21032.

AC LumiVitis

Multi-Spectrum Light Defense

Mitochondrial Longevity

Skin Luminosity

Active Concepts

VEGAN

SEPHORA CLEAN

CREDO CLEAN

GLOBALLY COMPLIANT

COSMOS COMPLIANT

ISO 16128

PRODUCT PASSPORT

THE FEATURES.

Meet the next ally designed to defend against multi-spectrum aging, the cumulative damage caused by sunlight, screen light, and red light. AC LumiVitis is created from upcycled grape byproducts, sustainably grown in cell culture, and enhanced through biofermentation, bringing to life a modern vineyard-to-skin ingredient that works where traditional filters stop. While light exposure is often associated with surface-level damage, it can penetrate deeper, stressing the mitochondria and triggering the p38 MAPK "stress switch," a pathway linked to oxidative damage and collagen breakdown. By helping mitigate this molecular stress response, AC LumiVitis supports cellular resilience, helping maintain collagen, strength, and a luminous, youthful appearance, because your skin deserves to shine, not fade in the light.

INCI: Saccharomyces Ferment & Vitis Vinifera (Grape) Fruit Cell Extract & Lactobacillus Ferment

TECHNICAL DATA SHEET.

AC LumiVitis

THE STORY.

Light is essential to life, but in today's world, skin is exposed to more light sources than ever before. From sunlight to digital screens to red light, modern lifestyles create continuous exposure to multiple wavelengths that collectively accelerate what can be described as multi-spectrum photoaging. While traditional photoprotection strategies focus on filtering UV at the skin's surface, emerging research reveals that light-induced stress reaches deeper, impacting mitochondrial health, oxidative balance, and the cellular signaling pathways that regulate collagen integrity.

Inspired by the growing intersection of skin longevity and biohacking, AC LumiVitis introduces a new approach to light protection, "light-gevity." This concept reimagines photoprotection by strengthening the cellular systems that determine how skin responds to light while helping limit activation of the stress pathways that trigger multiple aging biomarkers. In this way, AC LumiVitis works where traditional filters stop, aligning with a biohacking philosophy of skin longevity that focuses on controlling biological triggers rather than only repairing their consequences.

At the heart of this innovation lies a sustainable vineyard-to-skin story. AC LumiVitis is derived from upcycled grape byproducts from winemaking, sustainably grown in cell culture, and transformed through advanced biofermentation. This marriage of biotechnology and botanical heritage delivers a new ally of light-defense designed for the realities of modern living—where sunlight, screens, and red light coexist in everyday life.

THE SCIENCE.

Emerging research shows that excess light exposure increases cellular stress responses by promoting the formation of reactive oxygen species (ROS) within mitochondria.[1,2] Under stress, mitochondria can become major drivers of ROS, creating oxidative imbalances that initiate signaling cascades associated with inflammation, matrix degradation, and accelerated skin aging.[3]

One of the most critical and well-characterized pathways involved in this response is the p38 mitogen-activated protein kinase (MAPK) signaling pathway, often described as the cellular "stress switch." p38 MAPK is activated by oxidative stress, inflammatory cytokines, and radiation exposure, and serves as a central regulator of cellular stress responses.[4] Once activated, p38 MAPK influences downstream transcription factors that modulate inflammatory mediators and matrix-degrading enzymes within dermal fibroblasts, importantly, matrix metalloproteinase-1 (MMP-1). MMP-1 is a collagenase responsible for degrading type I and III collagen fibers that maintain structural integrity and elasticity of the skin.[5]

AC LumiVitis is designed to intervene within this pathway through a biofermentation-enhanced, grape-derived phenolic complex. Standardized for ferulic and gallic acid (0.5 - 2.0%) as key marker compounds, this system reflects a broader spectrum of bioactive metabolites naturally present in grape polyphenols.[6,7] Through a targeted biofermentation process, selected microorganisms biotransform these polyphenolic constituents into smaller, more bioavailable metabolites and structurally diverse phenolic derivatives, enhancing their biological activity and compatibility with the skin. This biotransformed phenolic complex has been shown to modulate oxidative stress pathways through multiple complementary mechanisms. Together, these representative phenolics help illustrate the broader functionality capacity of the system. By leveraging a biofermentation-driven enhancement of grape-derived phenolics, AC LumiVitis helps mitigate oxidative triggers of p38 MAPK activation and downstream MMP-1 expression, targeting the cellular stress pathways that translate environmental light exposure into collagen degradation and visible signs of aging, while supporting skin resilience, structural integrity, and long-term luminosity.

THE TECHNICAL DETAILS.

INCI. Saccharomyces Ferment & Vitis Vinifera (Grape) Fruit Cell Extract & Lactobacillus Ferment
CAS. 8013-01-2 & 85594-37-2 (or) 84929-27-1 & 68333-16-4 (or) 1686112-36-6 (or) 9015-54-7
EINECS. 232-387-9 & 287-896-3 (or) 284-511-6 & N/A (or) N/A (or) 295-635-5

Origin. Botanical/Yeast/Bacteria
Natural Antimicrobial. Lactobacillus Ferment
Preservatives. None
Solvents Used. Water
Appearance. Clear to Slightly Hazy Liquid, Pale Yellow to Amber
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

THE FORMULATION TIPS.

pH Stability. 4 - 7
Temperature Stability. Stable up to 50 °C. Product may change appearance if exposed to cold temperatures. Gently warm to 45-50 °C and mix until normal appearance is restored.
Use Level. 1 - 5%

Ionic State. Nonionic
Alcohol Compatibility. Compatible with up to 50% alcohol at 1-5%
Solubility. Water Soluble
Pro Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance.

AC LumiVitis

THE BENEFITS OVERVIEW.

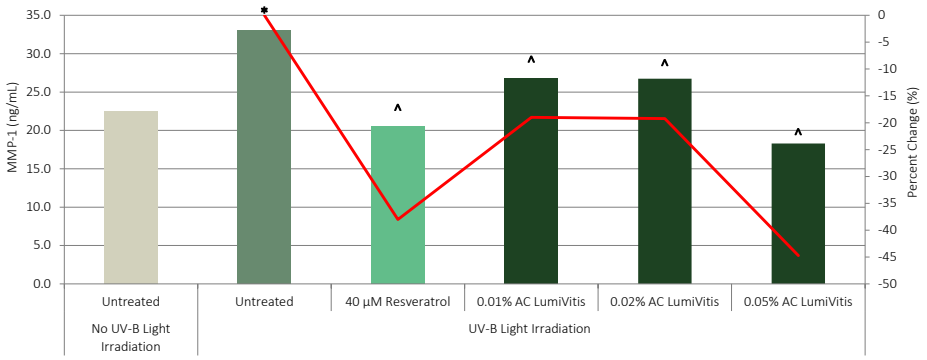
'Stress Switch' Modulation	*MMP-1 ELISA*
Multi-Spectrum Light Defense	*Total Cellular Collagen in Response to Light Spectra*
Mitochondrial Longevity	*Cellular Mitophagy-Parkin ELISA*
Sugar-Induced Aging	*Advanced Glycation End-Products Assay*
Cellular Energetics	*Oxidative Phosphorylation*
Even Skin Tone	*Melanin Inhibition Assay*
Anti-Inflammatory, Antioxidant	*IL-6 ELISA, Reactive Oxygen Species Scavenging Assay*
Moisturization, Barrier Repair	*Moisturization Study, Transepidermal Water Loss*
Skin Luminosity	*VISIA: Reduction in Red Areas, Spots, and Increase in Brightness*
Microbiome-Friendly	*In Vivo Dermal Microbiome Assay*

THE EFFICACY.

"Stress Switch" Modulation

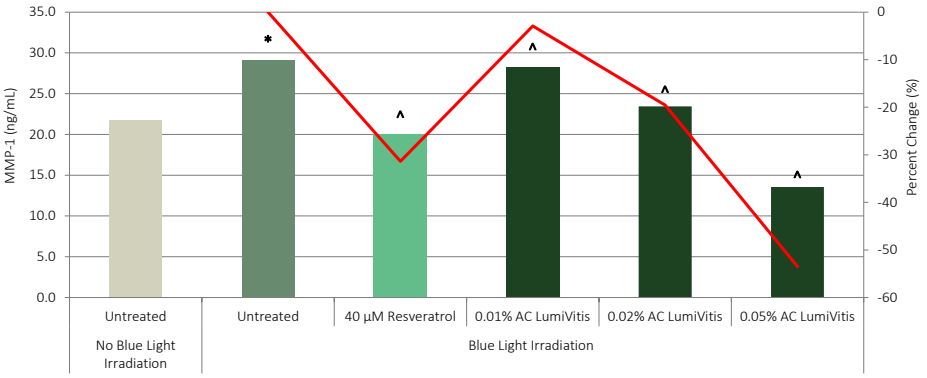
Matrix metalloproteinase-1 (MMP-1) is an enzyme responsible for breaking down collagen in the skin's extracellular matrix. To evaluate the protective potential of AC LumiVitis, an *in vitro* ELISA assay was conducted using human dermal fibroblasts exposed to UV-B or blue light to mimic light-induced stress. Following irradiation, cells were treated with AC LumiVitis and MMP-1 levels were quantified using antibody-based colorimetric detection.

MMP-1 ELISA
Collagen Breakdown, UV-B



Reduced MMP-1 levels induced by UV-B by -45%

MMP-1 ELISA
Collagen Breakdown, Blue Light



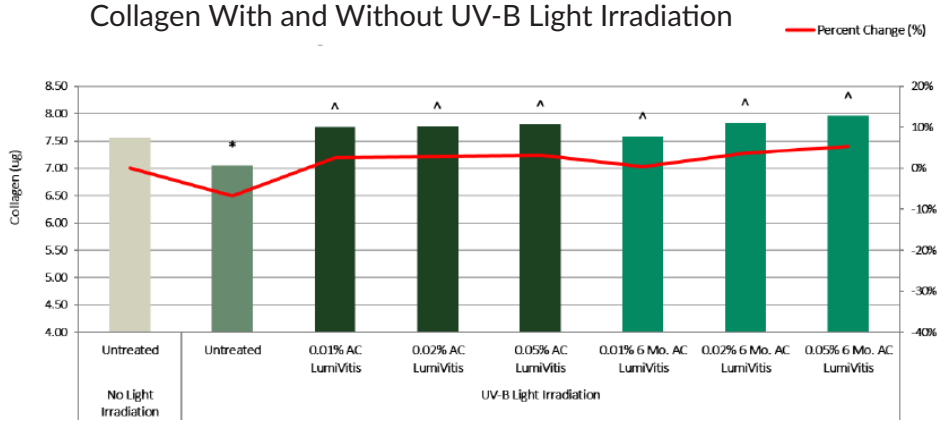
Reduced MMP-1 levels induced by blue light by -53%

THE EFFICACY CONTINUED.

Multi-Spectrum Light Defense

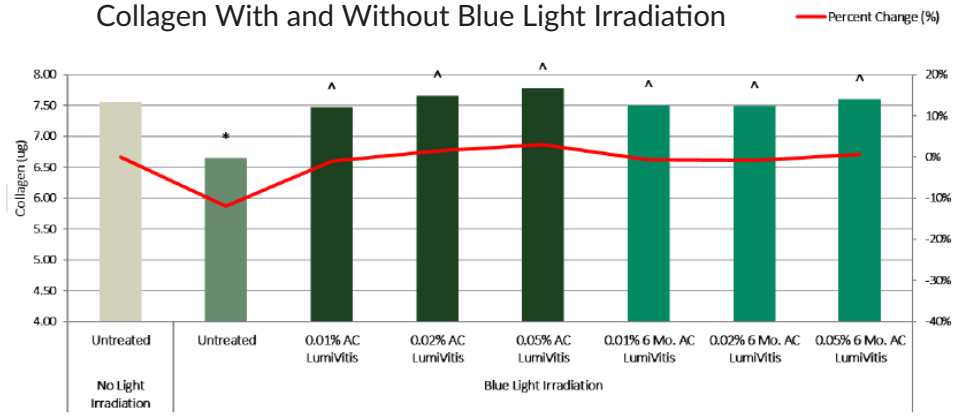
To evaluate the ability of AC LumiVitis to support collagen integrity under light-induced stress, an *in vitro* Total Cellular Protein in Response to Light Spectra assay was conducted using human dermal fibroblasts exposed to UV-B, blue light, red light, or near infrared radiation. Red light exposure is widely recognized to stimulate collagen synthesis, making it important to evaluate ingredients that can enhance these beneficial effects while also protecting collagen from degradation induced by higher-energy wavelengths. Sirius Red selectively binds to collagen while Fast Green binds to non-collagen proteins, enabling semi-quantitative measurements of collagen levels through optical density analysis.

Collagen With and Without UV-B Light Irradiation



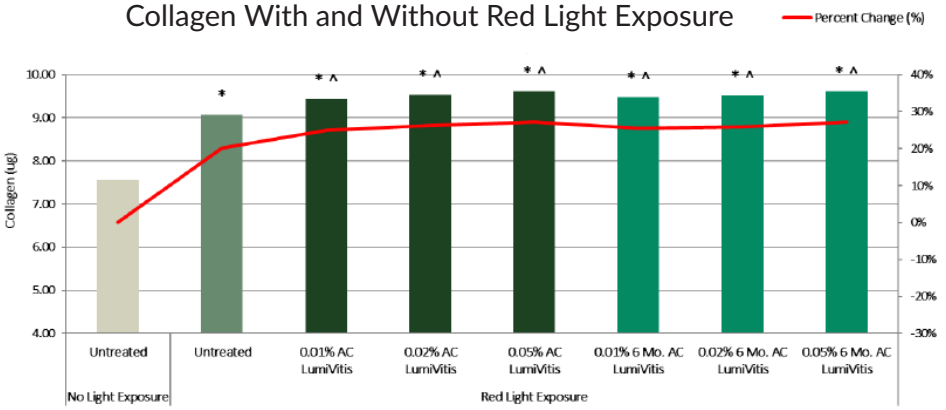
Increased collagen after UV-B exposure by +10%

Collagen With and Without Blue Light Irradiation



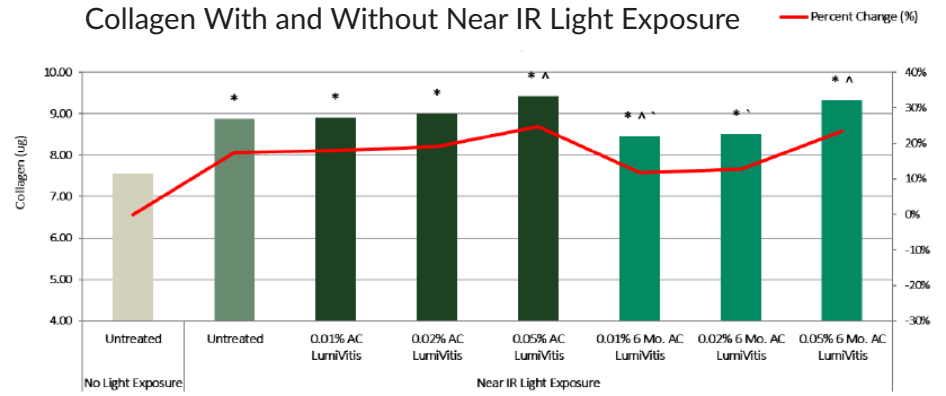
Increased collagen after blue light exposure by +15%

Collagen With and Without Red Light Exposure



Increased collagen with red light exposure by +26%

Collagen With and Without Near IR Light Exposure



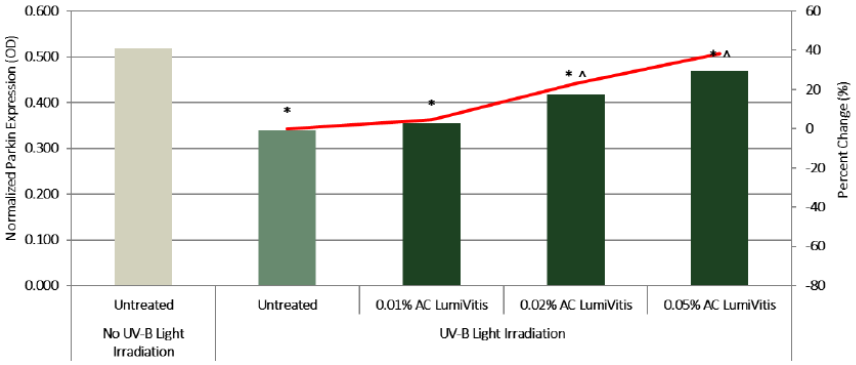
Increased collagen after near IR exposure by +19%

THE EFFICACY CONTINUED.

Mitochondria Longevity

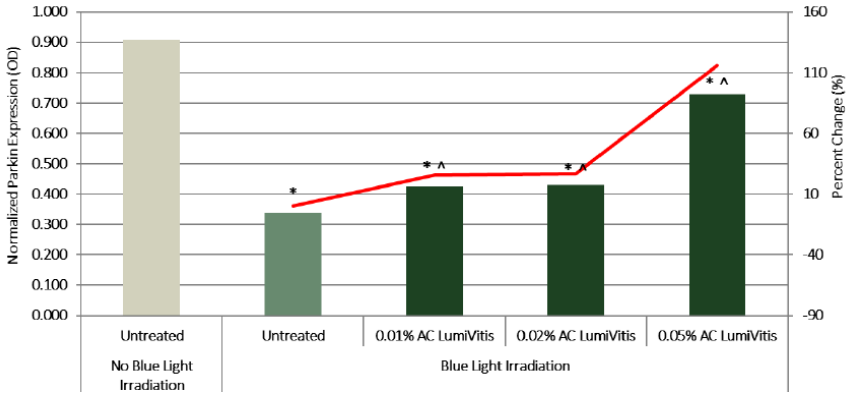
Mitophagy is a specialized cellular renewal process that removed damaged mitochondria to maintain healthy energy production. To evaluate the ability of AC LumiVitis to support mitochondrial recovery following light-induced stress, a cellular mitophagy assay was performed by measuring the expression of Parkin, a key protein responsible for identifying and tagging damaged mitochondria for removal. Human epidermal keratinocytes were exposed to UV-B or blue light and treated with AC LumiVitis, after which Parkin levels were quantified using a colorimetric ELISA.

Mitochondrial Health After UV-B Light Irradiation



Boosted cellular stress-defense after UV-B light irradiation by +38%

Mitochondrial Health After Blue Light Irradiation

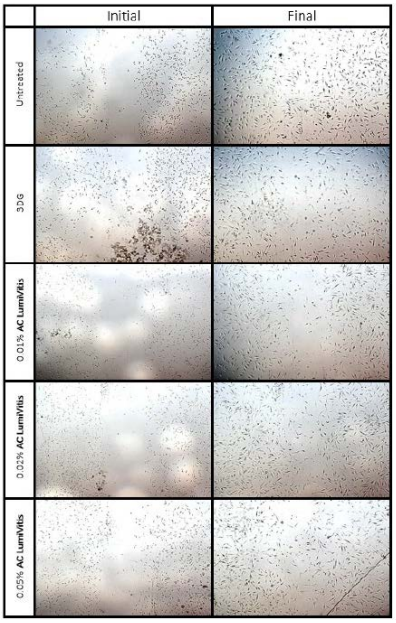


Boosted cellular stress-defense after UV-B light irradiation by +116%

Sugar-Induced Aging

Advanced glycation end-products (AGEs) form when sugars bind to proteins such as collagen, leading to oxidative stress, inflammation, and impaired cellular function. To evaluate the protective potential of AC LumiVitis, an *in vitro* glycated collagen model was developed using the glycation precursor 3-deoxyglucosone (3DG) to simulate sugar-induced collagen damage. Human dermal fibroblasts were seeded onto glycated collagen surfaces treated with AC LumiVitis, and cellular behavior was assessed through measurements of fibroblast adherence and migration using fluorescence detection and a scratch-wound healing model.

Fibroblast Migration Over Time



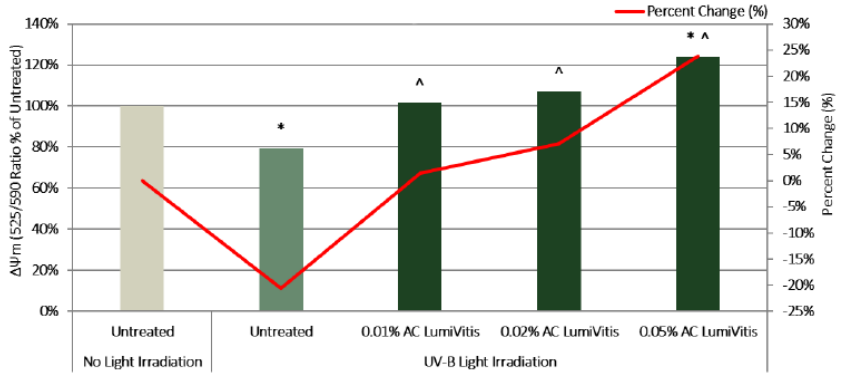
Exhibited a healed wound closure by +100%

THE EFFICACY CONTINUED.

Cellular Energetics

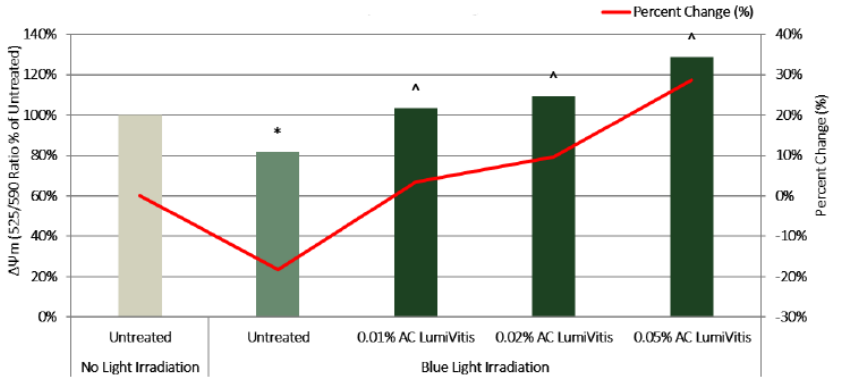
Healthy cellular metabolism relies on mitochondria to generate ATP, and a key indicator of mitochondrial health is the mitochondrial membrane potential (ΔΨm), an electrochemical gradient that drives oxidative phosphorylation and ATP production. To evaluate the ability of AC LumiVitis to support mitochondrial energy production, a mitochondrial membrane potential assay was conducted using human dermal fibroblasts exposed to light-induced stress. This assay utilizes the JC-10 fluorescent dye, which detects changed in ΔΨmas an indicator of mitochondrial activity and cellular energy generation.

Oxidative Phosphorylation with UV-B Light Irradiation



Increased mitochondrial health on UV-B-treated cells by +24%

Oxidative Phosphorylation with Blue Light Irradiation

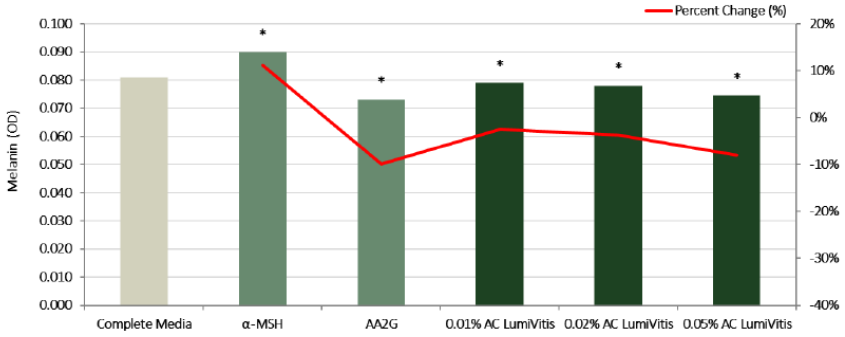


Increased mitochondrial health on blue light-treated cells by +29%

Even Skin Tone

Skin pigmentation is regulated by melanogenesis, the biological process in which melanocytes product melanin through the enzymatic conversion of L-tyrosine to dopaquinone by tyrosinase. To evalute the potential of AC LumiVitis to help regulate this pathway, an *in vitro* melanin inhibition assay was conducted using human epidermal melanocytes. Cells were treated with AC LumiVitis and the amount of melanin produced was quantified through optical density measurements following melanin extraction, evaluating the ingredient's ability to support a more even skin tone.

Melanin Inhibition

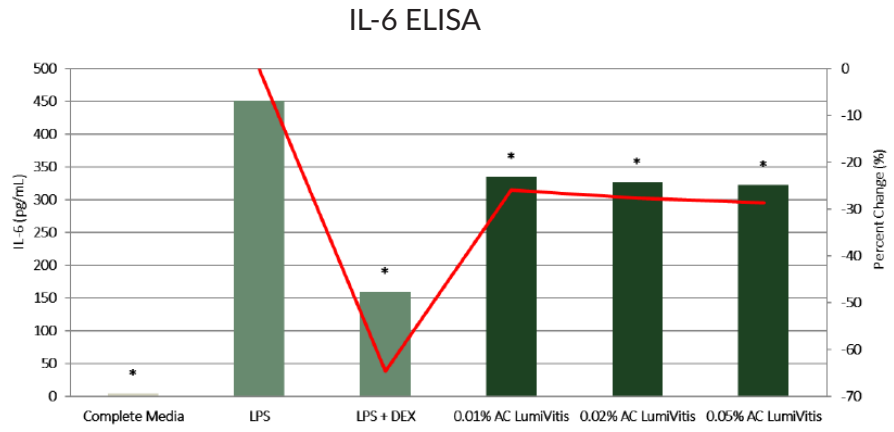


Decreased melanin levels by -8%

THE EFFICACY CONTINUED.

Anti-Inflammatory

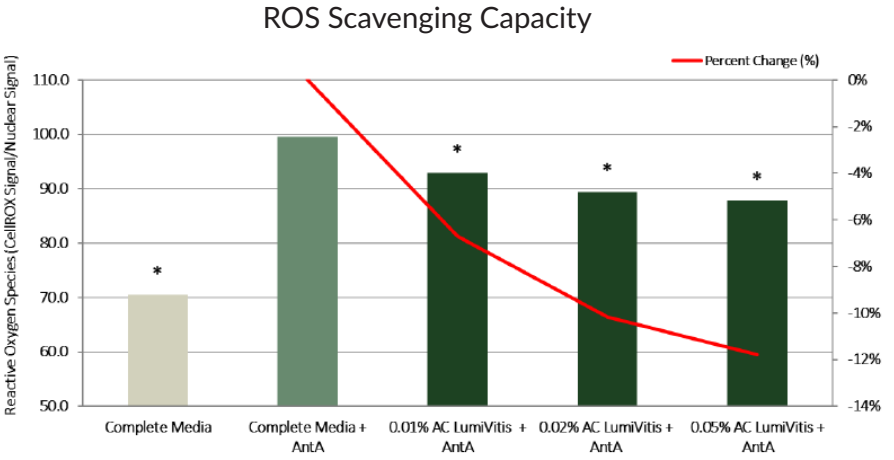
Interleukin-6 (IL-6) is a key proinflammatory cytokine that plays a central role in skin inflammation by activating the NF-κB signaling pathway, which stimulates the production of inflammatory mediators and collagen-degrading enzymes. To evaluate the anti-inflammatory potential of AC LumiVitis, an *in vitro* ELISA assay was conducted using human dermal fibroblasts stimulated with lipopolysaccharide (LPS) to mimic an inflammatory environment. Following treatment with AC LumiVitis, IL-6 levels released into the culture media were quantified through antibody-based colorimetric detection.



Decreaed inflammation levels by -29%

Antioxidant

Reactive oxygen species (ROS) are naturally produced during cellular metabolism, but environmental stressors such as UV radiation, pollution, and aging can cause excessive ROS accumulation, leading to oxidative stress. To evaluate the antioxidant potential of AC LumiVitis, an *in vitro* ROS scavenging assay was conducted using human dermal fibroblasts subjected to induced oxidative stress. Two fluorescent dyes were used to quantify ROS levels and normalize results to cell count, allowing precise measurement of oxidative stress within the cells.

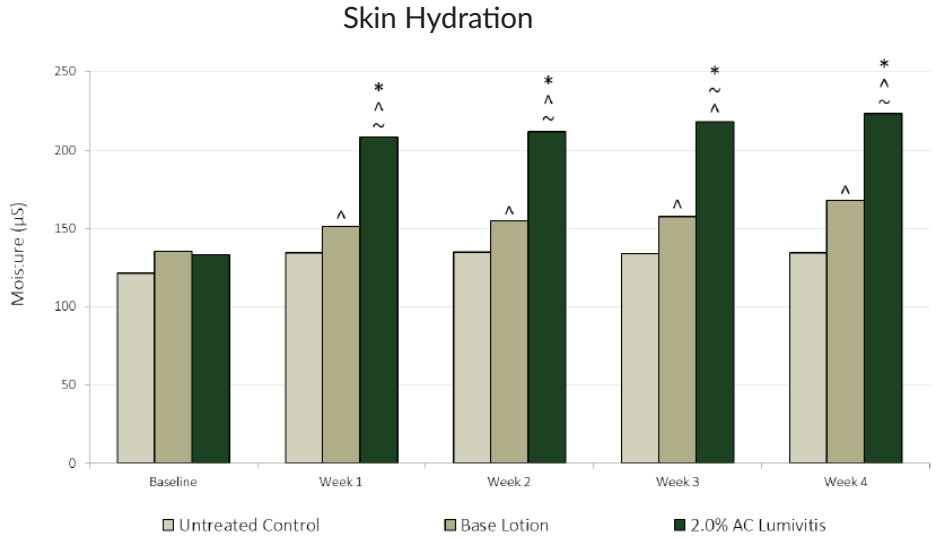


Decreased oxidative stress by -12%

THE EFFICACY CONTINUED.

Moisturization

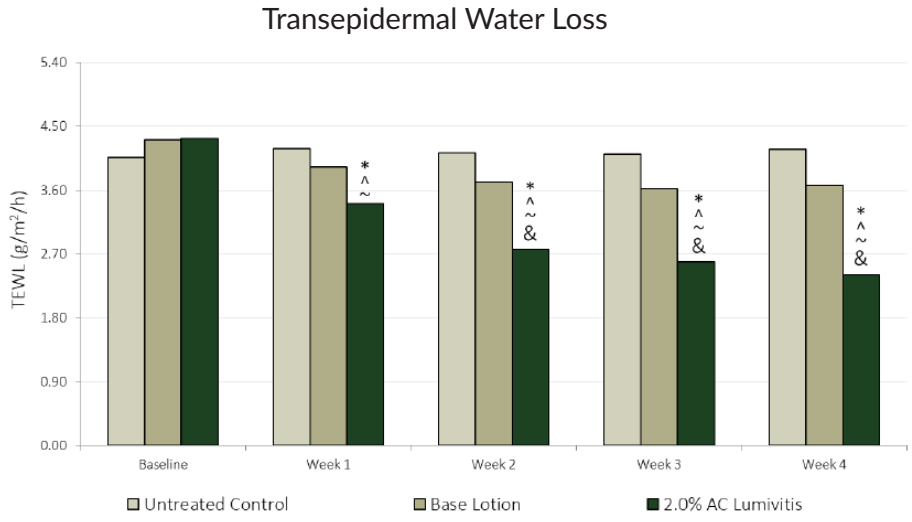
Skin hydration is essential for maintaining the structural integrity, flexibility, and barrier function of the stratum corneum. To evaluate the moisturizing benefits of AC LumiVitis, a four-week *in vivo* study was conducted with 20 healthy volunteers who applied formulations containing the ingredient to designated sites on the forearm twice daily. Skin hydration was measured weekly using a conductance-based probe that detects moisture levels in the upper layers of the skin.



Increased moisturization by +67%

Barrier Repair

The skin's protective barrier plays a vital role in maintaining hydration and overall skin health by regulating transepidermal water loss (TEWL), the passive evaporation of water from the skin's surface. To evaluate the moisture-retention benefits of AC LumiVitis, a four-week *in vivo* study was conducted with 20 healthy volunteers who applied formulations containing the ingredient to designated forearm test sites twice daily. TEWL levels were measured weekly using a specialized probe that detects changes in water vapor density above the skin's surface.



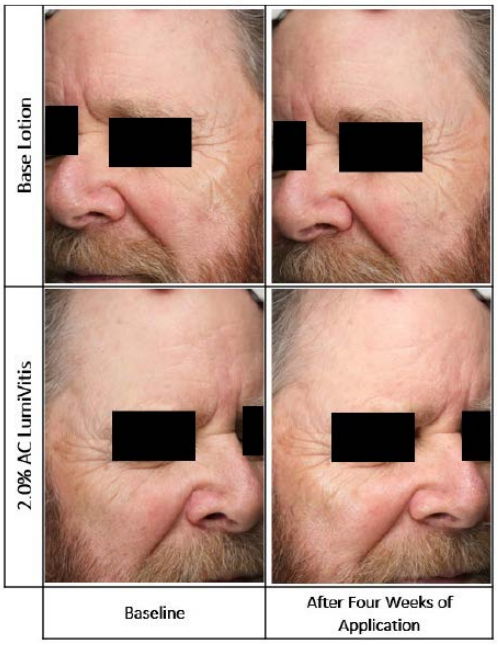
Reduced water loss by -44%

THE EFFICACY CONTINUED.

Skin Luminosity

Skin luminosity refers to the amount of light reflected from the skin's surface, influencing overall brightness and radiance. To evaluate the brightening potential of AC LumiVitis, a four-week *in vivo* study was conducted with participants applying formulations to designated halves of the face twice daily. Skin brightness was measured weekly using a colorimetric probe that quantifies L* values, a standard indicator of skin luminosity. Blue light exposure was also monitored through participants' screen time to reflect real-world conditions.

Skin Brightness

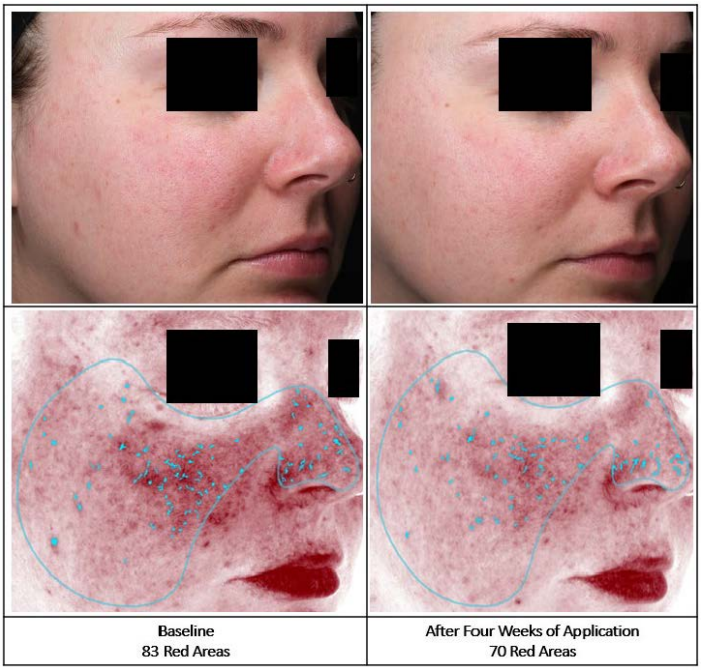


Improved brightness by +4.6%

Redness Reduction

Visible red areas in the skin—often associated with inflammation, irritation, or vascular activity—can contribute to an uneven complexion and diminish overall skin clarity. To evaluate the ability of AC LumiVitis to improve skin tone, a four-week *in vivo* study was conducted in which participants applied formulations to designated halves of the face twice daily. High-resolution facial images were captured weekly using the VISIA Complexion Analysis System to quantify red areas and assess overall skin appearance, while participants' blue light exposure was monitored through screen time to reflect real-world conditions.

VISIA - Reduction of Red Areas



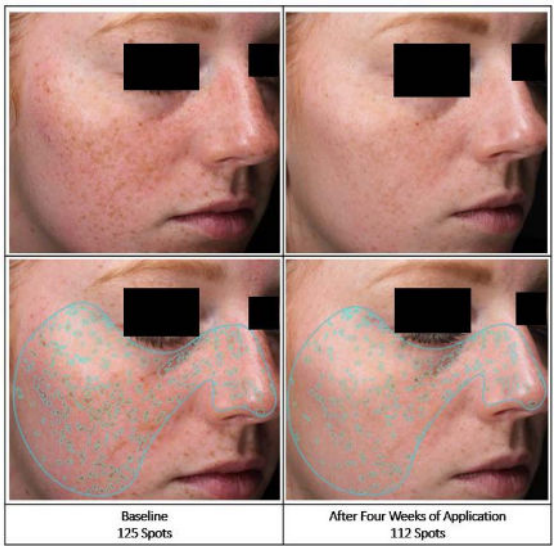
Decreased red areas by -14%

THE EFFICACY CONTINUED.

Hyperpigmentation Reduction

Surface spots—including hyperpigmentation, freckles, and post-acne marks—are localized areas of discoloration that can create an uneven skin tone and diminish overall radiance. To evaluate the ability of AC LumiVitis to improve overall complexion, a four-week *in vivo* study was conducted in which participants applied formulations to designated halves of the face twice daily. High-resolution facial images were captured weekly using the VISIA Complexion Analysis System to quantify surface spot counts, while participants' blue light exposure was monitored through screen time to reflect real-world conditions.

VISIA - Reduction in Spots

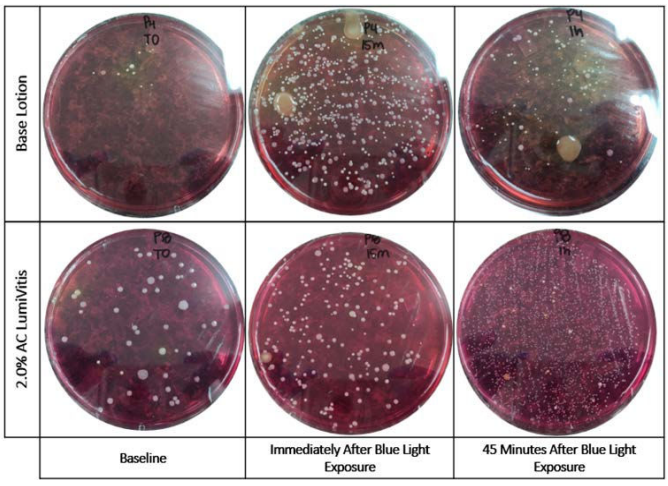


Decreased surface spots by -6%

Dermal Microbiome

An Acute Blue Light Microbiome Study evaluated how topical application of 2.0% AC LumiVitis influences the balance of key skin bacteria on the T-zone following controlled blue light exposure. 10 volunteers applied either a base lotion or a lotion containing 2.0% AC LumiVitis, after which the treated area was exposed to blue light for 15 minutes. Microbiological swabs were collected at baseline, immediately after exposure, and 45 minutes later to assess the presence of *Staphylococcus epidermidis* (beneficial) and *Staphylococcus aureus* (pathogenic). Swabs were cultured on Mannitol Salt Agar plates, incubated for 24–48 hours, and bacterial growth was evaluated by estimating plate coverage to determine shifts in dermal microbiome balance.

Dermal Microbiome Assay



Enhanced microbiome resilience by +71%

References:
1. Liebel, F., Kaur, S., Ruvolo, E., Kollias, N., & Southall, M. D. (2012). Irradiation of skin with visible light induces reactive oxygen species and matrix-degrading enzymes. Journal of Investigative Dermatology, 132(7), 1901–1907. https://doi.org/10.1038/jid.2011.476
2. Krutmann, J., Bouloc, A., Sore, G., Bernard, B. A., & Passeron, T. (2021). The skin aging exposome. Journal of Dermatological Science, 101(3), 152–161. https://doi.org/10.1016/jjdermsci.2020.12.003
3. Schieber, M., & Chandel, N. S. (2014). ROS function in redox signaling and oxidative stress. Current Biology, 24(10), R453–R462. https://doi.org/10.1016/j.cub.2014.03.034
4. Zarubin, T., & Han, J. (2005). Activation and signaling of the p38 MAP kinase pathway. Cell Research, 15(1), 11–18. https://doi.org/10.1038/sj.cr.7290257
5. Quan, T., Qin, Z., Xia, W., Shao, Y., Voorhees, J. J., & Fisher, G. J. (2009). Matrix-degrading metalloproteinases in photoaging. Journal of Investigative Dermatology Symposium Proceedings,14(1), 20–24. https://doi.org/10.1038/jidsymp.2009.8
6. Fang, Y. Z., Yang, S., & Wu, G. (2002). Free radicals, antioxidants, and nutrition. Nutrition, 18(10), 872–879. https://doi.org/10.1016/S0899-9007(02)00916-4
7. Heleno, S. A., Martins, A., Queiroz, M. J., & Ferreira, I. C. (2015). Bioactivity of phenolic acids: Metabolites versus parent compounds. Food Chemistry, 173, 501–513. https://doi.org/10.1016/jfoodchem.2014.10.057

Active Concepts LLC
Lincolnton, NC - USA
Tel +1 704-276-7100
info@activeconceptsllc.com

Active Concepts SRL
Bareggio, (Milano) ITALY
Tel +39 02 90360719
info@activeconcepts.it

Active Concepts LLC, Asia
Kaohsiung, Taiwan
Tel + 886 73599900
info-asia@activeconceptsllc.com.tw

Website
www.activeconceptsllc.com

Social Media
@activeconceptsglobal