

Press Release

Research and Development

Shiseido Develops New Base Agent Using Advanced "Second Skin" Technology to Reduce Volume of Under-eye Bags

Unveiling also a New Mechanism of Action, Where Mild Compression Stimulus of a Contractile Film Acts on the Skin's Interior

Shiseido has developed a new base agent that improves under-eye bags after two weeks of continuous use (Figure 1). This development was based on Shiseido's "Second Skin" technology that creates a flexible, contractile film over the skin, further advancing the technology and its formulation. It was also revealed that a mild compression stimulus generated by the contractile film act on the skin's interior, thereby promoting collagen production and restructuring, potentially leading to a healthier skin state depending on the forces applied.

Shiseido has reported that the "Second Skin" technology produces a wide range of effects, and this study led to a new finding that it has the effect of improving under-eye bags, contributing to changes in the internal skin structure. With this discovery, offering customers non-aesthetic medical options to improving under-eye bags is now possible. Moving forward, Shiseido will keep developing new ways to meet the skincare needs of consumers, offering solutions that provide powerful physical and skin benefits beyond traditional cosmetics.

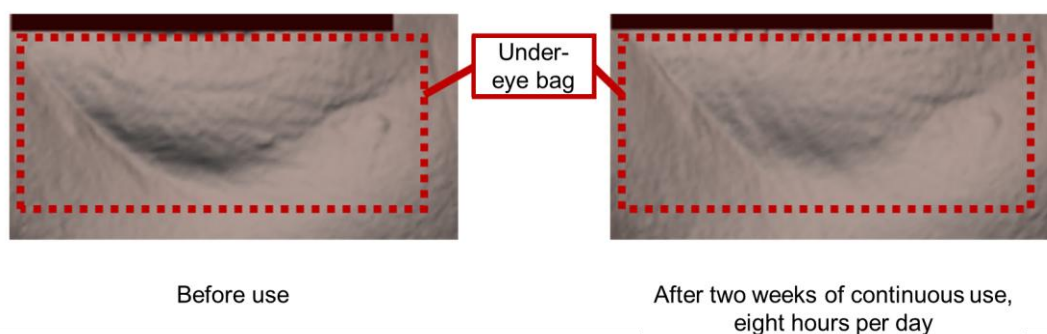


Figure 1 Under-eye bag volume improved after two weeks of continuous use of the new base agent, developed by advancing the "Second Skin" technology and its formulation.

Research Background

Shiseido acquired the "Second Skin" technology from Olivo Laboratories,* a US-based venture company in 2018 and has since conducted extensive research. By applying a special base agent over a polymer base material, this technology allows an artificial skin to form on and merge with the skin, smoothing out any irregularities.

Shiseido previously reported that the "Second Skin" technology creates a barrier that protects the skin from dryness while allowing oxygen and carbon dioxide to pass through, making it almost like a "second skin." This technology also offers a variety of effects, including an immediate reshaping of under-eye bags, the ability to improve sagging and wrinkles with continuous use, the promotion of ingredient penetration, an occlusion effect, selective adsorption of sebum, and a stratum corneum peeling effect. As evident, Shiseido has continued its research to enhance the "Second Skin" technology further.

* Shiseido Acquires Breakthrough Technology From Olivo Laboratories
<https://corp.shiseido.com/en/news/detail.html?n=0000000002349>

Skin Care Effects of Evolved “Second Skin” Technology and New Base Agent

The “Second Skin” technology utilizes the tension created when a flexible, contractile film forms over the skin and contracts, helping to reduce puffiness (Figure 2). Previously, its effects were on improving under-eye bags on bare skin after removing the film following two months of continuous daily use and on making under-eye bags less noticeable during the day. This time, a new base agent was developed that exhibits increased contractile force and initiates action in two weeks (Figure 3).

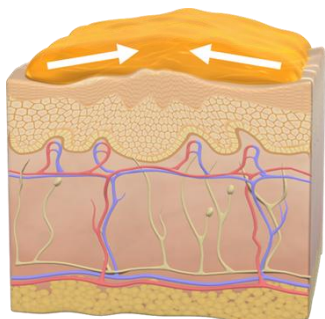


Figure 2. “Second Skin” technology provides highly flexible contractile film to form on skin.

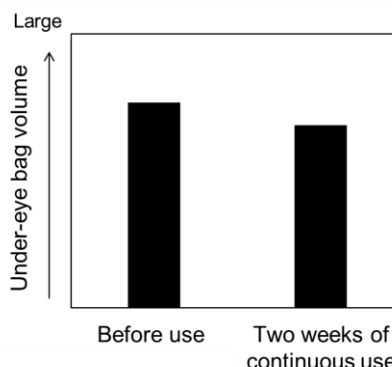


Figure 3. Under-eye bag volume improved after two weeks of continuous use of new base agent.

Improved Dermal Model Thickness with Continuous Stimulation with Mild Compression

To clarify how the size of the under-eye bags decreases, Shiseido constructed a 3D dermal model with dermal fibroblasts growing within a 3D collagen network (Figure 4). The dermal model was cultured for one week, with mild compression stimulus for several hours each day. The results showed that collagen production increased after one day of stimulation, and signs of collagen remodeling appeared one week later. Interestingly, the 3D skin model became thinner when unstimulated, while applying stimulation helped keep its thickness; indicated that physical strength was also preserved (Figure 5).

The observed response resembles the way the skin remodels the dermis to heal wounds, suggesting that mild compression stimulation may assist fibroblasts in reorganizing collagen network to optimize their environment in response to the forces applied.

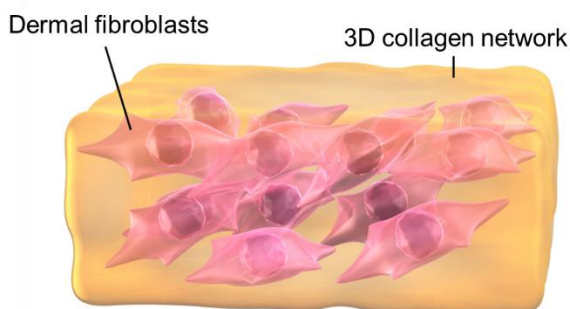


Figure 4. Image of 3D dermal model used

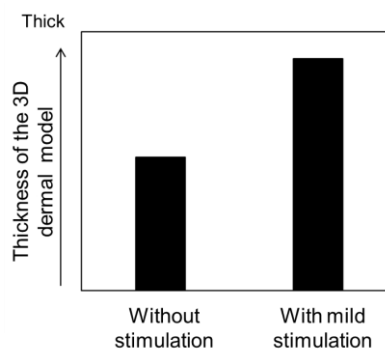


Figure 5. Thickness was maintained in 3D dermal model subjected to the mild compression stimulus

Prospects

The “Second Skin” technology is based on the idea of creating a second skin that transcends the potential of human skin, regardless of environment or aging.

With the strong physical effects, the occlusion effects, and skin-care impacts from drug-delivery systems extending beyond cosmetics, Shiseido will keep finding new ways to address the skin concerns of consumers. The results obtained in this study will be used to develop new products and services.

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R&D Strategy

Shiseido has established three pillars under its R&D philosophy "DYNAMIC HARMONY" to accelerate innovation: "Skin Beauty Innovation: Equity enhancement of brands," "Sustainability Innovation: Circular value creation," and "Future Beauty Innovation: Challenges in new areas." Additionally, Shiseido promotes open innovation and advances new value creation through research alliances with various external organizations. The innovative research outcomes generated from the fusion of Shiseido's advanced science and the knowledge and technology of world-class research institutions are highly regarded academically on a global scale, including at the IFSCC Congress, the world's largest and most prestigious research conference on cosmetic technology.

About R&D Philosophy "DYNAMIC HARMONY"

<https://corp.shiseido.com/en/rd/dynamicharmony/>

References

News release

• Shiseido to Achieve Beauty Care Beyond Cosmetics with Advanced "Second Skin" Technology (2021)
<https://corp.shiseido.com/jp/news/detail.html?n=00000000003258>

• Shiseido Designs Unique Skin Care for Space Environment, Which is Installed in International Space Station (ISS) (2025)
<https://corp.shiseido.com/jp/news/detail.html?n=00000000004050> (In Japanese)