulously formulated serum strategically targets the underlying mechanisms contributing to excessive melanin production and its uneven distribution within the skin.

The development path to achieving this outcome was performed in two phases, with the first phase alone requiring 57 formulation iterations to achieve.

Achieving a measurable impact on melanin production and hyperpigmentation

Phase 1: Formulation Design

Phase 1 of formulation design aimed to achieve and validate that, through harnessing nature and the PS Unlock Method™, Skin Reset Serum could reduce and prevent hyperpigmentation while nurturing the skin's condition. This was targeted via two main biological pathways – melanin synthesis and melanin migration.

At the forefront of its action, the serum utilises a specialised complex of seven alpine plant extracts that have shown an ability through *in vitro* research to reduce the activity of the pigmentation process at several points. Inhibition of melanin synthesis is demonstrated through downregulation of the activity of key enzymes tyrosinase (TYR) and dopachrome tautomerase (DCT). Reduction of maturation and transfer of melanosomes is demonstrated through downregulating of Premelanosome

protein 17 (PMEL17) expression. Reduction of melanosome transfer to neighbouring keratinocytes is demonstrated by a reduction of Melanoregulin – an inhibitory process that is associated with prevention of pigmentation from reaching the visible surface of the epidermis⁵. Supporting the relevance of these *in vitro* ingredient observations, clinical research performed using grading of 'age spot' colour confirmed a reduction in colour over three months.

Further supporting the overall efficacy design, liquorice root extract and niacinamide are included to further reduce the synthesis and transfer of melanin respectively. Both of these ingredients are well established in their recognised hyperpigmentation impact through *in vitro* and *in vivo* experiments.

Phase 1: Formulation Validation

In order to validate key target effects at both a cellular level and on the skin, independent *in vitro* and *in vivo* testing on melanin synthesis and hyperpigmentation was performed on the formulation.

| Impact Investigated | Methodology Summary | Results |
|---|---|--|
| Inhibition of melanin production by melanocytes | <i>In vitro</i> testing using cultured human fibroblasts over a 24 hour incubation period with resulting melanin concentration assessed for comparison to control. Trinity Bioactives, 2020. | <ul style="list-style-type: none"> – 26.1% inhibition of melanin production. – No apparent deleterious impact on the viability of the cultured melanocytes (proliferation of 12.2%). |
| Comparative <i>in vitro</i> performance of SRS to leading market brands | <i>In vitro</i> testing using cultured human fibroblasts over a 24 hour incubation period with resulting melanin concentration assessed for comparison to control. Comparative performance of Emma Lewisham Skin Reset observed alongside four in-market leading brightening products. Trinity Bioactives, 2020. | <ul style="list-style-type: none"> – Skin Reset Serum demonstrated higher inhibition of melanin synthesis compared with four in-market brightening products from leading brands. |
| Visible production and reduction of hyperpigmentation | <i>In vivo</i> testing using 39 women with existing hyperpigmentation. Double blind (unblinded for specific questions for the final portion of the final assessment visit) split faced study with subjective reporting by the subjects over a 12 week period during Spring to Summer months in Australia. OzDerm, 2019. | <ul style="list-style-type: none"> – 77% of participants thought the Emma Lewisham Skin Reset Serum was effective at reducing the signs of hyperpigmentation, given the nature of hyperpigmentation. – 86% of participants saw no new hyperpigmentation appear during the trial period (questioned to elucidate potential to prevent the increase in hyperpigmentation triggered by Spring-Summer in a country with high UV levels). |

Enhancing efficacy and length of activity after application

Phase 2: Formulation Enhancement

While Phase 1 achieved the objectives of efficacy without compromise, a Phase 2 formulation enhancement was initiated to incorporate new technology and focus specifically on extending the life of the formulation's activity on the skin after application.

Advances in technology had been made to enhance the efficacy of a well-regarded brightening ingredient, vitamin C. While this ingredient commands a range of supportive scientific data, its use on the skin can be somewhat restricted due to stability limitations⁶. Further, by assessing the lifecycle of the formulation after application, an opportunity to extend the period of efficacy after application was identified.

Tetrahexyldecyl ascorbate is observed to possess

an increased profile of stability compared with the more commonly used form of vitamin c, L-ascorbic acid, along with a demonstrated ability to penetrate the epidermis. Further, recent innovation has identified that a natural amino acid, ergothioneine, can act as a resurrecting companion to vitamin C, restoring it from its oxidised form. When paired and challenged by conditions of 37°C and pH 7.4, presence of vitamin C shows elongated persistence over a period of five hours.

Phase 2's innovative enhancement design has been incorporated into the Skin Reset Serum formulation and further independent testing will be performed to capture the increase in efficacy achieved by this.

Skin Reset Serum Summary

Emma Lewisham's P/S Unlock Method™ combined with advances in both skin research and ingredient technology have highlighted an opportunity to achieve new levels of efficacy without the associated negative impacts of commonly sought brightening treatments. The Skin Reset Serum has undergone a two-phase development, with phase one validating its ability to deliver results, outperforming other leading brightening products, without compromise around tolerability. Phase two advanced this formulation by extending the life of the formulation's activity on the skin after application. This innovative formulation presents the customer with an optimal solution for preventing and reducing hyperpigmentation that overcomes negative impacts on the skin while delivering enhanced results.

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.

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