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AC ExoEternal

Encapsulated Retinol Alternative

Collagen Boosting Complex

Gentle Exfoliating Care



VEGAN



SEPHORA
CLEAN



CREDO
CLEAN



GLOBALLY
COMPLIANT



ISO 16128



PRODUCT
PASSPORT



THE FEATURES.

Modern life keeps the body in constant overdrive, and as we turn to biohacking and mindfulness to find balance, our skin reflects the strain through visible signs of stress, reduced elasticity, and diminished firmness. In this new era of accelerated change, the skin needs more than renewal – it needs equilibrium. AC ExoEternal delivers that balance as a biotech-powered retinol alternative rooted at the intersection of modern science and Traditional Chinese Medicine, centered on perilla leaf to help restore the flow of Qi. Through targeted fermentation and exosome-inspired delivery, perilla's potent bioactives are awakened and stabilized, working in sync to boost collagen synthesis, calm inflammation, and strengthen the skin's structure, helping to deliver visible renewal without the irritation of retinol.

*INCI: Water & Lactobacillus & Perilla
Frutescens Extract & Phospholipids &
Lactobacillus Ferment*

TECHNICAL DATA SHEET.

THE STORY.

Modern life keeps the body in constant acceleration. Endless screens, disrupted sleep, and shifting metabolic rhythms push our systems toward imbalance. To regain control, we turn to biohacking, metabolic resets, and GLP-1s, yet these internal shifts can leave the skin dull, dry, and less firm, prompting many to reach for retinol as the traditional path to renewal. But despite its reputation, retinol often brings irritation, sensitivity, and pregnancy-related limitations, underscoring the need for a gentler alternative.

From CRISPR to cellular reprogramming, modern medicine redefines balance through science and precision. Long before these frontiers, Traditional Chinese Medicine understood that harmony cannot be engineered but cultivated through the flow of Qi, the living energy that sustains the body in equilibrium.

AC ExoEternal brings these worlds together. It is a biotech-powered, natural retinol alternative that channels both the precision of modern science and the harmony of Traditional Chinese Medicine. At its core is perilla leaf, a botanical revered for its ability to harmonize Qi and protect the skin. Through targeted fermentation and exosome-inspired delivery, perilla's bioactives are awakened and stabilized to boost collagen, calm inflammation, and renew the skin without irritation.

In an age defined by stress, the skin needs more than renewal. It needs balance restored. It needs AC ExoEternal.



THE SCIENCE.

In the skin, retinol (vitamin A) is converted by enzymes into retinoic acid to promote keratinocyte differentiation, support collagen production, and enhance skin renewal to improve texture and appearance.¹ While retinol delivers visible renewal, its use is limited by irritation, regulatory restrictions, and safety concerns during pregnancy.

AC ExoEternal rewrites the rules of renewal. Developed through a controlled fermentation of *Perilla frutescens*, it awakens the plant's powerful bioactives, including protocatechuic acid, rosmarinic acid, and lactic acid, supported by the biological networks that drive their protective and restorative functions within perilla. Rather than isolating individual actives, Active Concepts preserves the complete metabolic ecosystem responsible for perilla's natural balance and resilience. Through BioAuthentic Exosomal Technology, AC ExoEternal captures this biochemical network and the interconnected pathways that sustain its adaptive properties. Exosome concentration was determined using a Horiba LA-300 by generating a volume-based particle size distribution. Light scattering measurements were converted from particle volume to estimated particle number by applying spherical geometry and density corrections appropriate for lipid-based vesicles, enabling calculation of exosome concentration 3.13×10^{12} exosomes per milliliter.

Plant-derived actives in perilla, including protocatechuic acid,² have been shown *in vitro* to increase type I collagen levels and inhibit MMP-1 activity, supporting extracellular matrix integrity.³ Perilla also naturally produces rosmarinic acid, a potent antioxidant that scavenges reactive oxygen species and modulates pro-inflammatory mediators, helping protect skin from oxidative and inflammatory stress.^{4,5} *Perilla frutescens* has been found to contain lactic acid, an alpha hydroxy acid known to promote mild exfoliation by disrupting the bonds between corneocytes, encouraging cell turnover and smoother skin texture.⁶ Together, these bioactives form the foundation of AC ExoEternal's skin-renewing benefits, each contributing distinct yet complementary functions within the perilla matrix.

THE TECHNICAL DETAILS.

INCI. Water & Lactobacillus & Perilla Frutescens Extract & Phospholipids & Lactobacillus Ferment

CAS. 7732-18-5 & 68333-16-4 (or) 92128-79-5 & 90082-61-4 (or) 68132-21-8 & 123465-35-0 (or) 8002-43-5 & 68333-16-4 (or) 1686112-36-6 (or) 9015-54-7

EINECS. 231-791-2 & N/A (or) 295-777-8 & 290-151-0 (or) 268-884-2 & N/A (or) 232-307-2 & N/A (or) N/A (or) 295-635-5

EUROPE. Compliant

USA. Compliant

CHINA. Compliant

Origin. Botanical/bacteria

Natural Antimicrobial. Lactobacillus Ferment

Preservatives. None

Solvents Used. Water

Appearance. Liquid Exosomal Dispersion, Tan to Dark Brown

THE FORMULATION TIPS.

pH Stability. 4 - 7

Temperature Stability. Stable up to 50°C

Use Level. 1 - 10%

Ionic State. Nonionic

Alcohol Compatibility. Compatible with up to 10% alcohol at 5%

Solubility. Water Soluble

Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance

AC ExoEternal

THE BENEFITS OVERVIEW.

IN VIVO.

Anti-Aging High Resolution Ultrasound Skin Imaging Test
 VISIA: Reduction in Wrinkles
 Moisturization (vs. retinol and bakuchiol)

Gentle Exfoliating and Evening Cellular Renewal (vs. retinol and bakuchiol)
 VISIA: Reduction in Surface Spots
 VISIA: Reduction in Texture
 VISIA: Reduction in UV Spots
 VISIA: Reduction in Brown Spots

Non-Irritating Anti-Erythema (vs. retinol and bakuchiol)
 TEWL (vs. retinol and bakuchiol)
 VISIA: Redness Reduction

IN VITRO.

Maintains Cellular Vitality Cellular Viability

Anti-Aging Collagen Boosting (Sirius Red Fast Green)
 Elastin Boosting (Elastin ELISA)

Gentle Exfoliating and Evening Hyperpigmentation (Tyrosinase Inhibition)

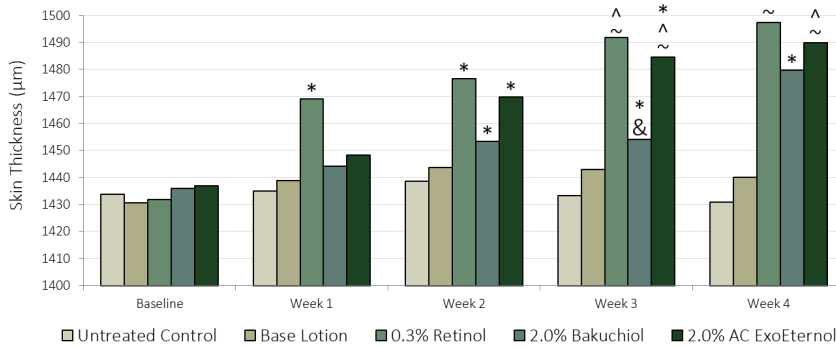
Non-Irritating Anti-Inflammatory (IL-6 ELISA)
 Cellular Protection (CYP1A1 Assay)
 Antioxidant (ORAC Assay)
 UV Protection (Total Cellular Protein in Response to UV)

THE EFFICACY.

Collagen Boosting

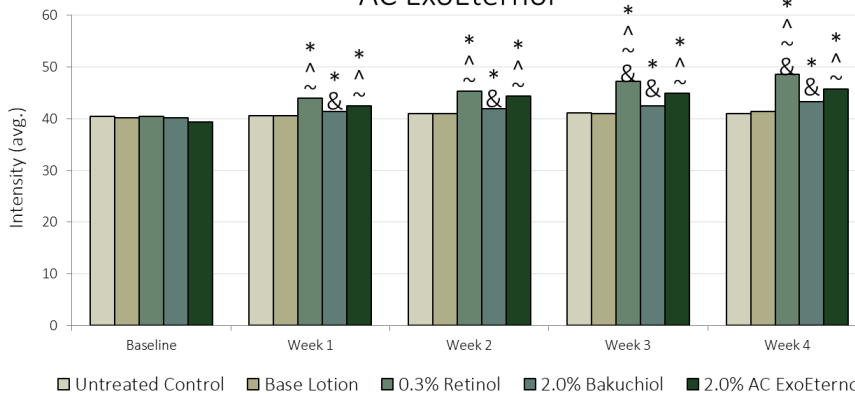
The visible signs of aging often begin deep within the dermis, where collagen architecture gradually weakens long before changes appear on the surface. High resolution ultrasound imaging allows us to look beneath the epidermis to evaluate these structural shifts directly, providing an objective view of collagen organization, dermal density, and overall skin integrity. Because this technology offers a noninvasive way to visualize true structural renewal, a High Resolution Ultrasound Skin Imaging Study was conducted to assess how AC ExoEternal influences the Dermal Age-Band, Dermal Collagen Thickness, and Collagen Fiber Density compared to retinol and bakuchiol.

Dermal Collagen Thickness
 AC ExoEternal



Increased collagen thickness by +4%

Collagen Fiber Density
 AC ExoEternal



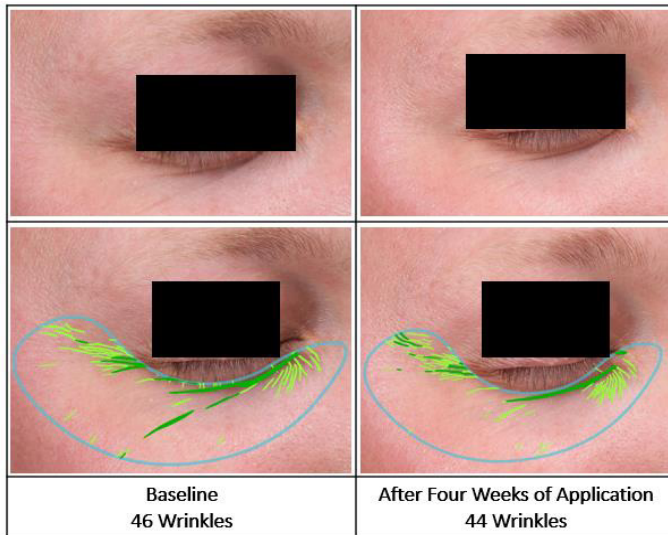
Increased collagen fiber density by +16%

THE EFFICACY CONTINUED.

Anti-Aging

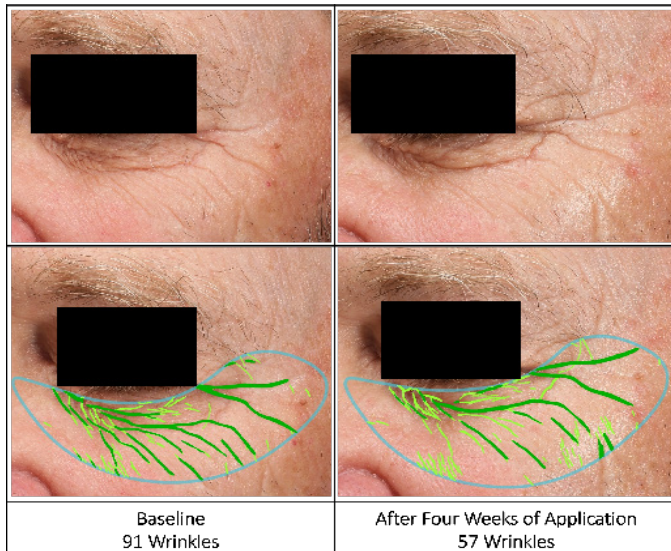
Wrinkles are furrows, folds, or creases in the skin that are associated with a decrease in skin elasticity and an increase in development as a result of sun exposure. As skin ages, cell production slows resulting in the dermis becoming thinner and allowing depressions to form on the skin's surface. Aging skin is often slower to retain moisture and heal wounds and with the formation of wrinkles, the appearance of the skin often looks unappealing. It is important to monitor the development of skin damage, such as fine lines and wrinkles, because limiting skin damage provides a healthier and more youthful appearance. Accordingly, an *in vivo* study was conducted over a period of four weeks to evaluate the ability of 2.0% AC ExoEternal to reduce wrinkles on the face.

Younger Skin



Reduced wrinkles by -2%

Mature Skin

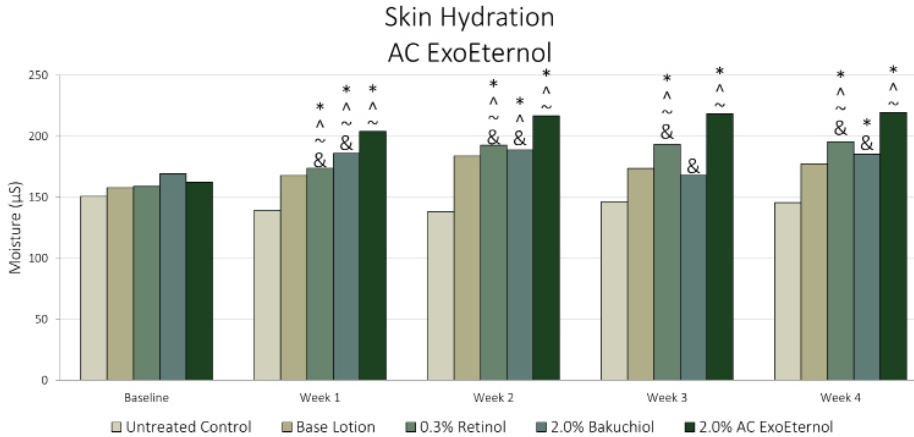


Reduced wrinkles by -2%

THE EFFICACY CONTINUED.

Replenishes Moisture

The skin's structural and functional integrity is predominantly dependent on sufficient hydration levels given several enzymes maintaining homeostasis within the stratum corneum are hydrolytic and do not occur efficiently if water is below an acceptable threshold. Adequately hydrated skin is flexible, resistant to shearing forces, an effective protective barrier, and appears more youthful with a reduction in fine lines and wrinkles. Conversely, insufficiently hydrated skin is present in many skin diseases and exhibits a compromised protective barrier, feels dry, flaky, and rough, and is correlated with skin aging. Consequently, proper hydration maintains the skin's structural and functional integrity and contributes to the appearance of healthier looking skin. Accordingly, a moisturization study was conducted to evaluate the skin hydrating properties of AC ExoEternal compared to Retinol and Bakuchiol.



Increased moisturization by +35%

Promotes Skin Renewal

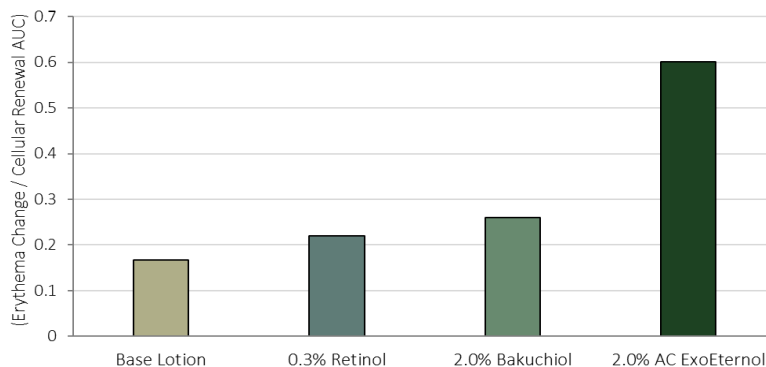
As the largest human organ, the skin's integrity is critical to properly function as a physical barrier and maintenance of a healthy appearance for aesthetics. The epidermis constantly undergoes major self-renewal as the superlayer of cells are lost by desquamation and replaced by cells in the basal layers. The constant replacement of cells mitigates the negative long-term effects of ultraviolet light damage and harmful agents (chemicals, pollutants, etc.) on the skin. Aiding in the processes of cellular renewal can improve the skin's physical appearance as well as function as a protective barrier. Accordingly, a cellular renewal study was conducted to evaluate the ability of AC ExoEternal to accelerate skin cell replacement by assessing changes in pigmentation.



Reduced pigmentation by -1.7%

Efficacy-Tolerance Ratio

AC ExoEternal



Promotes cellular renewal while minimizing irritation

THE EFFICACY CONTINUED.

Evens Skin Tone

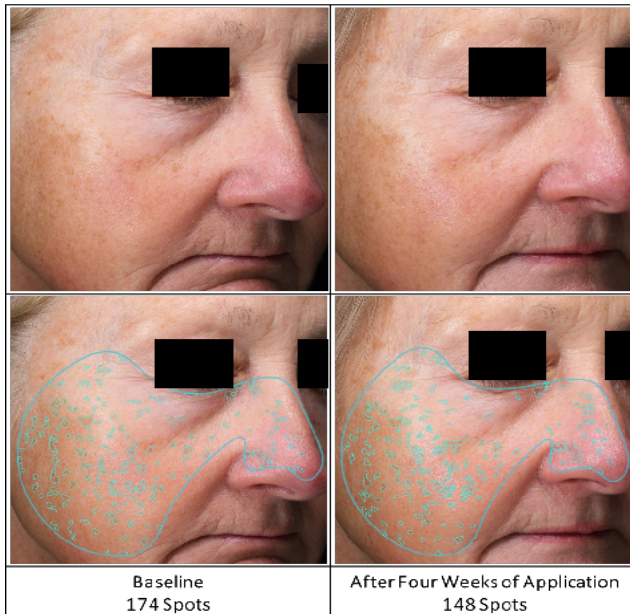
Spots are typically brown or red skin lesions, including hyperpigmentation, freckles, and acne scars. Spots are distinguishable by their color as they vary in shape and size. Reducing spots allows the skin to look more youthful in appearance which is an increasing desire in the cosmetic world. Accordingly, an *in vivo* study was conducted over a period of four weeks to evaluate the ability of 2.0% AC ExoEternal to reduce Surface Spots on the face.

Younger Skin



Reduced
surface spots
by -4%

Mature Skin



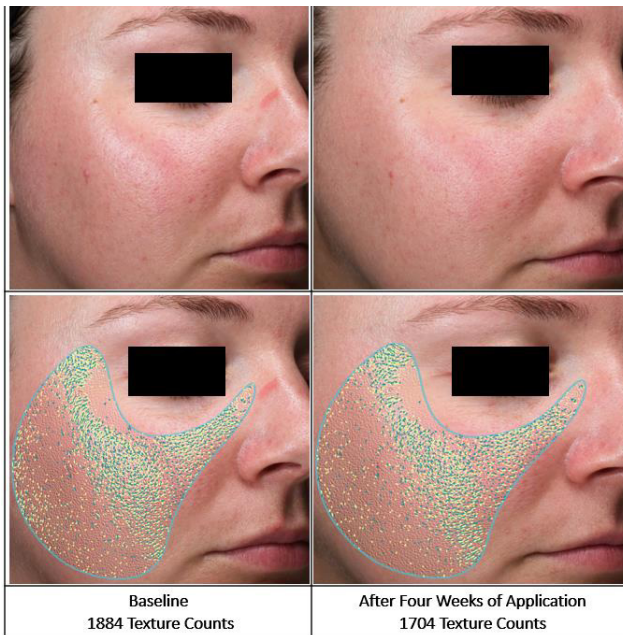
Reduced
surface spots
by -4%

THE EFFICACY CONTINUED.

Skin Smoothing

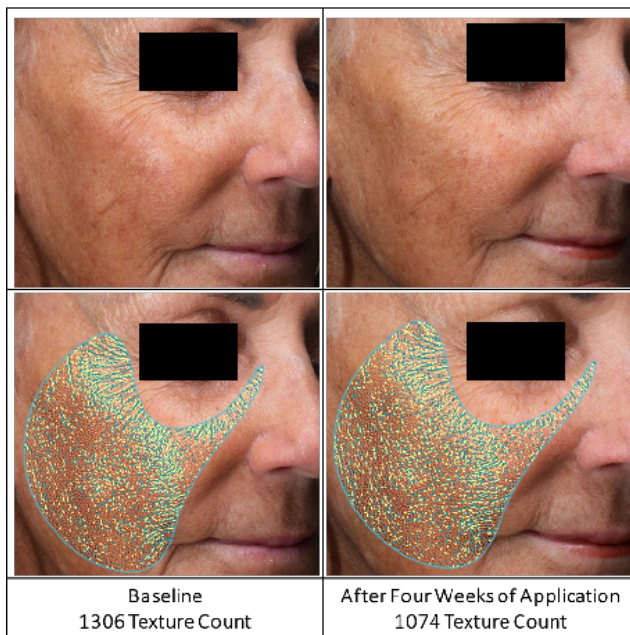
Skin may feel uneven, dry, or coarse as we age. As skin ages, the process of shedding dead skin cells rapidly declines, resulting in skin cell buildup that appears dry and clumpy. Additionally, collagen and elastin are responsible for providing smoothness and resiliency on the skin. With increased sun exposure, collagen and elastin begin to breakdown thus resulting in more visible and tangible skin texture. To prevent uneven skin texture, it is important to include exfoliation in a skincare regimen. Accordingly, an *in vivo* study was conducted over a period of four weeks to evaluate the ability of 2.0% AC ExoEternal to improve Texture on the face.

Younger Skin



Reduced texture by -2%

Mature Skin

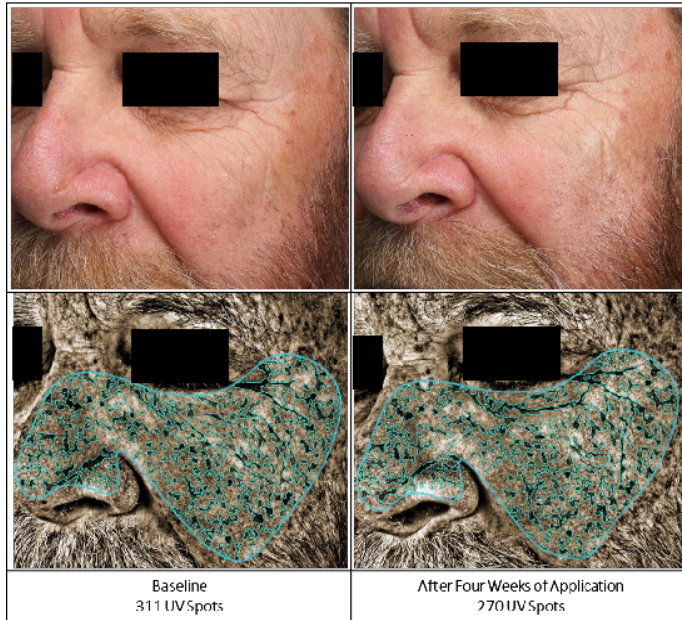


Reduced texture by -5%

THE EFFICACY CONTINUED.

Mature Skin Clarity

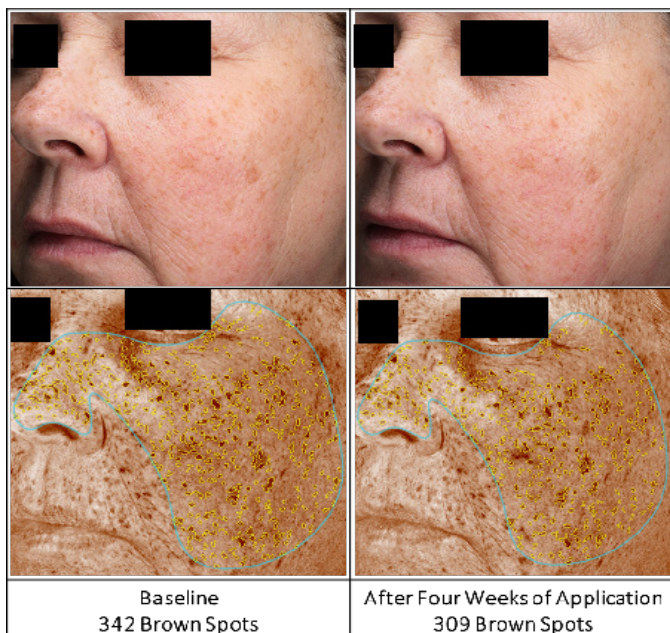
UV spots occur when melanin accumulates beneath the surface of the skin as a result of cumulative sun exposure. These spots may not be visible to the naked eye under normal lighting conditions; however, they become apparent under ultraviolet illumination. In mature skin, years of repeated UV exposure combined with slower cellular turnover and altered melanocyte regulation can lead to greater accumulation and persistence of UV spots. Although they may not be immediately visible, UV spots indicate underlying photodamage that compromises skin health and accelerates the development of visible signs of aging, including uneven tone, texture changes, and loss of luminosity.



Reduced UV spots by -6%

Mature Skin Clarity

Brown Spots are lesions that contribute to an uneven appearance on and within the skin, including freckles, hyperpigmentation, and melasma. These spots result from excess melanin production by melanocytes located in the basal layer of the epidermis. In mature skin, age-related changes such as cumulative ultraviolet exposure, decreased epidermal turnover, and altered melanocyte regulation can lead to increased formation, persistence, and visibility of Brown Spots. Reducing the appearance of Brown Spots is therefore especially important for aging skin, as improved tone uniformity is closely associated with a more youthful and healthier appearance.

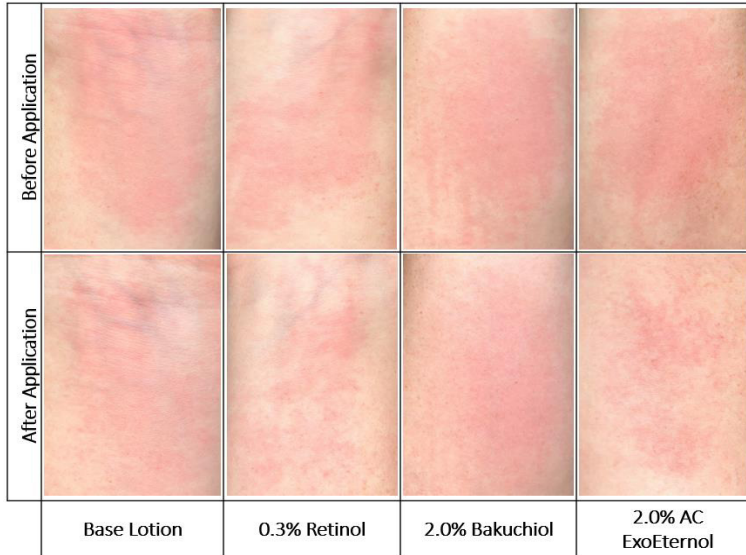


Reduced brown spots by -6%

THE EFFICACY CONTINUED.

Short-Term Redness Reduction

In this study, surgical tape was applied to test sites for two minutes to intentionally induce redness, after which erythema measurements were recorded and test materials were applied. Fifteen minutes after application, redness levels were measured again, and participants rated visible improvement on a scale from 1 (no change) to 10 (no redness). Reducing redness and irritation helps restore a calm, balanced complexion for skin that appears healthier and more even-toned.

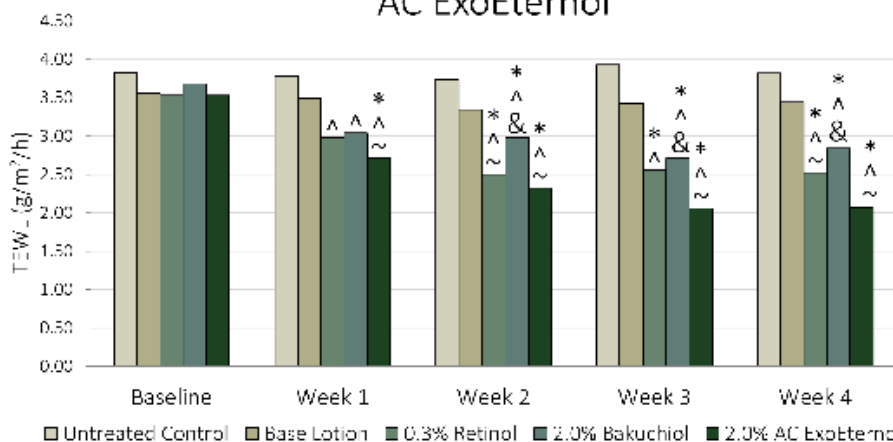


Reduced redness by -5% after 15 minutes

Barrier Protection

As the largest human organ, the skin's integrity is critical to properly function as a physical barrier and maintenance of a healthy appearance for aesthetics. Moisture retention is a fundamental component to the preservation of the skin's protective barrier function. Transepidermal water loss (TEWL) is the passive evaporation of water across the stratum corneum to the external environment because of the water vapor pressure gradient on both sides of the skin barrier. In healthy skin, TEWL is inversely proportional to skin hydration (i.e., decreased TEWL indicates properly hydrated skin). However, when the skin's protective barrier is compromised, TEWL levels are high and the skin feels dry, flaky, and rough. High TEWL levels, and reduced skin hydration, are correlated with skin aging and seen in many skin diseases. Consequently, moderating excessive TEWL improves the skin's protective barrier function and contributes to the appearance of healthier looking skin. Accordingly, a transepidermal water loss study was conducted to evaluate the moisture retention properties of AC ExoEternal compared to Retinol and Bakuchiol.

Transepidermal Water Loss
AC ExoEternal



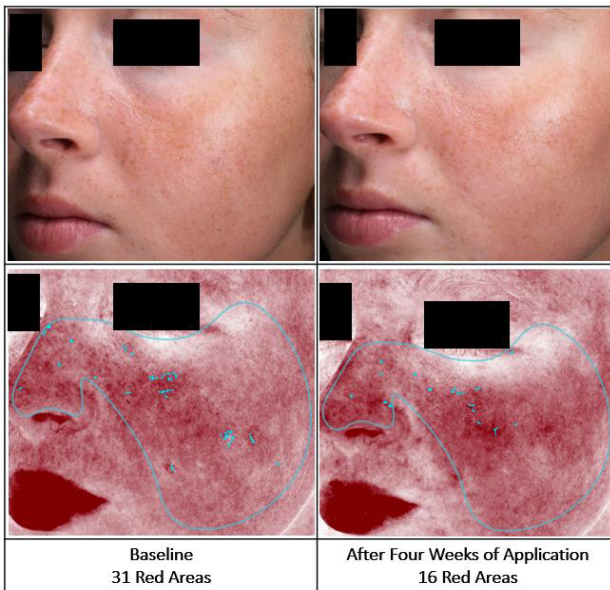
Reduced water loss by -41%

THE EFFICACY CONTINUED.

Long-Term Redness Reduction

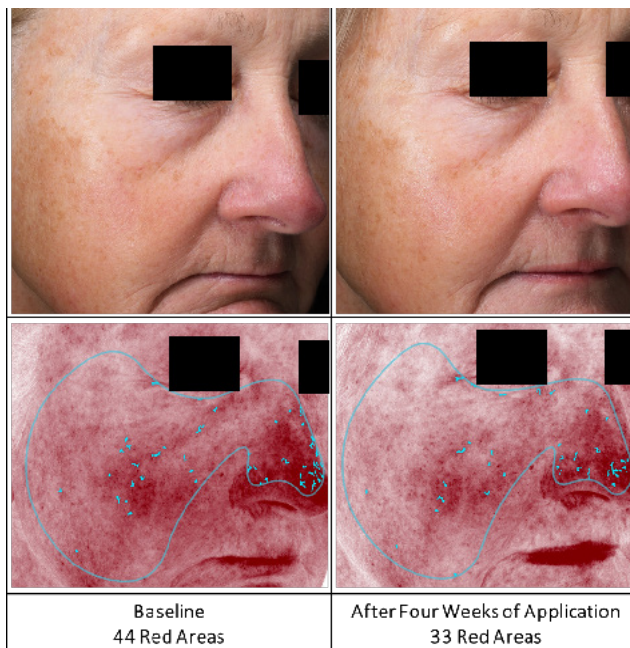
Red areas in the skin often indicate increased blood flow and inflammatory activity, signaling irritation or stress within the tissue. This response can reflect sensitivity, barrier disruption, or an overactive immune reaction triggered by external or environmental factors. Accordingly, an *in vivo* study was conducted over a period of four weeks to evaluate the ability of 2.0% AC ExoEternal to reduce Red Areas on the face. Each participant received two treatments applied to opposite sides of the face to allow direct comparison under controlled conditions. The study used Simple[®] Hydrating Light Moisturizer as the base lotion for consistent hydration and formulation stability.

Younger Skin



Decreased
red areas
by -3%

Mature Skin

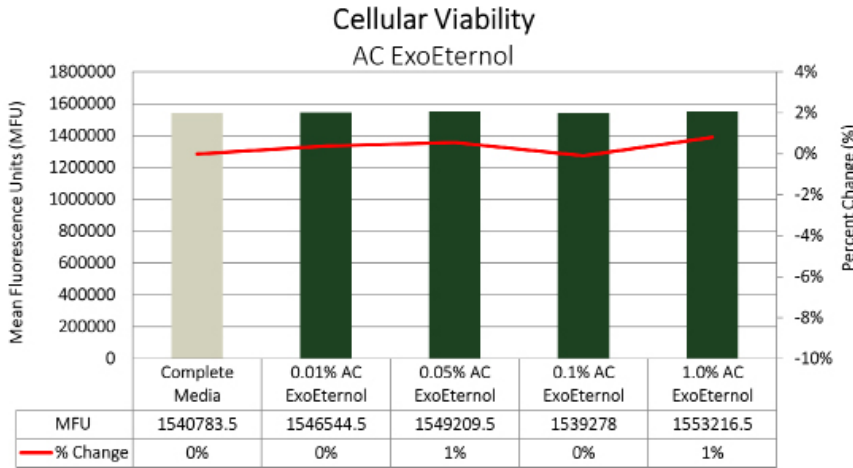


Decreased
red areas by
-4%

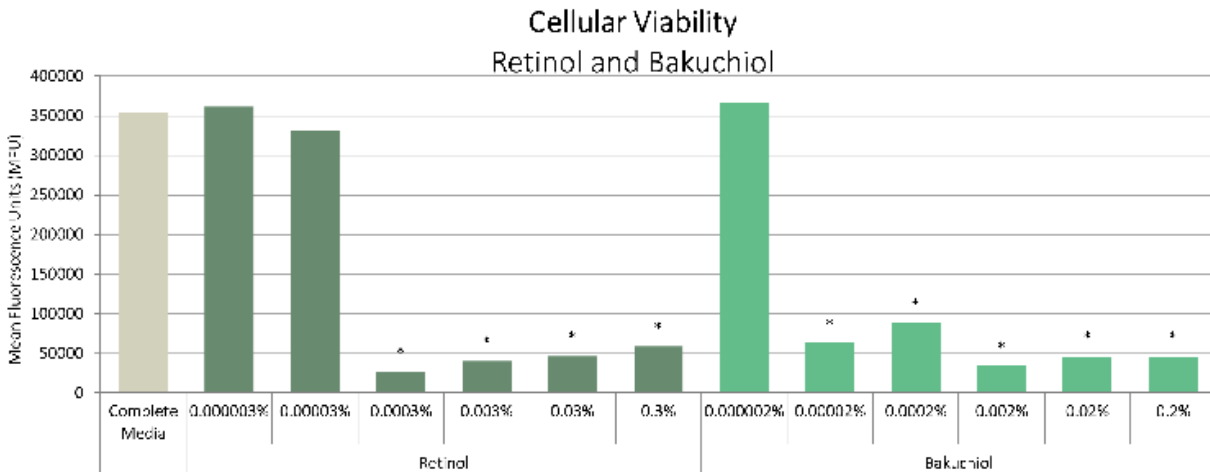
THE EFFICACY CONTINUED.

Maintains Cellular Vitality

Cosmetic ingredients interact directly with dermal cells to provide a multitude of skin benefits. Assessing the impact of topical cosmetics on cellular homeostasis is an important screening step to avoid disrupting natural skin balance and normal skin barrier function. The cellular viability assay is useful for quantitatively measuring test article-induced cytotoxicity. Accordingly, a cellular viability assay was conducted to assess the impact of AC ExoEternal on cellular homeostasis in cultured dermal fibroblasts. Additionally, retinol and bakuchiol were assessed to demonstrate the superior nature of AC ExoEternal.

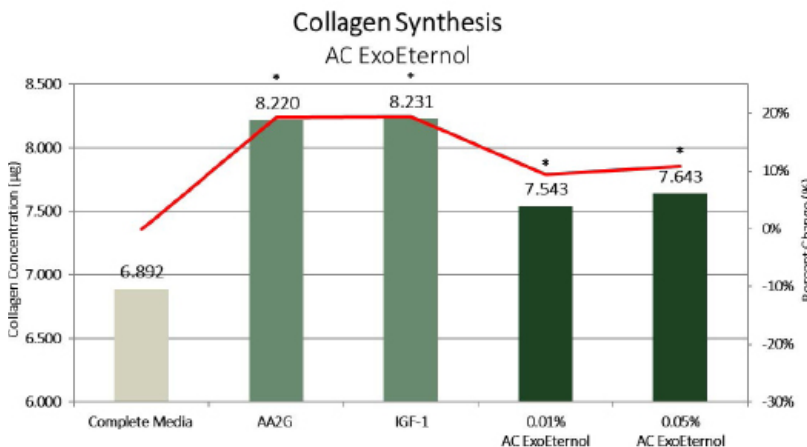


AC ExoEternal is not cytotoxic, while retinol and bakuchiol compromise viability



Collagen Boosting

Collagen is the main protein of connective tissues, such as skin, bone, tendon and ligament, and the most abundant protein in mammals. Specifically, it accounts for nearly 25% to 35% of the total human protein content. Collagen is a long, fibrous protein that forms bundles called fibers giving structure and support to cells and tissues. Collagen has great tensile strength and is responsible for skin's elasticity, therefore its degradation leads to wrinkles that accompany aging. Accordingly, a Sirius Red/Fast Green Collagen Assay was conducted to assess the in vitro effect of AC ExoEternal to trigger collagen synthesis in dermal fibroblasts.

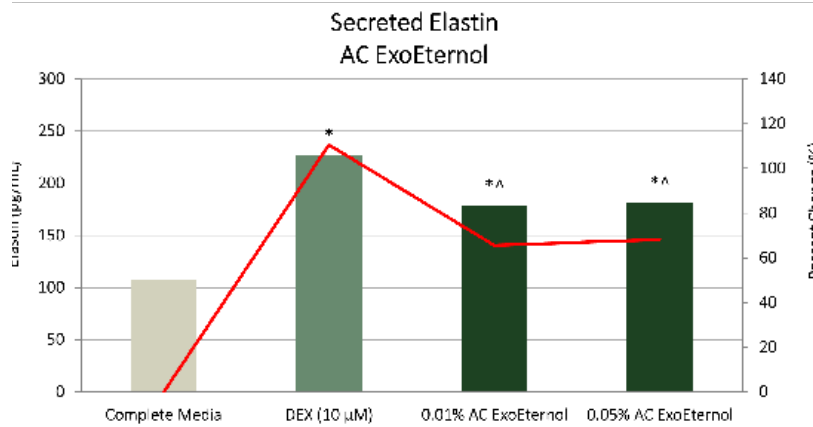


Increased collagen synthesis by +11%

THE EFFICACY CONTINUED.

Elastin Boosting

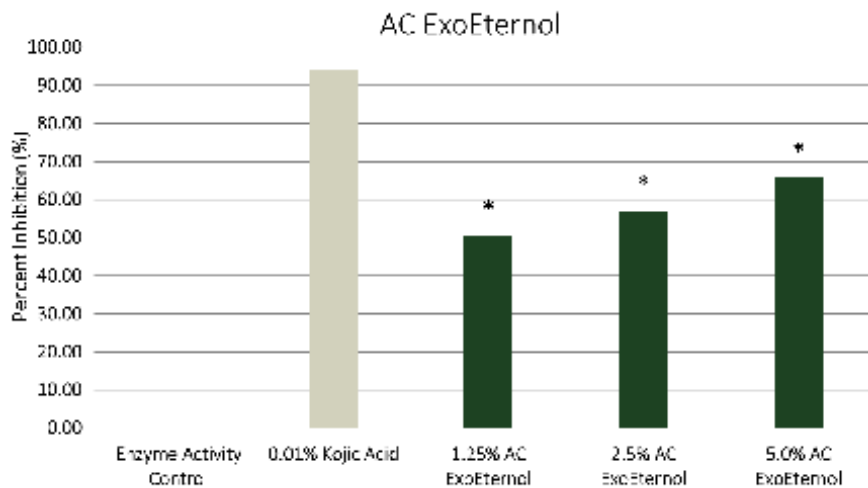
Elastin is essential for maintaining skin's firmness, flexibility, and youthful resilience. By supporting elastin production, the skin retains its ability to stretch, smooth, and bounce back, helping reveal a firmer, more lifted appearance over time. Accordingly, an Elastin ELISA was conducted to assess the in vitro effect of AC ExoEternal on the extracellular release and intracellular synthesis of elastin from human dermal fibroblasts.



Increased elastin levels by +68%

Brightens Skin

Tyrosinase plays a central role in melanin production, the natural process responsible for skin and hair pigmentation. Overactive tyrosinase can trigger excess melanin formation, leading to visible concerns such as dark spots, freckles, and uneven tone. For this reason, identifying effective tyrosinase inhibitors has become a major focus in cosmetic science aimed at brightening and balancing the complexion. A tyrosinase inhibition assay was conducted to determine the ability of AC ExoEternal to inhibit tyrosinase, indicating its potential in cosmetic applications to reduce hyperpigmentation.

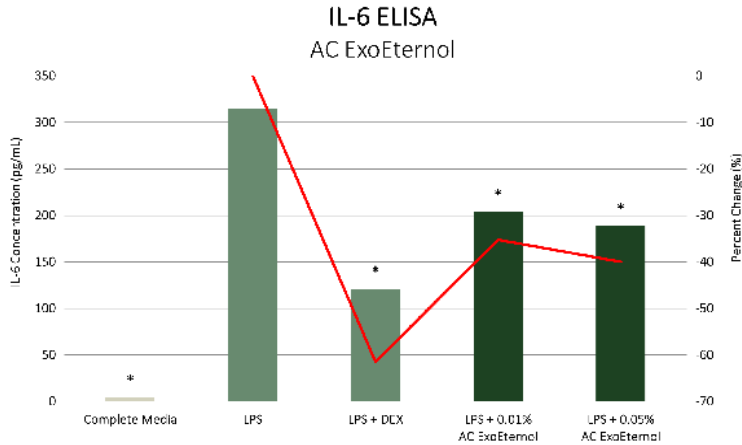


Inhibited tyrosinase by -66%

THE EFFICACY CONTINUED.

Anti-Inflammatory

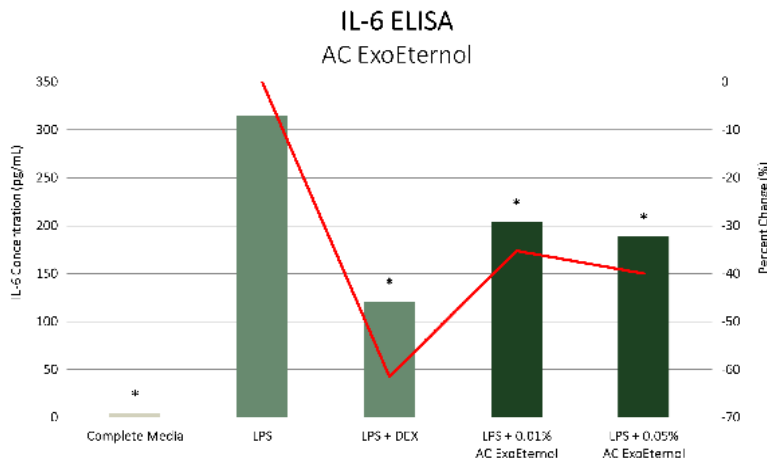
Interleukin-6 (IL-6) is a key signaling molecule that drives inflammation in the skin. Elevated IL-6 levels can activate enzymes such as matrix metalloproteinase-1 (MMP-1), which break down collagen and other components of the extracellular matrix. This process contributes to wrinkles, fine lines, and loss of firmness over time. By helping to reduce IL-6 activity, skin can maintain a calmer, more balanced environment that supports collagen integrity and promotes a smoother, more youthful appearance. Accordingly, an interleukin-6 ELISA was conducted to assess the in vitro effect of AC ExoEternal to elicit changes in IL-6 levels in dermal fibroblasts.



Reduced inflammation by 40%

Antioxidant Protection

Reactive oxygen species (ROS) are generated by normal cellular processes, environmental stresses, and UV irradiation. ROS are dangerous to cellular structures and functional molecules (i.e. DNA, proteins, lipids) as they act as strong oxidizing agents of free radicals. The oxygen radical absorbance capacity (ORAC) assay is a standard method used to assess antioxidant capacity of physiological fluids, foods, beverages, and natural products. The assay quantitatively measures a sample's ability to quench free radicals that have the potential to react with and damage cellular components. Accordingly, the ORAC assay was conducted to assess the antioxidant capacity of AC ExoEternal.

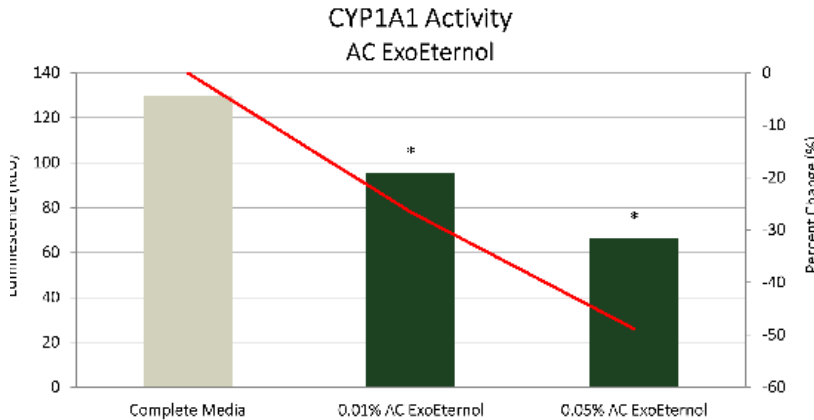


Exhibited greater antioxidant activity than Trolox, retinol, and bakuchiol

THE EFFICACY CONTINUED.

Cellular Protection

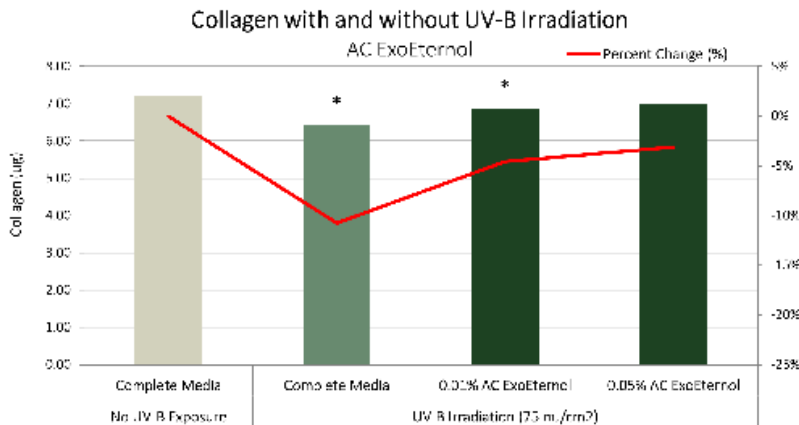
CYP1A1 is a detoxification enzyme that becomes highly active in response to pollution, UV exposure, and other environmental stressors. Although its role is protective, excessive CYP1A1 activity can generate reactive metabolites that heighten oxidative stress, trigger inflammation, and contribute to premature skin aging. Inhibiting overactive CYP1A1 helps restore cellular balance by reducing stress signals that interfere with renewal and repair. This assay evaluates whether AC ExoEternal can calm CYP1A1 activity to support a healthier, more resilient skin environment.



Reduced CYP1A1 activity by -49%

Sun Safe

UVB exposure breaks down collagen and other essential extracellular matrix proteins, accelerating visible aging and weakening the skin barrier. Unlike retinol, which heightens UV sensitivity, AC ExoEternal helps preserve collagen and non-collagenous protein synthesis under UV stress, supporting repair with less irritation. Because these structural proteins maintain elasticity, firmness, and overall skin integrity, their protection is critical for aging prevention. A Sirius Red/Fast Green assay confirmed AC ExoEternal's *in vitro* ability to counter UVB-induced reductions in these proteins.



Maintained collagen levels by +95%

References:

- Lidén, M, et al. "Understanding Retinol Metabolism: Structure and Function of Retinol Dehydrogenases." *Journal of Biological Chemistry*. 281.19 (2006):13001-13004.
- Hou, T., et al. "Perilla frutescens: A Rich Source of Pharmacological Active Compounds." *Molecules*. 27.11 (2022): 3578.
- Shin PhD, S, et al. "Anti-skin aging properties of protocatechuic acid *in vitro* and *in vivo*." *Journal of Cosmetic Dermatology*. 4 (2020): 977-984.
- Deguchi, Y., et al. "Rosmarinic acid in Perilla frutescens and perilla herb analyzed by HPLC." *Journal of Natural Medicines*.
- Phromnoi, K., et al. "Polyphenols and Rosmarinic acid Contents, Antioxidant and Anti-Inflammatory Activities of Different Solvent Fractions from Nga-Mon (Perilla frutescens) Leaf." *Journal of Pharmacy and Nutrition Sciences*. 9 (2019): 239-246.
- Lee, J., Shin, Y. "Antioxidant compounds and activities of Perilla frutescens var. crispa and its processed products." *Food Sci Biotechnol*. 33.5 (2023): 1123-1133.

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