



Lasting Beauty Results:

Lumenato™ passes
the consumer test



Beauty: Passing the tests that matter

There are many ways to assess the effectiveness of products for skin health and beauty. Ultimately, however, the two things that matter most are scientific evidence and the experience of consumers. In this White Paper, we highlight the benefits of an ingestible skincare product that has passed both tests.

Created from our special breed of golden tomatoes, Lumenato™ is a carefully calibrated extract of natural nutrients optimized to work synergistically for beauty and skin wellness. With high levels of the carotenoids phytoene, phytofluene and zeta carotene, it works hard from the inside out to keep skin looking and feeling healthy.

Previous research has revealed that Lumenato can boost collagen levels. In new studies, it has been found to offer wide-ranging benefits in areas such as skin hydration and to deliver beauty results that are highly visible to consumers – even weeks after supplementation has ended.

Backstory – Glowing back to the start



The journey begins

Lumenato is the result of decades of hard work, innovation and scientific research. The journey started in 1995, when Lycored began the process of creating its first ingestible skincare products. After a long process of trial and error, we identified the ideal combination of carotenoids and other nutrients for skin health, and created innovative detection methods to help us standardize them.



We perfect the extraction process

A major breakthrough was the move to a CO₂-protected, solvent-free extraction process. This enabled us to ensure that the natural nutrients we use are as close as possible to the way they appear in nature, while maximizing their inherent potency.

By forgoing solvent extraction, we maintain the full range of beneficial molecules, and help support clean label declarations on ingestible skincare applications.



Lumenato is launched

As the years went on, the demand for ingestible skincare solutions grew. In 2019, we launched Lumenato – a new golden tomato-based wellness extract designed to support aging beautifully.

Lycopene “sacrifices” itself in the tomatoes’ synthesis pathway to boost more of its phytonutrient cousins zeta-carotene, phytoene and phytofluene. These nutrients are beneficial for beauty parameters and provide the key to many synergistic activations. They are also standardized as a natural carotenoid lipid fraction to better support bioavailability in health.

We painstakingly created innovative detection methods to help reveal, extract, and standardize the invisible carotenoids phytoene and phytofluene. We even teamed up with National Geographic photographer Craig Burrows to showcase their natural glow.

Alongside bestsellers Lycomato and Lycoderm, Lumenato has gone on to become one of our flagship ingestible skincare products.





Collagen booster

In 2021, a pre-clinical study indicated that Lumenato could help the skin age beautifully by boosting the collagen network and helping protect it from damage. Published in peer-reviewed scientific journal PLOS One, it specifically highlighted Lumenato's ability to prevent the loss of Type III collagen, which decreases in response to inflammatory cytokines (which in turn can be induced by UV and other internal or external challenges).

It found that Lumenato can defend against damage to this type of collagen by balancing oxidative stress and inhibiting the free radicals secreted by neutrophils.¹



Study finds hydration benefits

Another 2021 study, published in the Journal of Cosmetic Dermatology, found that Lumenato boosts the collagen network and ceramide barrier function, as well as offering benefits including improved hydration.

The first phase of the research explored Lumenato's effects when applied to cultured human dermal fibroblasts. It found that it increases the activity of genes that work to enhance collagen production, control inflammation and oxidative stress, and contribute to tissue healing and protection. Additionally, the carotenoids and other skin healthy nutrients in Lumenato were shown to strengthen the skin barrier, thus helping it cope with environmental challenges.

The second phase of the research was a double-blind placebo-controlled study in which women aged between 35 and 60 supplemented with Lumenato once a day for 16 weeks. The researchers found significant benefits for participants with an impaired skin barrier, including improvements to skin smoothness and hydration, as well as reductions in redness and pore size. It concluded that Lumenato may provide benefits by enhancing innate immunity and other defense mechanisms, and by delivering antioxidants to the surface of the skin to optimize and minimize trans-epidermal water loss.²



1. Tighten up:

In addition to improving tone and hydration, 75% of study participants who supplemented with Lumenato reported that their overall skin texture and appearance significantly improved

2. Set the right tone:

72% of study participants experienced a more even complexion after just four weeks of use and continued to see improvement throughout the 12-week study duration. Even two weeks after supplementation, participants' results were sustained

3. Glow for it:

68% of study participants reported a significant increase in radiance after four weeks. Participants continued to see improvement throughout the 12-week treatment period

4. Water you waiting for:

71% of study participants mentioned they noticed decreased skin dryness and an increased sensation of moisturization, indicating increased hydration properties



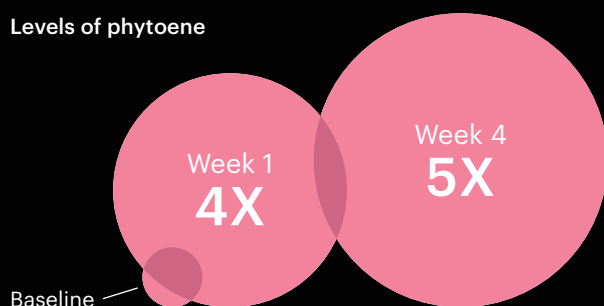
Consumers report lasting results

Most recently, researchers have discovered that the benefits of Lumenato are highly visible to consumers. The two-stage study in the *Journal of Cosmetic Dermatology* set out to evaluate its bioavailability, and its effectiveness as assessed by consumers.³

Rapid bioavailability

In the first stage of the study, 24 healthy volunteers supplemented with Lumenato for four weeks. The researchers observed an almost fourfold increase in levels of phytoene after the first week, and by the fourth it had reached almost five times the baseline level. There were also significant increases in levels of other carotenoids, such as phytofluene and zeta-carotene, indicating Lumenato's high bioavailability.

Levels of phytoene



Results that consumers see and feel

In the second stage, 63 women aged between 35 and 55 took Lumenato for 12 weeks. They completed questionnaires that assessed different skin parameters at weeks four, eight and 12, and again two weeks after the trial had finished.

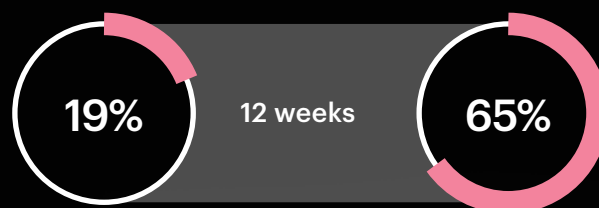
After 12 weeks of supplementing with Lumenato, participants reported significant improvements in skin hydration, firmness, brightness, tone and overall condition. They also noticed reductions in dark spots and circles, fine lines and wrinkles.

Comments from study participants included:

“My skin kind of glowed after taking that supplement and I just noticed it looked more radiant and healthier.”

Continuous nourishment

Interestingly, assessment of these parameters showed the benefits were maintained even after treatment had ended. For example, at baseline, 19% of participants said their facial skin looked attractive. Twelve weeks after supplementing with Lumenato, this had increased to 65%, and two weeks after the trial, it was 69%.



Sustainability comes naturally

While skincare consumers want noticeable results from the products they use, they also have a range of other needs and ethical concerns. Foremost among these is sustainability.

At Lycored, we're committed to full vertical integration, and to extensive research to find and develop solutions that minimize waste.



A platform for inclusivity

Lycored has a track record of going “beyond skin deep” to reimagine all the things skincare can be. A major part of that has been challenging conventions and changing conversations – not just about the role carotenoids can play in skincare, but about beauty more broadly.

Our market research has revealed a lot about changing consumer needs, and how they differ by age, gender and skin tone. One of our most striking findings is that products that do not target particular tones and colors – such as ingestibles – offer particular appeal to consumers. In our 2021 survey, three quarters (73%) of US consumers agreed with the statement: “Products that provide the same benefits for people of all skin tones offer a platform for inclusivity.”⁴



Product details

Standardized from an exotic tomato breed, the phytonutrients in Lumenato work synergistically to support the skin from the inside out. With low viscosity, a neutral taste profile and minimal coloration, it is ideal for supplements but also suitable for food and beverage use, and can be used in everything from soft-gels to chocolates.



Acceptable for use in dietary supplements



Allergen-free certified



Certified kosher



Safe for food and beverage use



Plant-based



Neutral taste profile



Non-GMO product-verified



Gluten-free



Clinically proven



Certified Halal (IFANCA)



Minimal waste

Join us on our journey

At Lycored, we're on a continuous journey to #rethinkbeautiful, and to learn more about the power of natural nutrients for skincare and beauty. We were delighted that participants in our latest trial reported such clear results from Lumenato – and that they continued to notice them even after supplementation had ended.

We hope you're just as excited by the possibilities that Lumenato can bring to your next product, and that you'll join us on the next stages of our journey.



Let's talk

Got questions? Say hello at: info@lycored.com

References

1. Solomonov, Y. et al. 'Lumenato protects normal human dermal fibroblasts from neutrophil-induced collagen-3 damage in co-cultures' PLoS One, March 17, 2021
2. Tarshish, E, Hermoni, K, Sharoni, Y, Wertz, PW, Dayan, N. 'Effects of golden tomato extract on skin appearance—outlook into gene expression in cultured dermal fibroblasts and on trans-epidermal water loss and skin barrier in human subjects' J Cosmet Dermatol, August 2021
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