



INNOVATIVE ELEMENTS TO AMELIORATE LIFE



ZLEY-PE901

– HOLELLIA –

- 1.AMPK Cell Charger & PPARs Barrier Repairing & Skin Lipids Supplement
- 2.Purification, Power supply, And Revitalization, Three Steps To Realise The All-round Heathy Skin From Inside Out



WHO WE ARE

COMMITTED TO AMELIORATE LIVE, WITH TECHNOLOGY

Driven by a vision of innovation and development, we are dedicated to producing high-quality raw materials for the global personal care industry, addressing the growing demand for functional ingredients. Our products are designed to promote skin rejuvenation, brightening, antioxidant, and anti-inflammatory benefits.

「 1 2 3 」

1 factory located in Weinan, Shaanxi Province
2 Innovation research and development centers
3 subsidiaries: [China] Guangzhou [Hongkong]
and [Singapore] Over 200 employees

WHAT WE DO

COMMITTED TO AMELIORATE LIVE, WITH TECHNOLOGY

「Herbalism」

The cosmetic industry is actively exploring new neurocosmetic ingredients to enhance the connection between the skin and the nervous system. We harness plant extracts with soothing and anti-inflammatory properties to alleviate skin irritations, reduce redness, and support a healthier complexion.

「Metropolitan」

We are committed to continuously exploring innovative formulations for effective skin rejuvenation. Our team leverages advanced technologies and novel ingredients to push the boundaries and unlock new possibilities in this field.

「Revolution」

We utilize innovative technologies and ingredients to deliver exceptional results in skin brightening. Our ongoing research focuses on addressing pigmentation issues and promoting a radiant complexion.



PATENT CERTIFICATE

ZL 2022 1 1022382.9

Anti-inflammatory and Repairing Composition Containing Ethylene Glycol Salicylate and Its Preparation Method and Application

ZL 2022 1 1306298.X

Supramolecular Vesicle Aggregates of 4-Butylresorcinol and Their Preparation Method and Cosmetic Composition

ZL 2022 1 1147913.7

Microencapsulated Kava Extract and Its Preparation Method and Application

ZL 2016 1 0490027.2

Anti-Aging Cosmetic Composition and Its Preparation Method

ZL 2022 1 1648008.X

Composition Containing Amino Acid Derivatives for Regulating Skin Microbiota

ZL 2022 1 1038113.1

Anti-Acne, Whitening, and Antioxidant Essential Oil Composition Containing Ferulic Acid Derivatives and Its Preparation Method

ZL 2022 1 1187356.1

Composition for Skin Conditioning, Whitening, and Brightening, and Essence Lotion

ZL 2015 1 0077009.7

Preparation Method of High-Purity Piperazine

ZL 2023 1 0925891.0

Composition and Its Use in Improving Skin Barrier Function, and Skincare Product

ZL 2022 1 1251631.1

Liposomes Containing Ferulic Acid and Its Derivatives, Preparation Method, and Application

ZL 2015 1 0170034.X

Method for Synthesizing 2,4-Dihydroxyacetophenone and Recycling Wastewater

ZL 2014 1 0245210.7

Preparation Method of Half-Fumarate Quetiapine

ZL 2023 1 1500453.6

Deodorizing Composition, Its Preparation Method, and Application

ZL 2023 1 1366456.5

Peony Root Bark Extract-Based Perfume with Lemon Fragrance, Preparation Process, and Application

ZL 2024 1 0785149.9

Preparation Method of Highly Active Trigonella Extract and Its Uses in Care Products

ZL 2024 1 0726523.8

Preparation Method of Hydroxypinacolone Retinoate

ZL 2024 2 1028204.1 (Utility model patent)

Ultrasonic Cleaner for Cosmetic Testing

ZL 2024 1 0576240.X

Composition for Reducing Periorbital Skin Issues, Its Preparation Process, and Application

MORE PATENT APPLICATIONS ARE PENDING...



I&D STRENGTH

「BIRI」 (Biotechnology Innovation Research Institute)

Our team of experienced biologists leads the R&D efforts to identify active skincare ingredients with proven efficacy, high potency, and stability through experimental protocols, strain culture, and fermentation optimization.

Our facility adheres to the national laboratory safety standards GB 19489-2011, including P2 and biochemical laboratory requirements.

「FOSCRC」 (Functionality of Skin Care Research Center)

As society progresses and technology advances, there is a growing demand for effective skin care and a deeper understanding of cosmetics. At our Functional Skincare Research and Development Center, we focus on exploring skincare products through chemical testing and cell assays to study their functions and properties.

「FOSCTEC」 (Functionality of Skin Care Testing&Evaluation Center)

We partner with a professional third-party testing institute specializing in cosmetics, cosmetic raw materials, and pharmaceutical intermediates to ensure rigorous and reliable product testing.



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Part . 01

「MARKET ANALYSIS」



「MARKET ANALYSIS」

ZLEY HOLDINGS | FOCUS ON MAKING PREMIUM QUALITY RAW
MATERIALS IN THE WORLD

「SELF-HEALING: THE KEY TO YOUTHFUL, HEALTHY SKIN」

✕ Traditional skincare solutions often address sensitivity and redness questions

- The skin is a vast and complex system, and skincare should not be limited to a single-point, linear approach.
- Most repair products on the market temporarily address sensitivity and redness by suppressing inflammation or patching the skin barrier' s "brick and mortar model" structure. However, these solutions only treat the symptoms rather than the root cause, leading to recurring sensitivity issues.



To grow a thriving, towering tree, strong roots, sufficient nutrients, and a suitable environment are essential.



Inspired by Eastern integrative wellness, our three-step approach enhances the skin' s self-repair ability, targeting the root cause for long-term skin health.

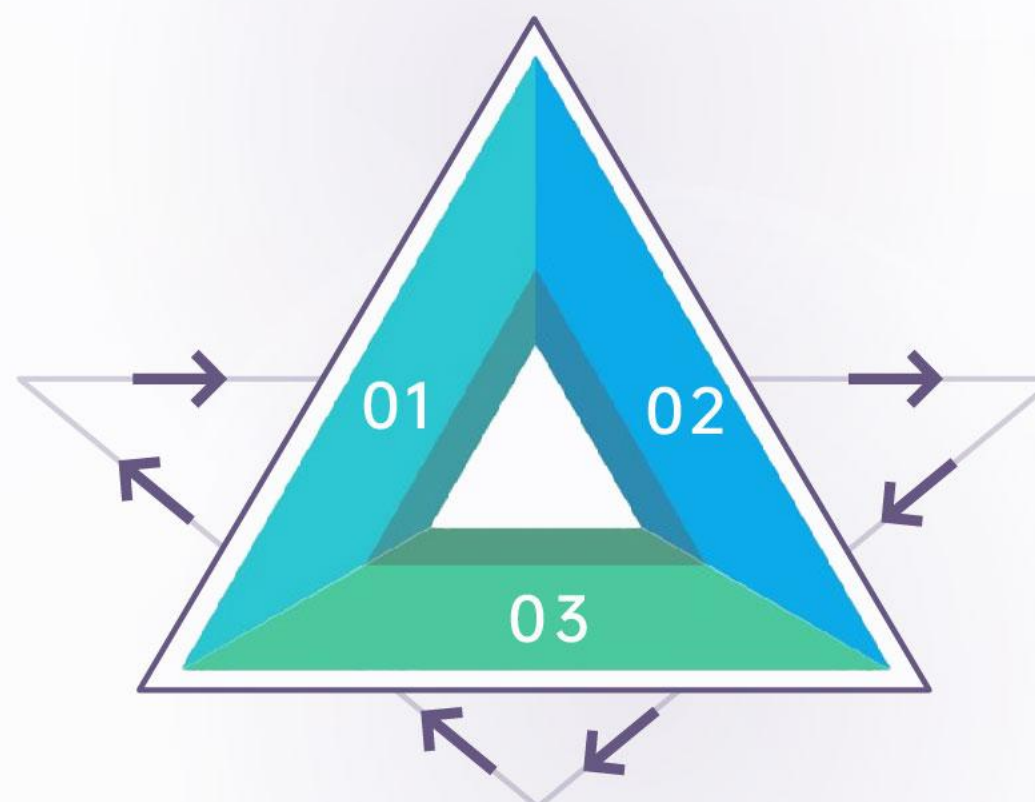


TARGETING THE ROOT CAUSE, ENHANCING SKIN'S SELF-HEALING IN 3 STEPS

Not only should you give someone a fish, but you should also teach them how to fish-China proverb

STEP 1: Purification

Purify the inflammatory factors and ROS, etc.
Break the terrible circulation of oxidation, inflammation and sensitivity.



STEP 2: Power Supply

Activate the pathway of AMPK and promote the vitality of mitochondria add energy into skin and accelerate the process of cell repairing.

STEP 3: Revitalization

PPARs, which could enhance the formation of barrier lipids and proteins. By activating it, thicker 'brick wall' barrier you'll get.

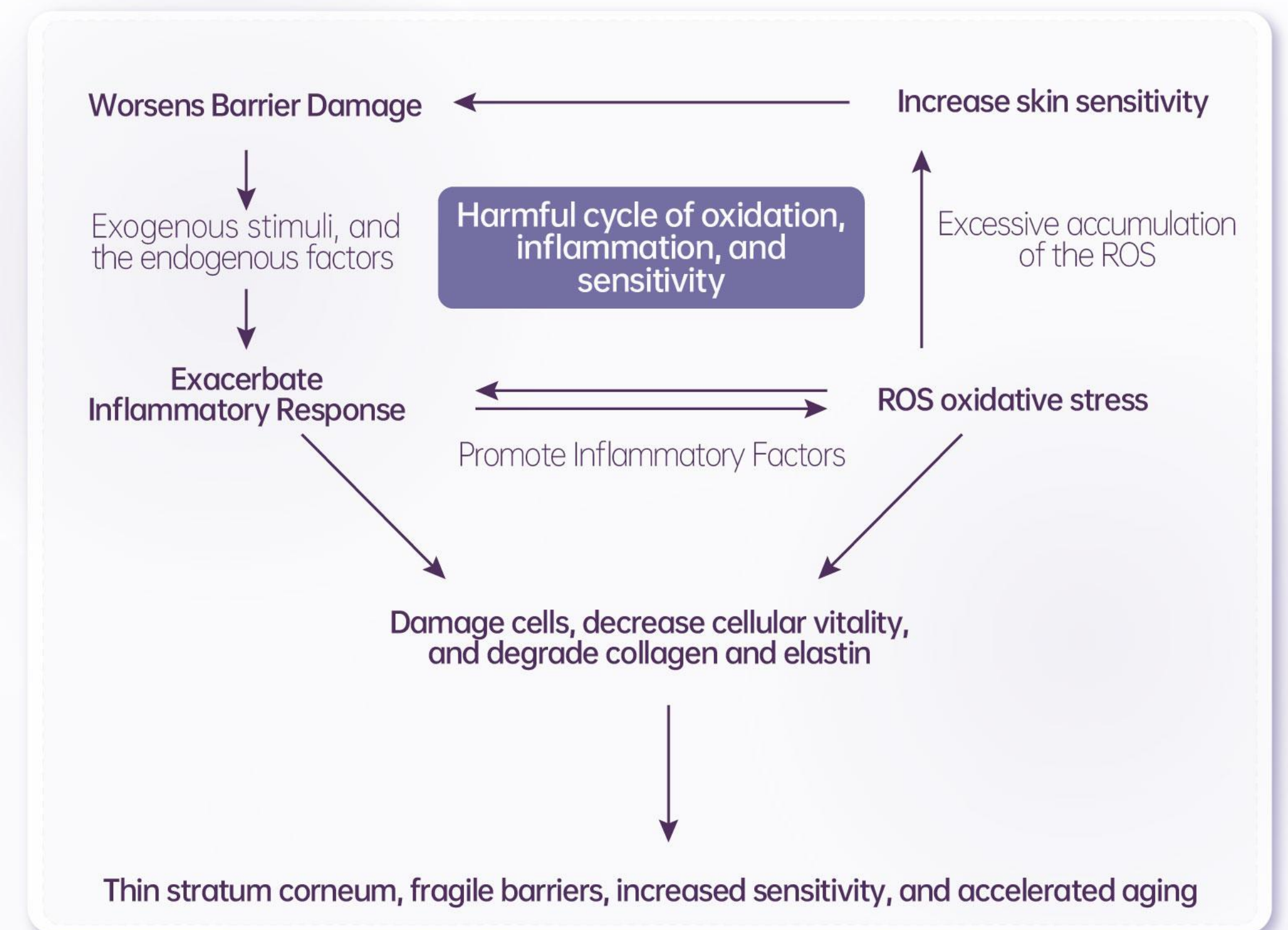
STEP 1: PURIFICATION – BREAK THE HARMFUL CYCLE OF OXIDATION, INFLAMMATION AND SENSITIVITY, PURIFY THE SKIN'S FOUNDATIONAL ENVIRONMENT.

Oxidation, Inflammation, Sensitivity – A Vicious Cycle That Worsens Barrier Damage

- Under the combined influence of external stimuli and internal factors, excessive destructive factors (ROS, inflammatory factors, etc.) accumulate in the skin's foundation, forming a vicious cycle of oxidative inflammation and sensitivity. This cycle attacks healthy cells, impairs mitochondrial function, reduces cellular vitality, accelerates collagen loss, and ultimately leads to thin stratum corneum, fragile barriers, increased sensitivity, and accelerated aging.

STEP 1: Purification

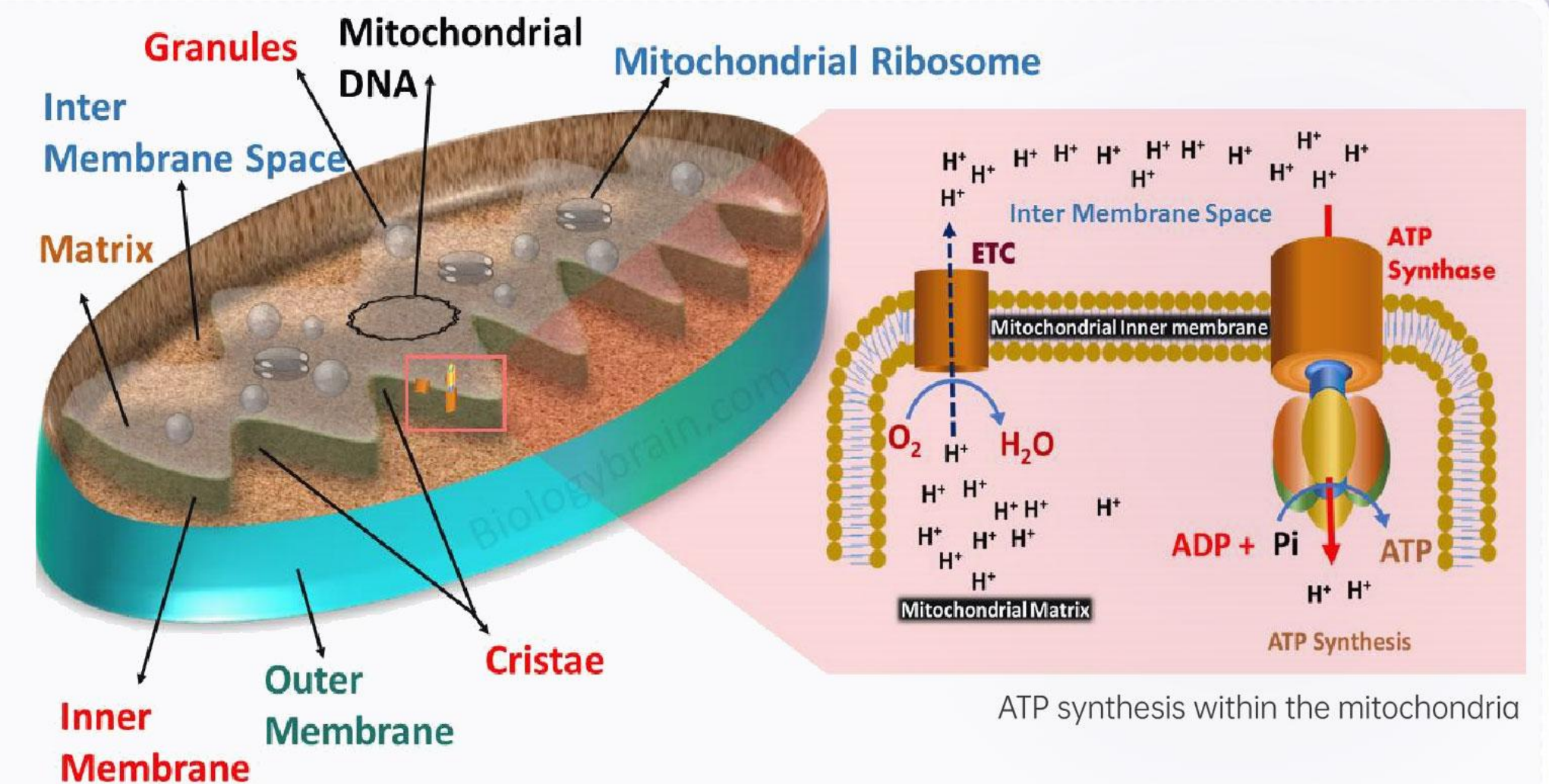
- Purify the inflammatory factors and ROS etc., break the, restore a healthy skin environment, reduce redness, and strengthen the skin barrier.



STEP 2: POWER SUPPLY – ACTIVATE THE CELL ENERGY MASTER SWITCH AMPK TO ENHANCE CELLULAR VITALITY.

Skin cells need energy to cope with environmental stress and repair damage. Processes like collagen synthesis and DNA repair in the skin require a significant amount of energy.

- ▶ Mitochondria, known as the “power houses” of skin cells, produce about 95% of the energy required for cellular life activities.
- ▶ The energy product produced by mitochondria to fuel cells is called ATP. ATP is the direct energy source that drives cellular life activities.



However, the production of ATP decreases with the aging of cells and the human body, leading to a decline in cell vitality, impaired skin cell repair, reduced collagen synthesis, and weakened self-healing ability of the skin. This results in visible signs of skin fatigue and aging.

STEP 2: POWER SUPPLY – ACTIVATE THE CELL ENERGY MASTER SWITCH AMPK TO ENHANCE CELLULAR VITALITY.

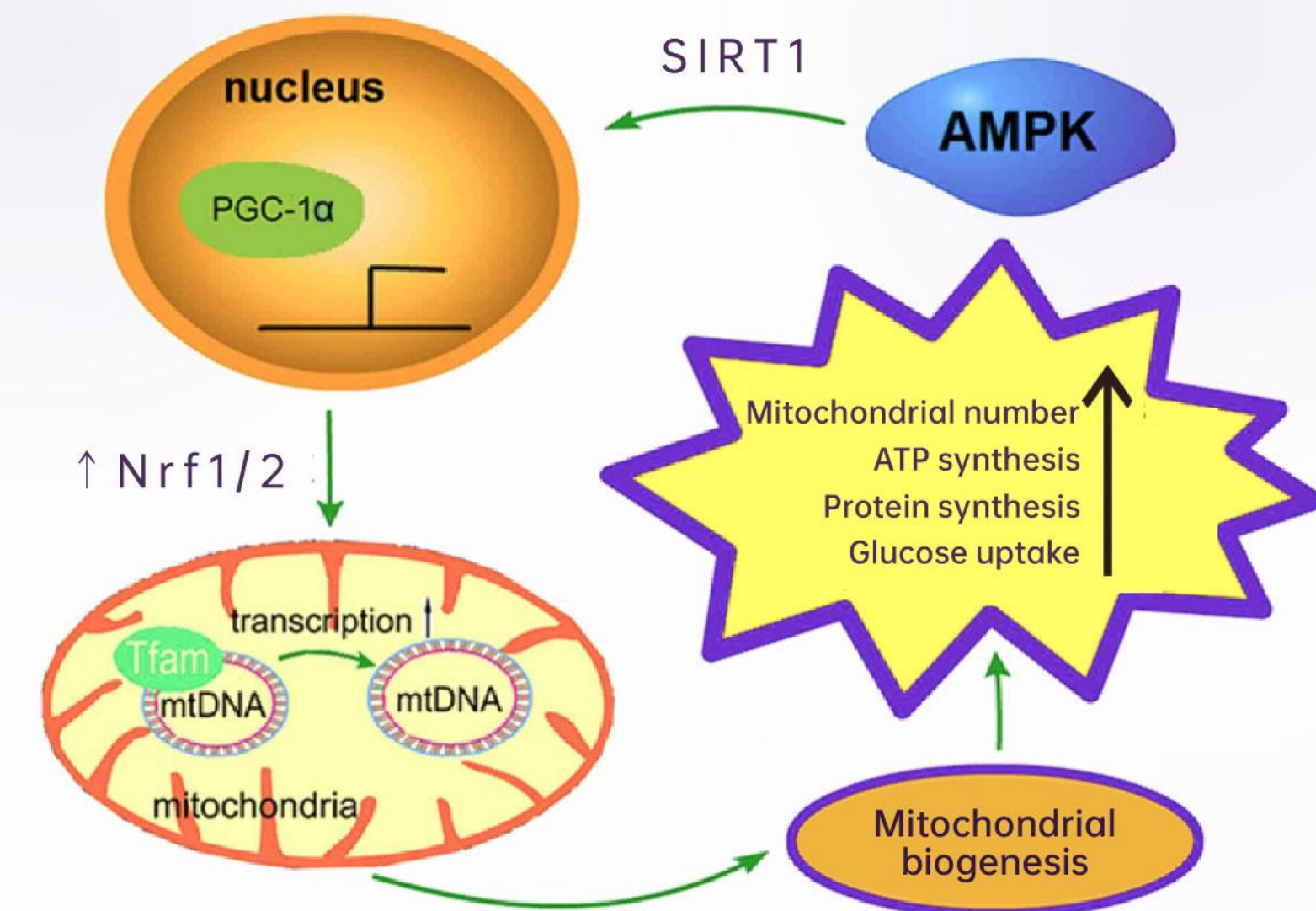
The Master Switch of Cellular Energy - AMPK (AMP-activated Protein Kinase)

- ▶ When cellular energy is insufficient, activating the AMPK switch allows the skin to regain energy, rejuvenate, and strengthen its ability to resist various external attacks.
- ▶ However, with age, the level of AMPK factors in skin cells decreases, leading to a decline in mitochondrial function, insufficient energy supply for skin cells, reduced cell vitality, and decreased self-repair ability of the body.

STEP 2: Power supply

- ▶ Activate AMPK in skin cells, improve mitochondrial function, replenish cellular energy, enhance cell vitality, increase the skin's self-healing ability, accelerate repair, and revitalize the skin for a healthy and energized appearance.

Figure: Regulation of ATP Production in Mitochondria by AMPK



STEP 3 - REVITALIZATION: STIMULATE PPARS TO STRENGTHEN THE SKIN BARRIER AND ENHANCE SELF-REPAIR.

The skin's stratum corneum barrier is often compared to a "brick and mortar model".

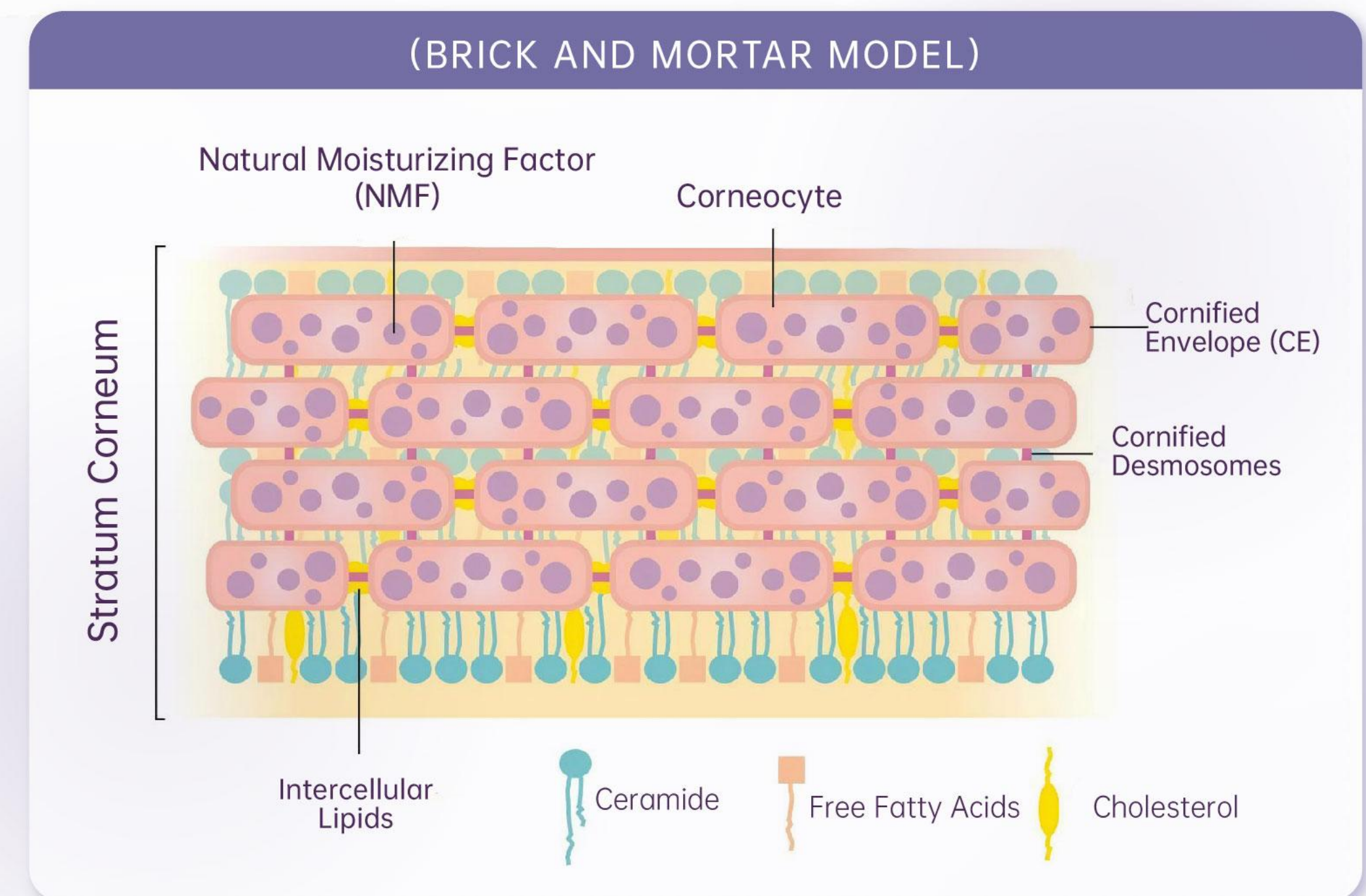
► 1. Brick - Horn cells

The skin's protective armor, the **cornified envelope (CE)**, is formed by cross-linking proteins such as **filaggrin (FLG)**, **loricrin (LOR)**, and **involucrin (IVL)**.

Strengthening the **cornified envelope** is crucial for repairing the "bricks," further enhancing the toughness and stability of the outermost layer of corneocytes.

► 2. The "mortar" (intercellular lipid) is primarily composed of 50% ceramides, 25% cholesterol, and 15% free fatty acids, distributed in a molar ratio. These intercellular lipids fill the multilayered structure of the stacked corneocytes, maintaining the normal function of the epidermal barrier.

► 3. Reinforcement bars – corneocyte desmosomes interlock the "bricks" – corneocytes, ensuring they are arranged in a complete and orderly manner, thus ensuring the integrity of the stratum corneum structure to the highest degree.



*Ref1: 陈教全,梁碧华,李华平等.角质层结构及功能的研究进展[J].皮肤性病诊疗学杂志, 2020, 27(1):4.

*Ref2: 涂颖,何黎.表皮的渗透屏障与其他屏障功能相关研究进展[J].中国医学文摘·皮肤科学, 2017年34卷4期, 379-382页, 2017.

STEP 3 - REVITALIZATION: STIMULATE PPARs TO STRENGTHEN THE SKIN BARRIER AND ENHANCE SELF-REPAIR

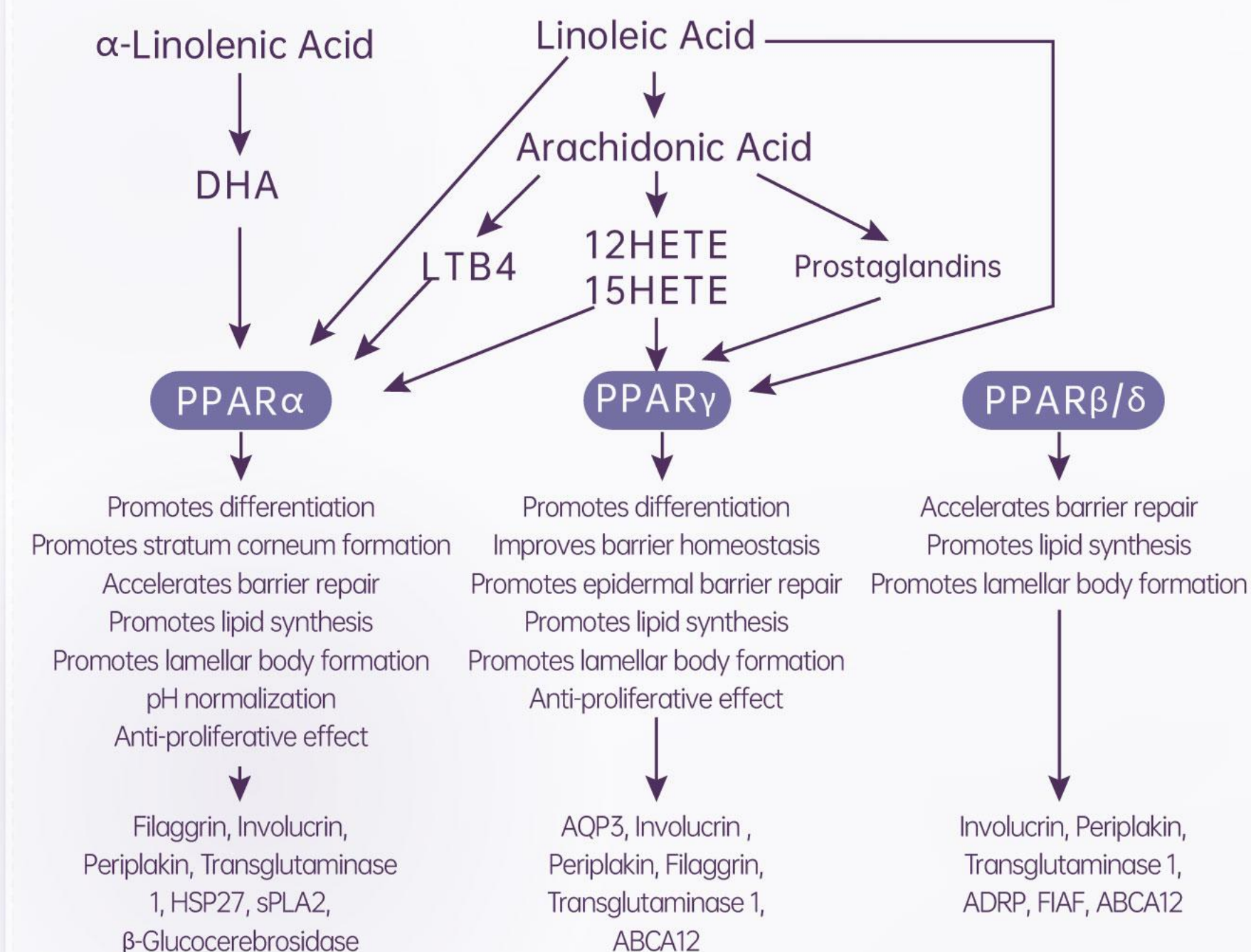
Skin Barrier Repair Switch - PPARs (Peroxisome Proliferator-Activated Receptors)

- ▶ PPARs have three isoforms: PPAR α , PPAR β/δ , and PPAR γ .
- ▶ 1.Reinforcing the "Bricks" Structure – Promotes the synthesis of barrier proteins (such as involucrin, filaggrin, and periplakin) in keratinocytes, strengthening the cornified envelope and enhancing the resilience and stability of the outer layer of keratinocytes.
- ▶ 2.Enhancing the "Mortar" Formation – Stimulates the production of barrier lipids (such as ceramides) in keratinocytes, improving intercellular lipid organization and barrier function.
- ▶ 3.Promoting Extracellular Matrix Secretion – Prevents photoaging damage, inhibits skin inflammation, and contributes to overall skin barrier integrity.

STEP 3: Revitalization

- ▶ Activating the myogenic skin barrier repair switch—PPARs—enhances lipid synthesis, stabilizes the barrier structure, and fundamentally boosts the skin's self-repair ability, leading to stronger and healthier skin.

GRAPHIC: ROLE OF PPARs IN EPIDERMAL HOMEOSTASIS



*Ref1: 金超颖,吴慧玲.PPARs在皮肤生理学中的意义[J].临床医学进展, 2024, 14(3):1396-1404.

*Ref2: Role of PPAR, LXR, and PXR in epidermal homeostasis and inflammation.

PRODUCT DEVELOPMENT CONCEPT

Rooted in addressing the fundamental causes of skin barrier vulnerability, our skincare philosophy goes beyond merely providing solutions—we empower the skin to heal itself.

In 2024, ZLEY introduces the groundbreaking Holellia repair product.



► Internal - Self-Healing Skincare ◀

Leveraging innovative IAMPK cellular energizing & PPARs barrier self-repair dual technologies, we establish a "Purification · Power Supply · Revitalization" skin repair system, enhancing the skin's intrinsic self-repair ability in three steps.

► External - Intervention-Based Skincare ◀

By directly replenishing skin-identical lipids, we reconstruct the lipid barrier and strengthen skin protection.



Through the combined approach of intervention-based skincare + self-healing skincare, holistic repair inside and out for hydrated, even-toned, smooth, and resilient skin.

Part . 02

「PRODUCT INTRODUCTION」



「PRODUCT INTRODUCTION」

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MATERIALS IN THE WORLD

「ZLEY®PE901-HOLELLIA-PRODUCT INTRODUCTION」

INCI: Camellia Reticulata Seed Oil, Olea Europaea(Olive) Oil Unsaponifiables, Phytosterols, Oryzanol, Tocopherol

ZLEY®PE901-HOLELLIA does not focus on superficial repair but targets the root of skin concerns from point to surface, addressing both symptoms and causes with a holistic approach. By integrating internal and external care through Eastern comprehensive wellness principles, it promotes overall skin self-healing, making the skin more resilient and anti-aging.



Part . 03

「ACTION MECHANISM」



「ACTION MECHANISM」

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MATERIALS IN THE WORLD

「HOLELLIA-COMPONENT EFFICACY ANALYSIS 」

COMPONENT	EFFICACY AND MECHANISM OF ACTION
CAMELLIA RETICULATA SEED OIL	Barrier Repair: Known as "liquid gold" and the "Eastern olive oil," it contains 85% unsaturated fatty acids (including oleic acid, linoleic acid, linolenic acid, and Omega-6), closely resembling human sebum components. It promotes ceramide production, increases epidermal thickness, and strengthens the skin barrier. Antioxidation: Rich in tea polyphenols, vitamin E, and flavonoids, it enhances the activity of antioxidant enzymes SOD, GSH-PX, and CAT, providing powerful oxidative protection. Soothing & Anti-Inflammatory: Inhibits NF-κB and AP-1 signaling, reduces the expression of iNOS and COX-2 genes, and suppresses the production of TNF-α, NO, and PGE2, effectively alleviating inflammation. Anti-Wrinkle: Boosts hydroxyproline activity, increases the proportion of collagen fibers, and promotes collagen synthesis, improving skin elasticity and reducing wrinkles.
PHYTOSTEROLS	Also Known as "Plant Cholesterol": Mimics endogenous lipid cholesterol, filling in missing stratum corneum lipids, forming a liquid crystal structure, and accelerating damage repair. Barrier Repair: Promotes filaggrin production, accelerating skin barrier recovery. Soothing & Anti-Inflammatory: Inhibits NF-κB signaling and reduces TNF-α expression, effectively soothing inflammation. Moisturizing & Hydration: Reduces transepidermal water loss (TEWL), maintains skin surface moisture, and minimizes skin roughness.

「HOLELLIA-COMPONENT EFFICACY ANALYSIS 」

COMPONENT	EFFICACY AND MECHANISM OF ACTION
ORYZANOL	• Barrier Repair: Activates AMPK and PPARα phosphorylation, enhances mitochondrial function, revitalizes cellular energy, and boosts cell vitality. • Antioxidation: Activates the Nrf2 pathway, increases HO-1, NQO1, and GSS protein expression, eliminates excess ROS, and reduces oxidative stress. • Soothing & Anti-Inflammatory: Inhibits NF-κB signaling, reduces pro-inflammatory cytokine expression, and alleviates skin inflammation. • Anti-Photoaging: Exhibits strong UV absorption, effectively protecting the skin from UV-induced damage.
OLEA EUROPAEA(OLIVE) OIL UNSAPONIFIABLES	• Antioxidation: Contains active compounds such as squalene, phytosterols, tocopherol, chlorophyll, triterpenic acids, and polyphenols, inhibiting UV-induced lipid peroxidation and slowing down the skin aging process. • Soothing & Anti-Inflammatory: Inhibits NF-κB signaling, blocks the activation of TNF-α and MCP-1, and mediates the downregulation of COX-2 and iNOS. • Anti-Wrinkle: Inhibits the activity of MMP-1 and elastase, preventing the degradation of the extracellular matrix.
TOCOPHEROL	• Antioxidation: Moisturizing and Hydration

「HOLELLIA- ACTION MECHANISM」

1. Internal – Building a Skin Cell Repair System, Enhancing Skin's Self-Healing Ability in Three Steps

a. Purification

Activates the AMPK signaling pathway, eliminating destructive factors in the skin (e.g., ROS, inflammatory cytokines TNF- α), breaking the oxidative-inflammation-sensitivity vicious cycle, purifying the skin environment, and soothing redness while strengthening the barrier.

Triggers the AMPK energy switch, enhancing mitochondrial function and energizing skin cells.

b. Energy Supply

Boosts ATP production, revitalizing skin cells and accelerating repair processes.

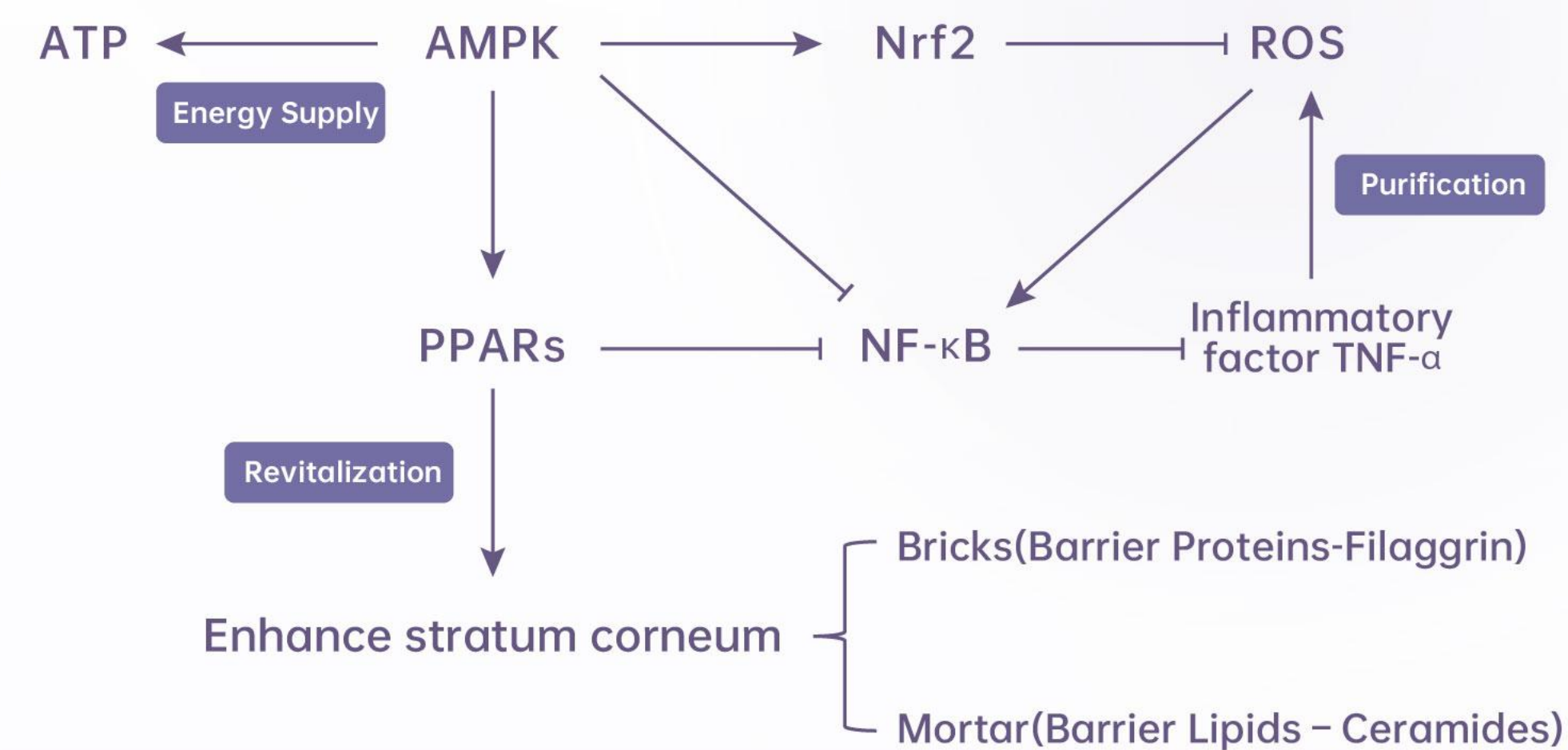
c. Revitalization

Activates the PPARs barrier repair switch, increasing stratum corneum lipids (ceramides) and promoting the synthesis of barrier proteins (filaggrin) to reinforce the "brick and mortar model" structure of the skin barrier.

2. External – Directly Replenishing Skin-Identical Lipids, Rebuilding the Lipid Barrier, and Enhancing Barrier Protection

Rich in oleic acid, linoleic acid, linolenic acid, Omega-6, and plant cholesterol, these high-quality physiological lipids accelerate damage repair and strengthen the skin's protective barrier.

1. Internal – Building a Skin Cell Repair System, Enhancing Skin's Self-Healing Ability in Three Steps



(+)

2. External – Directly Replenishing Skin-Identical Lipids, Rebuilding the Lipid Barrier, and Enhancing Barrier Protection

Holistic repair inside and out for hydrated, even-toned, smooth, and resilient skin.

Part . 04

「EFFICACY EVALUATION」



「EFFICACY EVALUATION」

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「01-30 VOLUNTEERS TESTED」

(MOISTURIZING, SOOTHING, REPAIRING, ANTI-WRINKLE FIRMING)

PHASE	TRADE NAME	INCI NAME	ω / %	SUPPLIER
A	Deionized Water	Aqua	TO 100	—
	Glycerin	Glycerin	3.00	—
	ZEN	Polyacrylate Crosspolymer-6	0.15	—
	AVC	Acryloyldimethyl Taurate/VP Copolymer	0.45	—
	EG-1	Glycereth-26	3.00	—
	HA	Sodium Hyaluronate	0.12	—
	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.50	ZLEY
	1,3-Butanediol	Butylene Glycol	3.00	—
B	Emulsifier SL1	Glyceryl/Inulin Lauryl Carbamate	1.50	—
	Squalane	Squalane	3.00	—
	GTCC	Caprylic/Capric Triglyceride	3.50	—
	VE	Tocopherol	0.20	—
	A165	Glyceryl Stearate (and) PEG-100 Stearate	0.30	—
	ZLEY®PE901-HOLELLIA	Camellia Reticulata Seed Oil, Olea Europaea(Olive) Oil Unsaponifiabiles, Phytosterols, Oryzanol, Tocopherol	2.00	ZLEY

「SAMPLE USED」

2% ZLEY®PE901-HOLELLIA Redness Relief and Repair Lotion

「NUMBER OF VOLUNTEERS」

30 (6 males, 24 females)
Age Range: 18-55 years old

「APPLICATION METHOD」

Twice a day (morning and evening)

「USAGE METHOD」

VISIA Skin Analysis System

*Data sourced from a third-party testing organization.

「01-30 VOLUNTEERS TESTED」

(MOISTURIZING, SOOTHING, REPAIRING, ANTI-WRINKLE FIRMING)

2% ZLEY®PE901-HOLELLIA Redness Relief and Repair Lotion

>>>

30 Volunteers, 0 cases of adverse skin reactions

>>>

ZLEY®HOLELLIA has moisturizing, soothing, repairing, and anti-wrinkle firming effects.

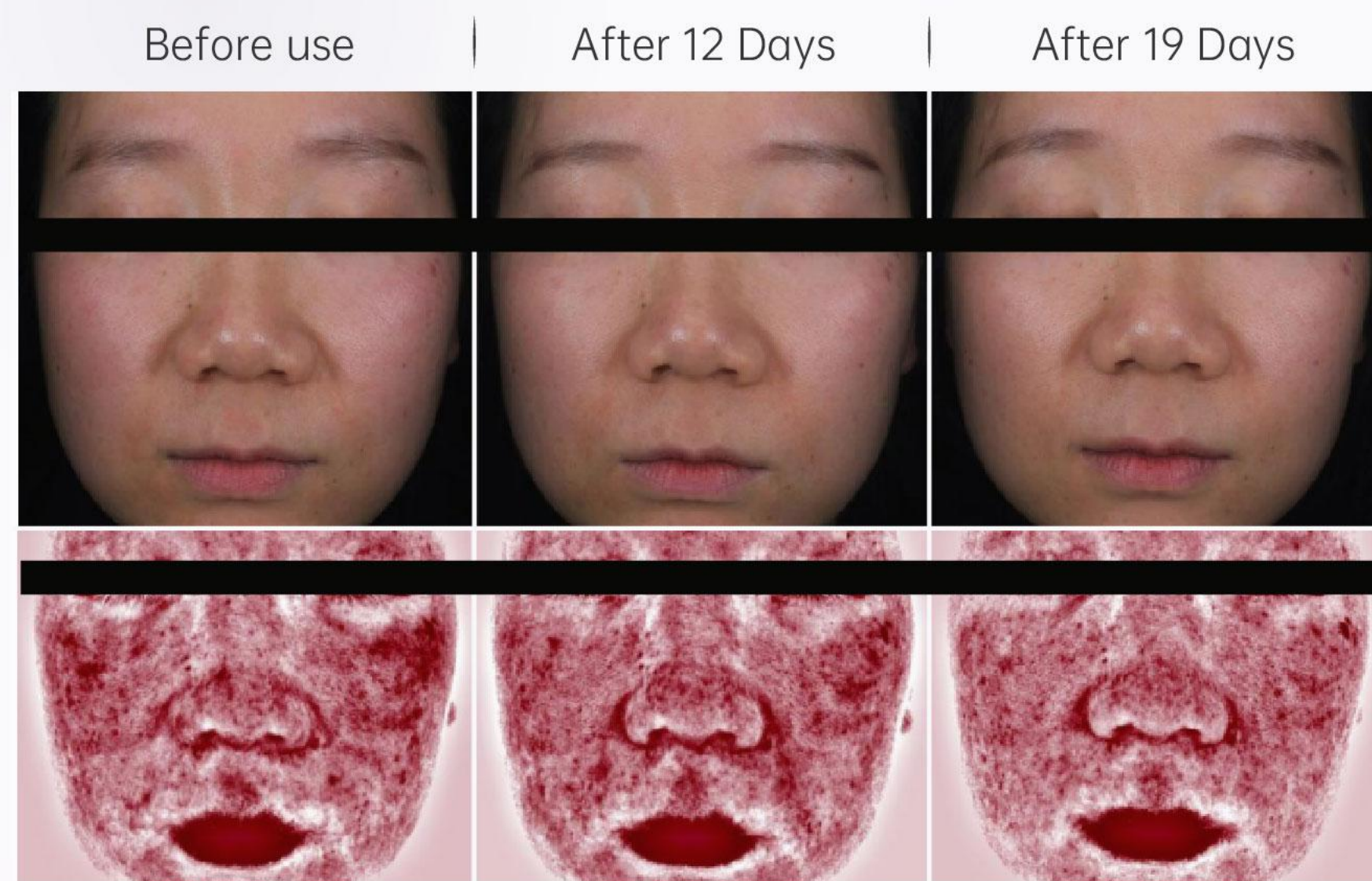
Efficacy	Test Indicators	Usage Period	
		14 days	28 days
Moisturizing	Stratum corneum water content	+35.50%	+58.86%
Repairing	TEWL	/	-19.00%
	Skin pH value	+12.12% (pH value reached between 4.5-5.5)	+23.51% (pH value reached between 4.5-5.5)
Soothing	Volunteer's self-assessment	/	96.67%of volunteers reported that the product has a soothing effect
Firming	Elasticity value (R2)	/	+9.85%
	Firmness value F4	-29.28%	-54.24%

*Data sourced from a third-party testing organization.

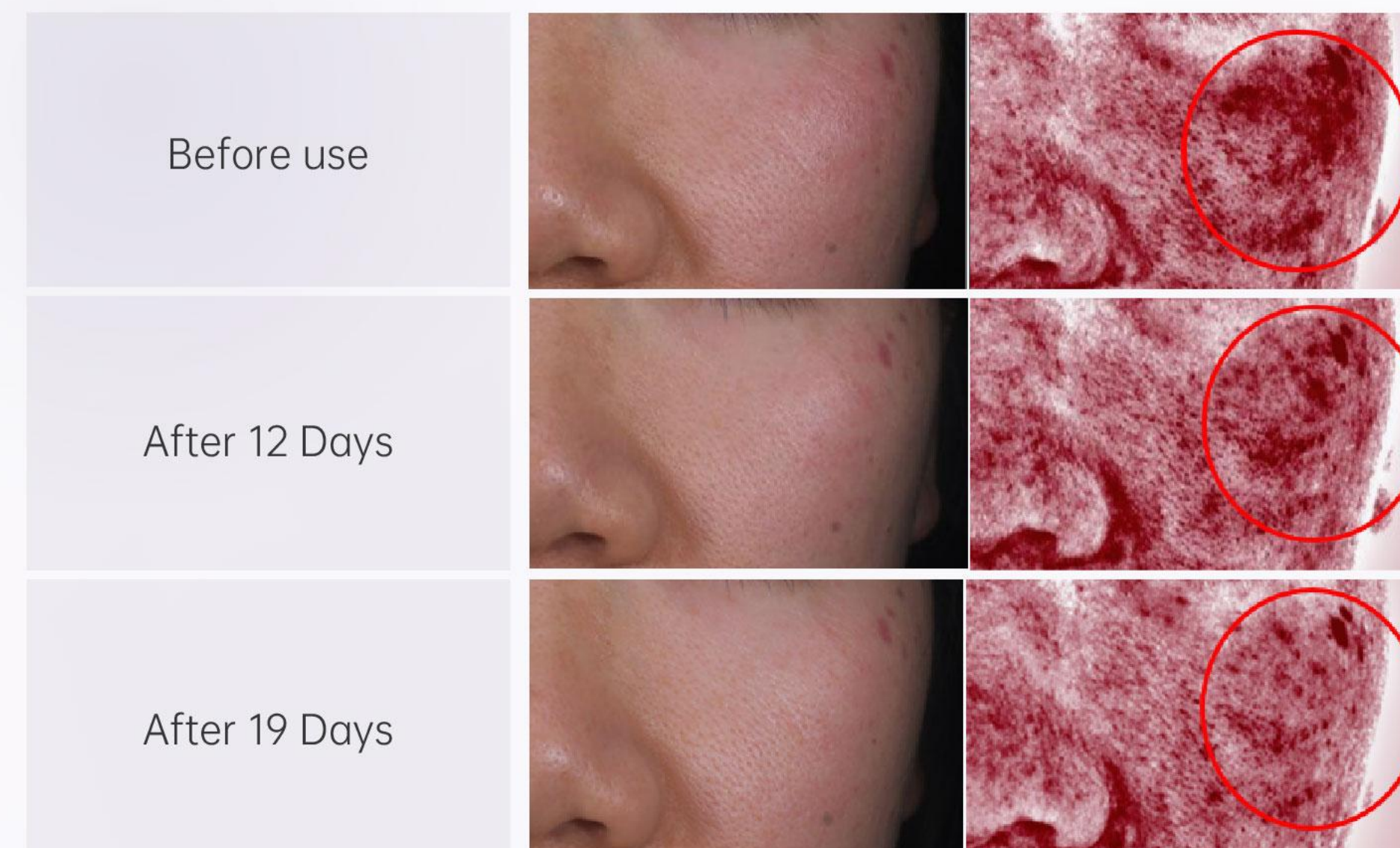
「02-HUMAN EFFICACY」 (12-DAY REDNESS REDUCTION, DEEP REPAIR)

The skin redness index measured by VISIA can indirectly represent the degree of redness on the skin surface. When the skin barrier is damaged, parameters related to skin redness often increase significantly. Volunteers continuously used the 2% ZLEY®HOLELLIA Redness Relief and Repair Lotion, and after 19 days, the skin redness area significantly decreased by 27%, improving the overall redness and sensitivity of the skin, and making the barrier stronger and more resilient.

Comparison of Full-Face Skin Redness Before and After Use



Comparison of Local Skin Redness Before and After Use



「03-CAMELLIA JAPONICA SEED OIL - ANTIOXIDANT」

- 1.The in vitro antioxidant activity of crude camellia Japonica seed oil was determined using the DPPH and ABTS methods.
The IC₅₀ of crude camellia seed oil for DPPH radicals was 24.72 g/L, and for ABTS radicals, it was 12.03 g/L.
2. In a D-galactose-induced subacute skin aging model in mice, the external application of crude camellia Japonica seed oil was used for intervention. Observations were made on the changes in superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GSH-Px), malondialdehyde (MDA), and hydroxyproline (Hyp) levels in the skin tissue of mice, as well as morphological changes in the mouse skin.

2.1 Antioxidant - After the external application of camellia Japonica seed oil, the levels of SOD, CAT, and GSH-Px in the mouse skin significantly increased, while the content of the lipid peroxidation product MDA significantly decreased.

GROUP	APPLICATION DOSE/mg	SOD/(U·mg ⁻¹ ·prot ⁻¹)	GSH-Px/(U·mg ⁻¹ ·prot ⁻¹)	CAT/(U·mg ⁻¹ ·prot ⁻¹)	MDA/(U·mg ⁻¹ ·prot ⁻¹)
Normal Group	—	68.28±5.59	81.74±5.74	4.12±0.26	3.75±0.54
Model Group	—	46.87±6.28	44.50±4.56	2.02±0.36	6.80±0.76
Crude Camellia Japonica Seed Oil	400	54.65±6.72	64.93±6.82	3.06±0.58	4.31±0.31

- ▶ SOD, GSH-Px, and CAT are crucial antioxidant enzymes in the body. Their coordinated action helps maintain the dynamic balance of oxidation and reduction within the organism. The levels of their activity can directly reflect the degree of aging in the body.
- ▶ MDA is a peroxidation product generated when polyunsaturated fatty acids in the human body are attacked by reactive oxygen species. The amount of MDA can be used to determine whether free radicals are in excess and indirectly infer the extent of damage caused by free radicals to the body. Additionally, MDA exhibits certain toxicity.

*Ref: Wang Shuchang, Wu Yani. The Effect of Camellia Japonica Seed Oil on D-Galactose-Induced Subacute Skin Aging in Mice [J]. Detergent & Cosmetics Industry, 2019, 49(5): 8.

「03-CAMELLIA JAPONICA SEED OILS」

2.2、Increase in Epidermal and Dermal Thickness, Barrier Repair

- ▶ After the external application of camellia Japonica seed oil , the epidermis and dermis of the mice remained relatively intact.
- ▶ Compared to the model group, the skin thickness of the mice significantly increased, with the epidermal thickness increasing by approximately73%and the dermal thickness increasing by approximately18%.

FIGURE:H&E STAINING RESULTS

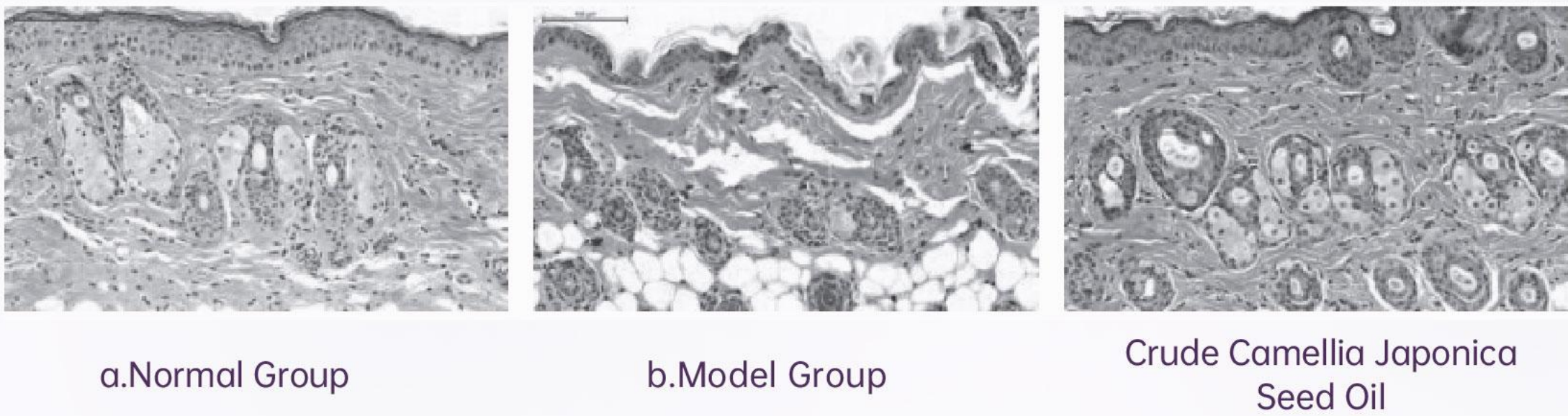


Table: Effect on Skin Thickness in Aging Mice (n=8)

Group	Application Dose/mg	Epidermal Thickness/μm	Dermal Thickness/μm
Normal Group	—	43.96±5.09	316.52±18.14
Model Group	—	24.84±3.87	252.40±33.70
Crude Camellia Japonica Seed Oil	400	42.91±5.10	298.66±20.42

*Ref: Wang Shuchang, Wu Yani. The Effect of Camellia Japonica Seed Oil on D-Galactose-Induced Subacute Skin Aging in Mice [J]. Detergent & Cosmetics Industry, 2019, 49(5): 8.

「03-CAMELLIA JAPONICA SEED OILS」

2.3 Anti-Wrinkle and Firming

- ▶ (Table 1): Compared to the model group, the hydroxyproline (Hyp) content in the skin of mice in the crude camellia seed Japonica oil group significantly increased by 51%.
- ▶ (Figure 1, Table 2): Compared to the model group, the number of collagen fibers in the crude camellia Japonica seed oil group increased by approximately 41%, with a more compact arrangement.

Table 1: Detection results of Hyp content in mouse skin (n=8)		
Group	Application Dose /mg	Hyp Content (mg/g)
Normal Group	—	3.56±0.47
Model Group	—	1.99±0.28
Crude Camellia Japonica Seed Oil	400	3.02±0.41

The Hyp content in the skin can reflect the amount of collagen, thereby indicating the degree of skin aging.

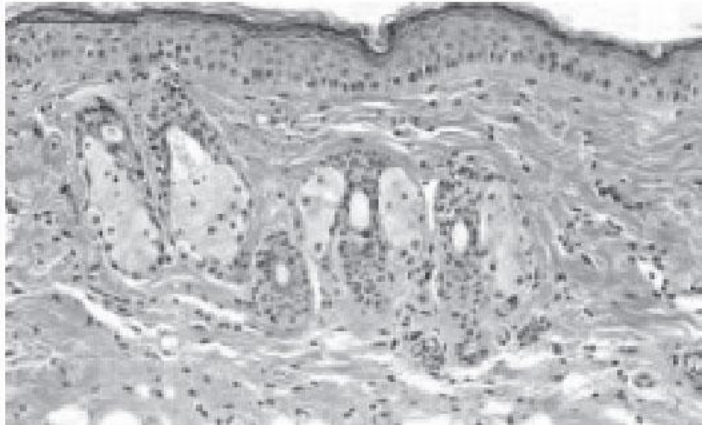
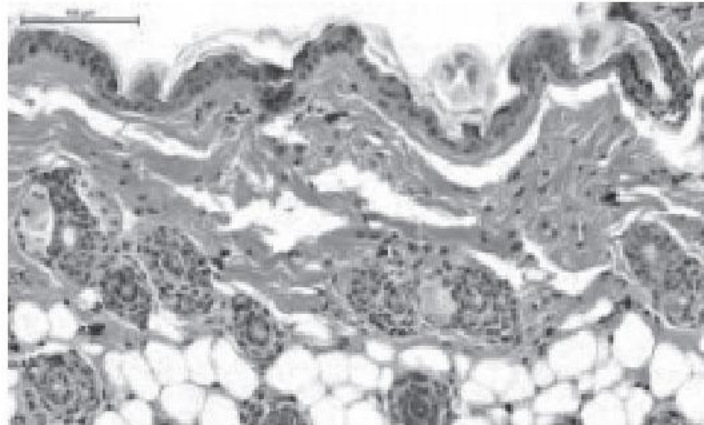
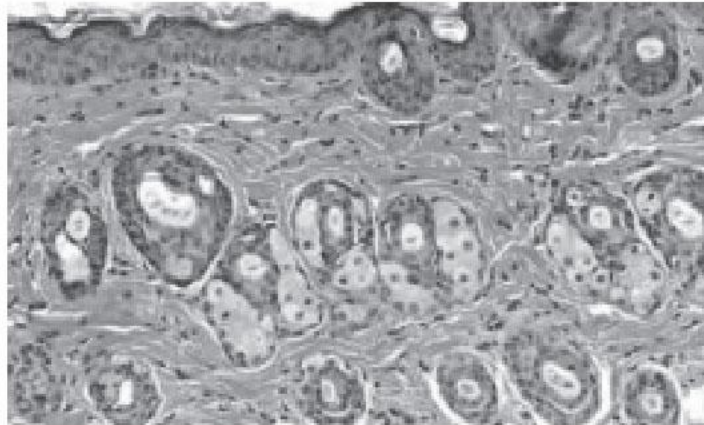
Figure 1: Masson Staining Results		
		
a.Normal Group	b.Model Group	c.Crude Camellia Japonica Seed Oil

Table 2: Effect on Collagen Fiber Ratio in the Skin of Aging Mice (n=8)		
Group	Application Dose /mg	Collagen Fiber Ratio/%
Normal Group	—	70.19±3.89
Model Group	—	45.01±8.89
Crude Camellia Japonica Seed Oil	400	63.34±3.89

「03-CAMELLIA JAPONICA SEED OILS」

3. Soothing and Anti-Inflammatory

Camellia Japonica seed oil (CJ oil) inhibits the NF-κB and AP-1 signaling pathways, reduces the gene expression of iNOS and COX-2, and suppresses the expression of TNF-α, NO, and PGE₂:

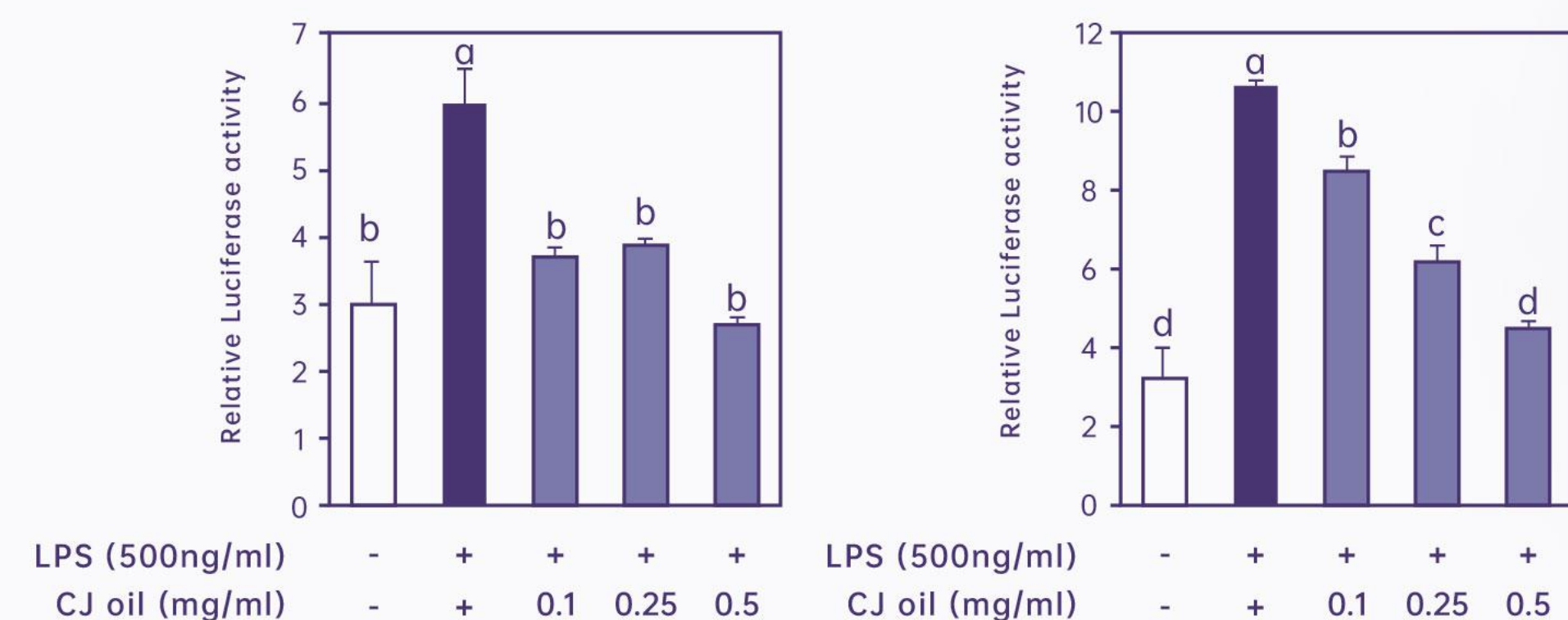


Figure a: Inhibition of AP-1

Figure b: Inhibition of NF-κB

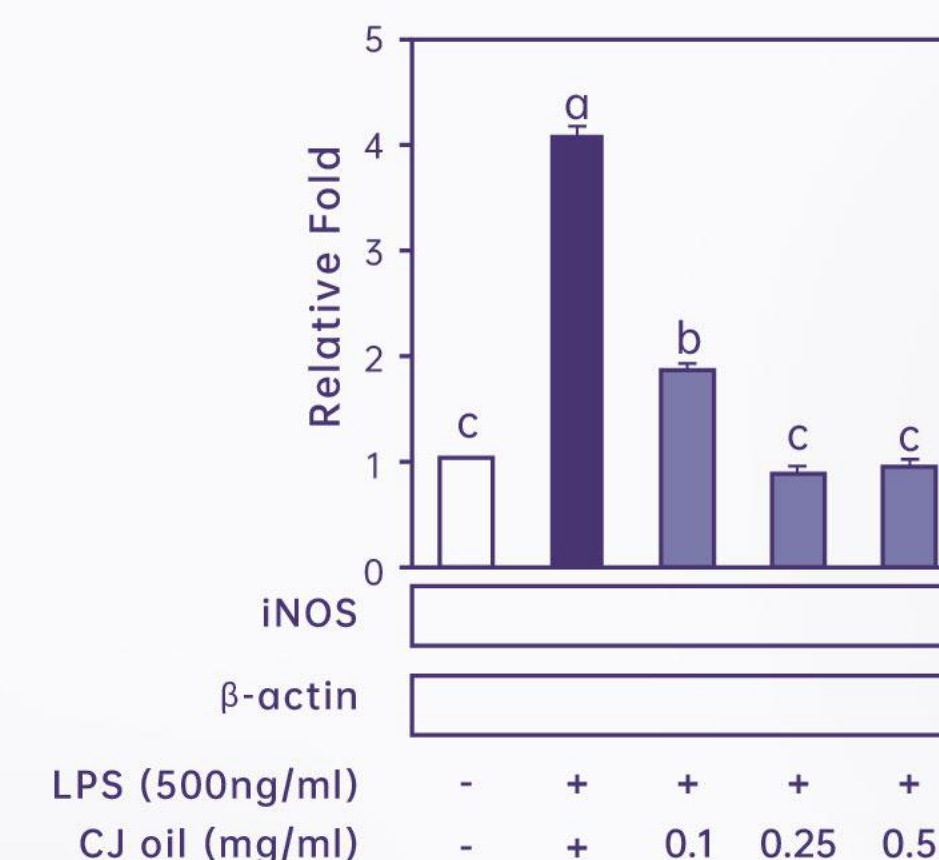


Figure c: Inhibition of iNOS

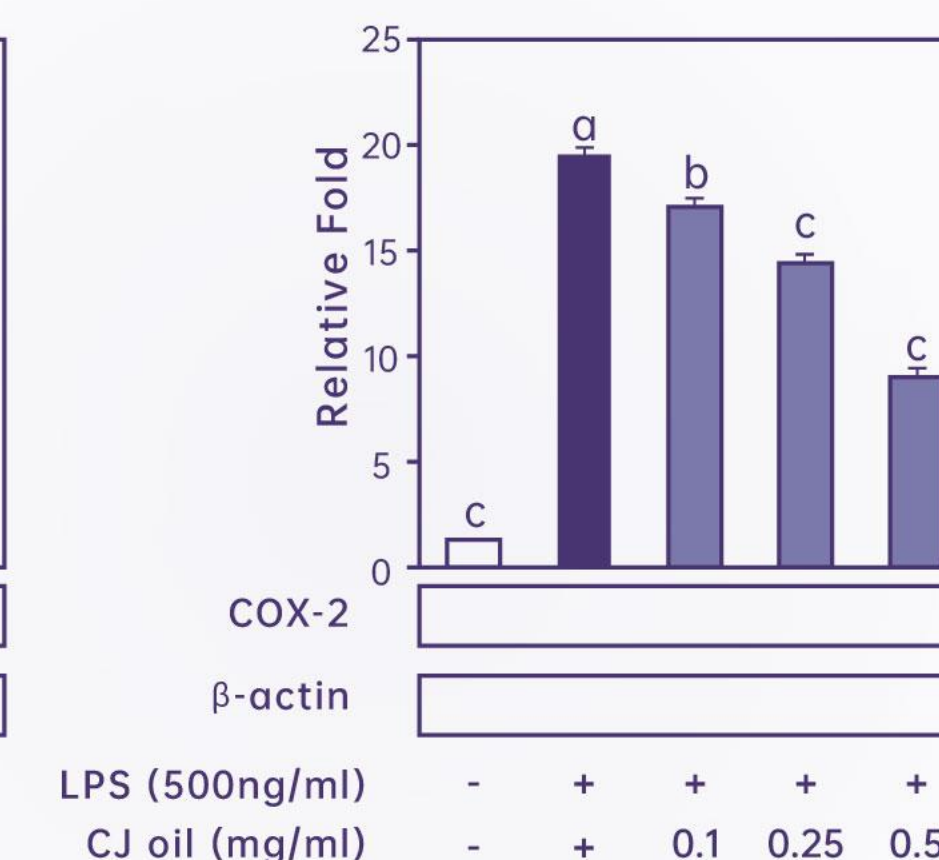


Figure d: Inhibition of COX-2

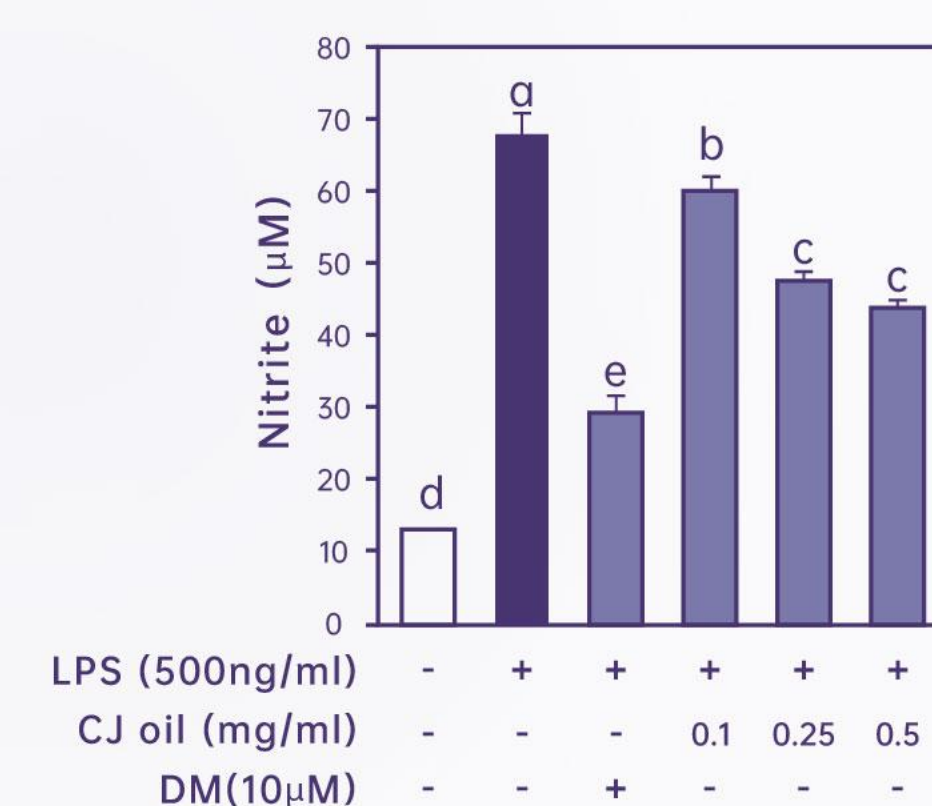


Figure e: Inhibition of NO

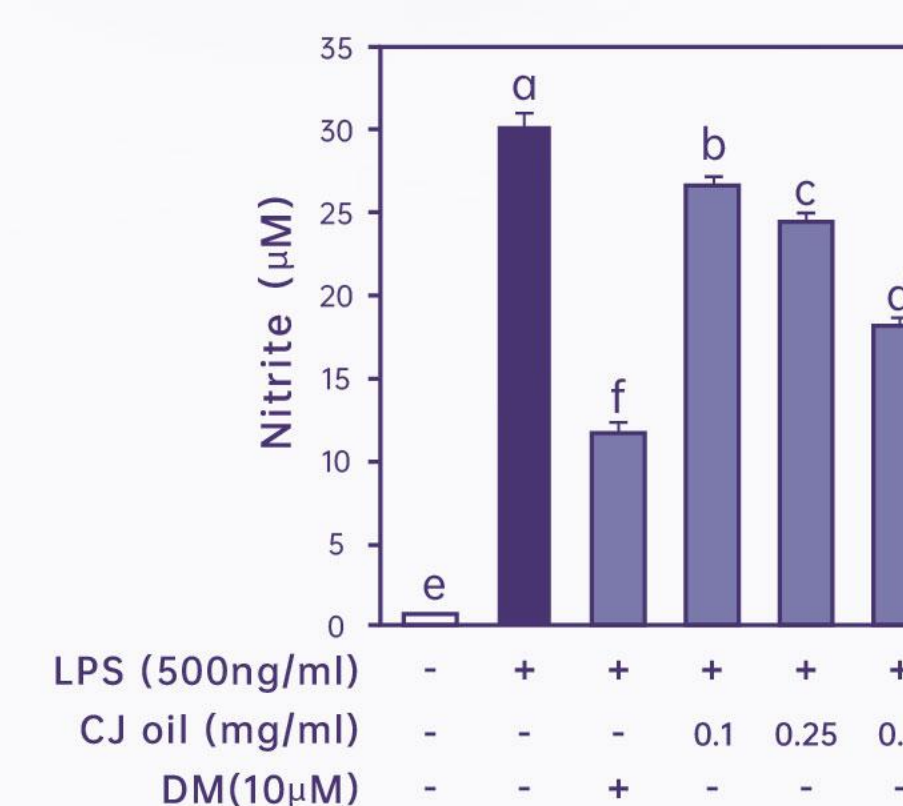


Figure f: Inhibition PGE₂

04 - PHYTOSTEROLS - INHIBITING TNF- α EXPRESSION AND PROMOTING FLG EXPRESSION

By observing the effects of phytosterol esters (PE) on the inflammatory factor (TNF- α) and barrier-related protein (filaggrin, FLG) in a human 3D skin model stimulated by sodium lauryl sulfate (SLS), the mechanism of PE in improving skin barrier function was explored.

Soothing and Anti-Inflammatory : Figure 1 shows that when the mass fraction of PE is $\geq 1\%$, it significantly inhibits TNF- α levels, improving skin inflammation.

Barrier Repair : Figures 2a and 2b show that when the mass fraction of PE is $\geq 1\%$, it promotes FLG expression, enhancing skin barrier function.

Figure 1: Effect of Different Mass Fractions of PE on TNF- α Levels in Epidermal Skin Models.

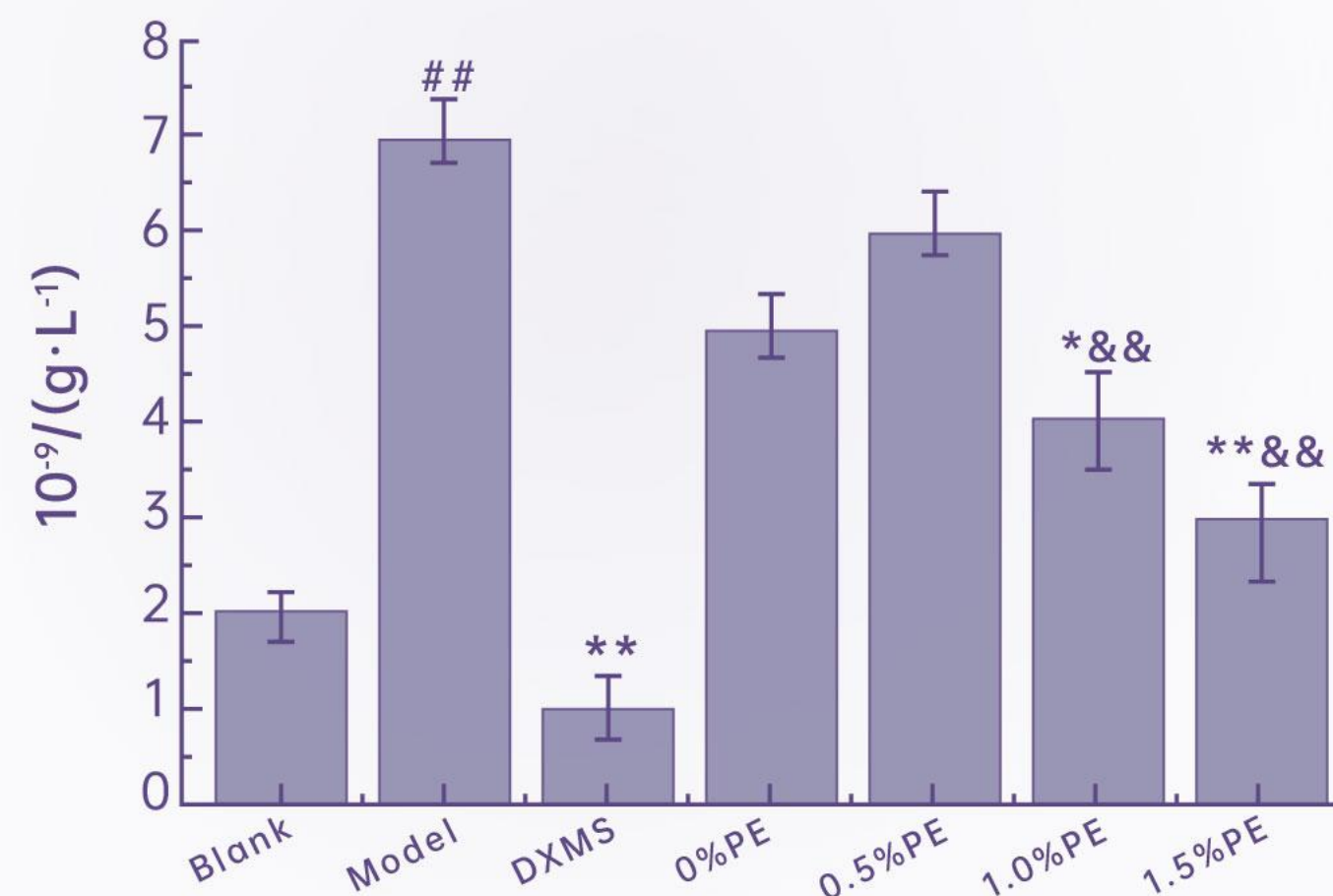
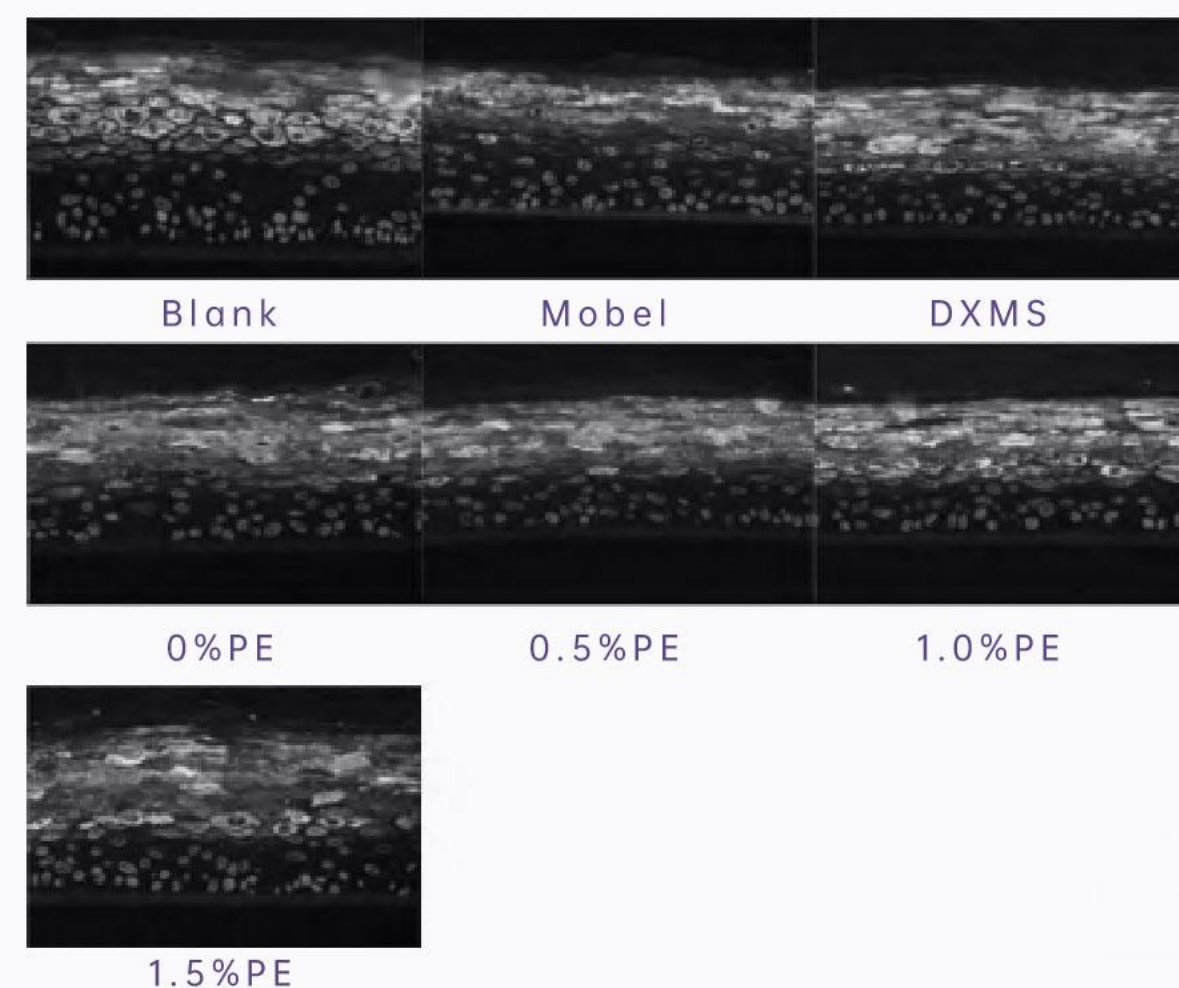
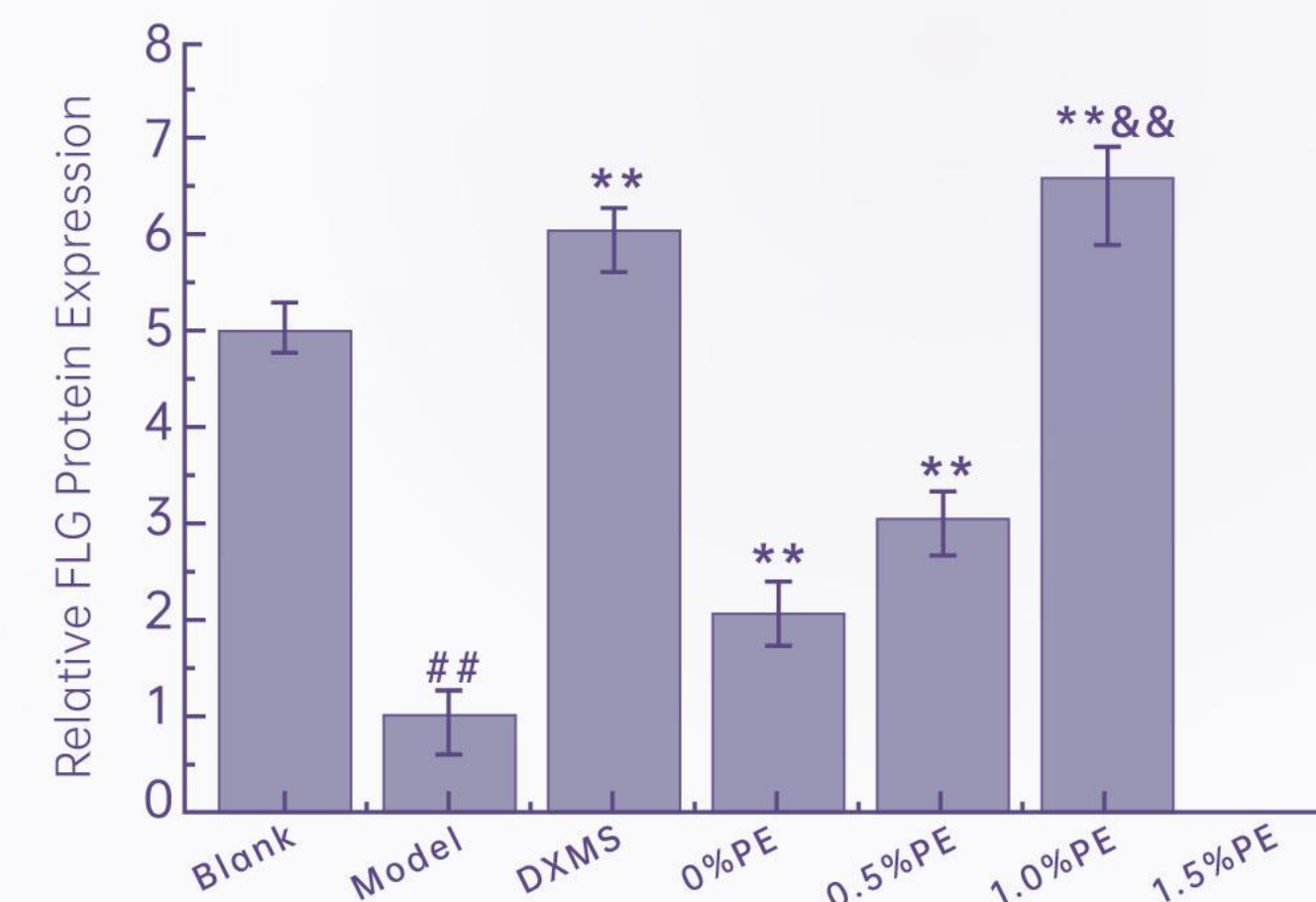


Figure 2: Effect of Different Mass Fractions of PE on FLG Expression in Epidermal Skin Models



(a) Immunofluorescence Test Data

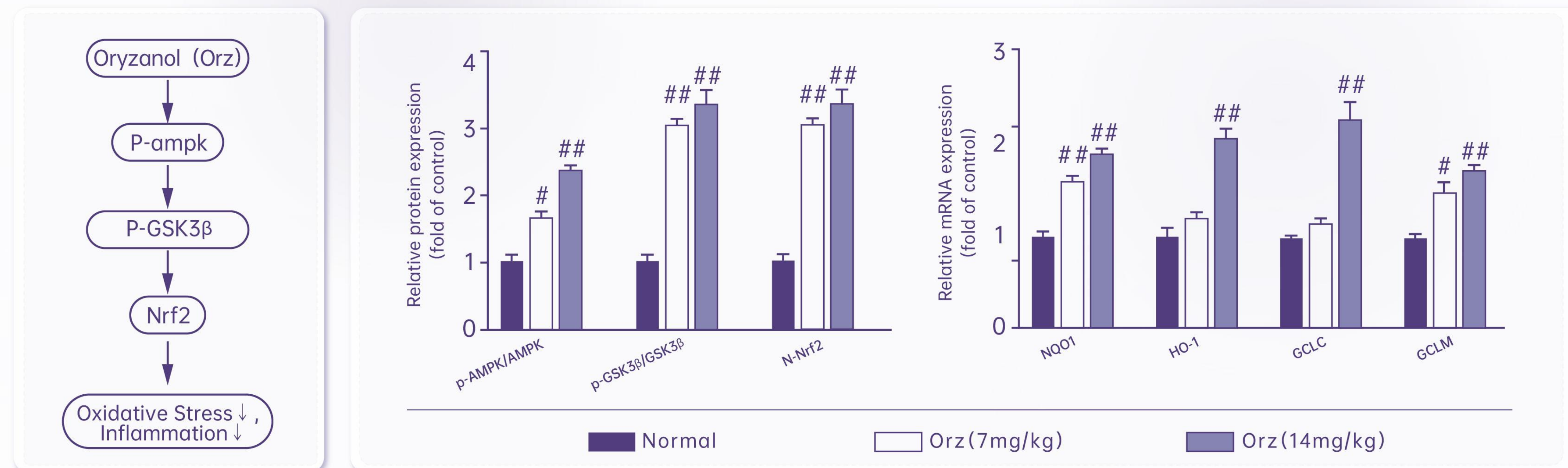


(b) Optical Density Analysis of FLG Protein Expression

05-ORYZANOL - REGULATING THE AMPK/GSK3 β /NRF2 SIGNALING PATHWAY

Gamma-Oryzanol (Orz), also known as "beauty vitamin," is found in rice bran oil and is a group of esterified compounds composed of ferulic acid and triterpene plant sterols.

1. Dual Anti-Oxidative and Anti-Inflammatory Effects: Gamma-Oryzanol regulates the AMPK/GSK3 β /Nrf2 signaling pathway, upregulates the expression of antioxidant genes (HO-1, NQO1, GCLC, GCLM), thereby inhibiting oxidative stress and reducing inflammatory responses.



05 -ORYZANOL- REGULATING THE AMPK/GSK3β/NRF2 SIGNAL-ING PATHWAY

Barrier Repair:

Activates the Skin Barrier Repair Switch PPARs, Promotes Barrier Lipid Synthesis, Enhances Skin's Self-Healing Ability, and Strengthens Skin Barrier Structure

Figure 1: Oryzanol (Orz) activates PPARα expression, promoting barrier lipid synthesis.^[1]

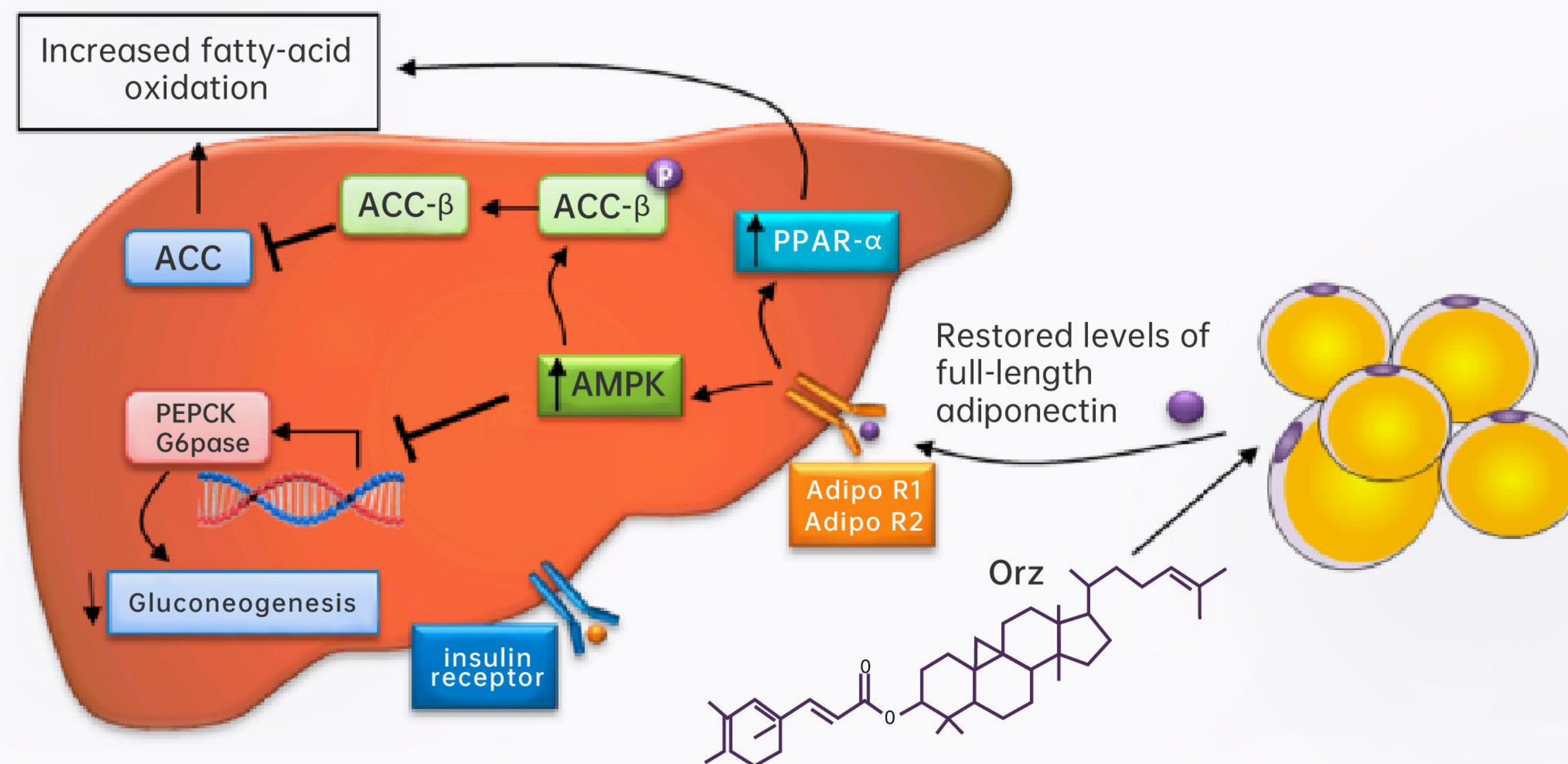
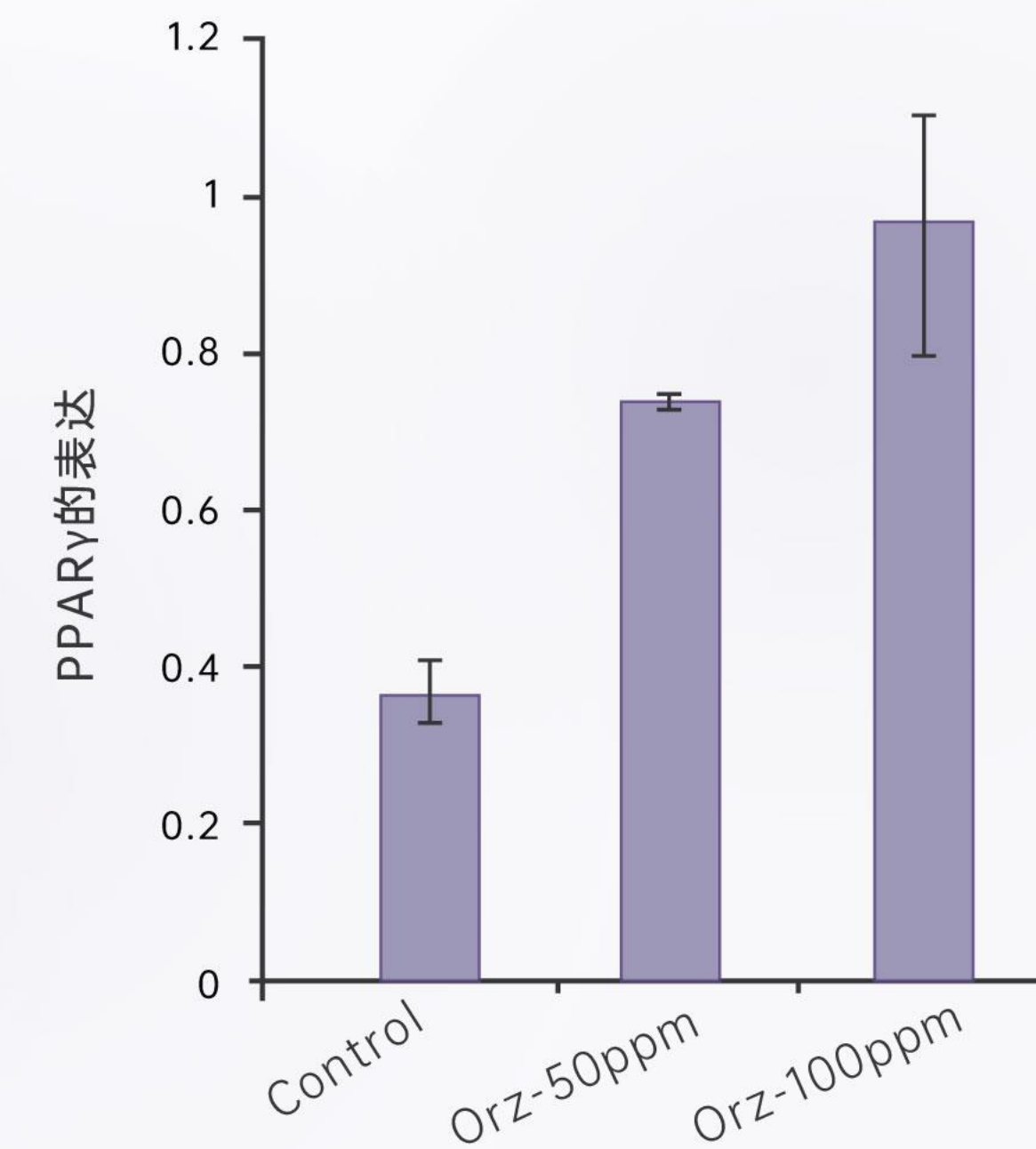


Figure 2: Oryzanol (Orz) enhances PPARγ expression.^[2]



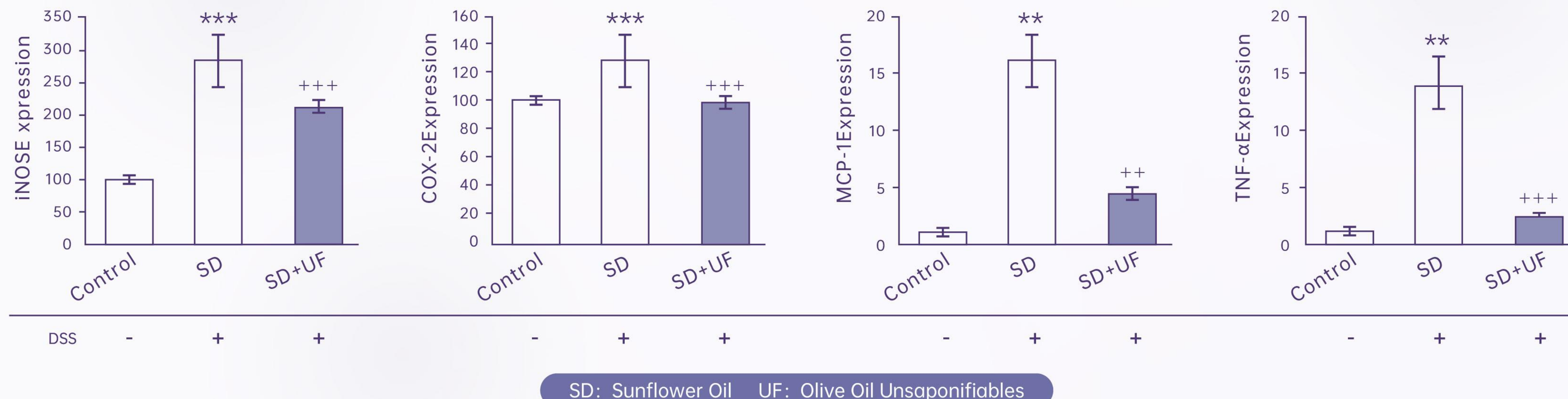
*Ref1: Antioxidant Activity of γ-Oryzanol: A Complex Network of Interactions. Int J Mol Sci. 2016 Aug 9;17(8):1107.

*Ref2: Effects of germinated brown rice and its bioactive compounds on the expression of the peroxisome proliferator-activated receptor gamma gene.

06 - OLIVE OIL UNSAPONIFIABLES - SOOTHING AND ANTI-INFLAMMATORY

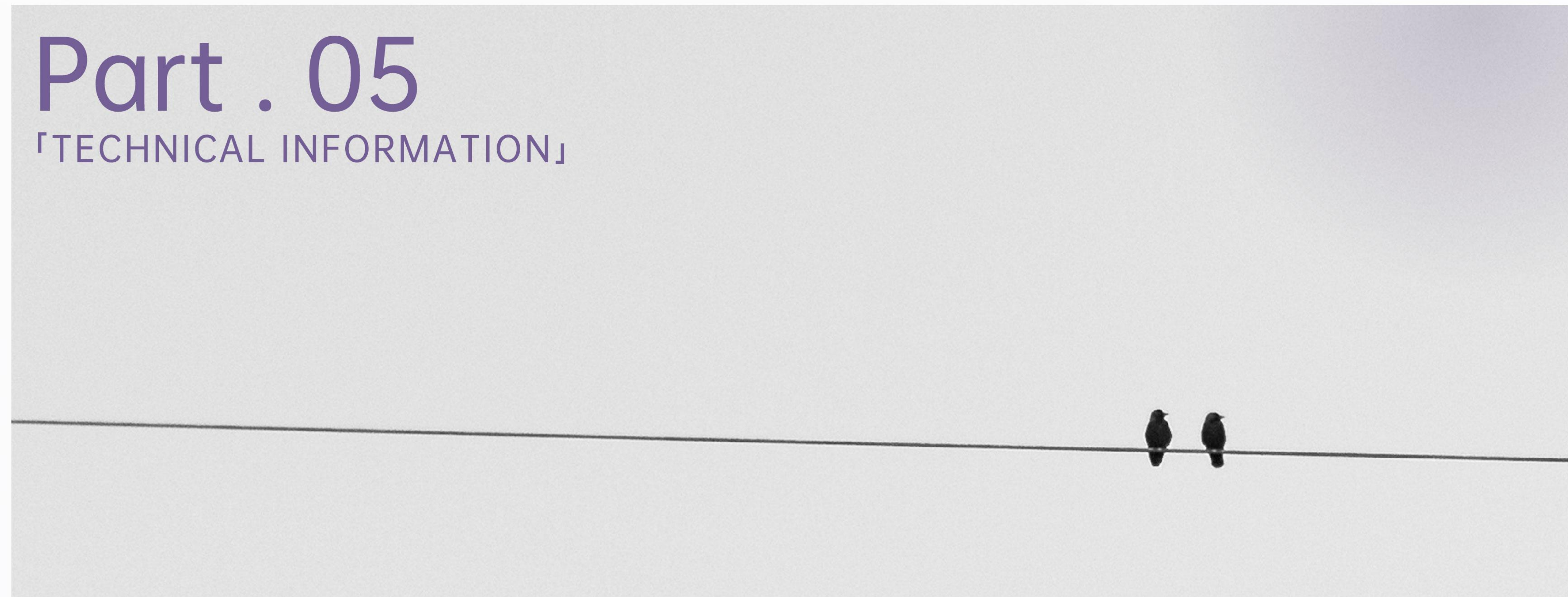
Olive (*Olea europaea*) oil unsaponifiables contain active compounds such as squalene, phytosterols, tocopherols, chlorophyll, triterpenic acids, and polyphenols. The effect of olive oil unsaponifiables on the expression of inflammatory factors induced by DSS (dextran sodium sulfate) was examined to explore its mechanism of action on skin inflammation.

Soothing and Anti-Inflammatory: Inhibits NF- κ B signaling, blocks the activation of TNF- α and MCP-1, and mediates the downregulation of COX-2 and iNOS.



Part . 05

「TECHNICAL INFORMATION」



「TECHNICAL INFORMATION」

ZLEY HOLDINGS | FOCUS ON MAKING PREMIUM QUALITY RAW
MATERIALS IN THE WORLD



「PRODUCT INFORMATION」

TRADE NAME	ZLEY®PE901-HOLELLIA
INCI NAME	CAMELLIA RETICULATA SEED OIL, OLEA EUROPAEA(OLIVE) OIL UNSAPONIFIABLES, PHYTOSTEROLS, ORYZANOL, TOCOPHEROL
CAS NO.	223748-13-8、68476-80-2、11042-64-1、156798-12-8、2074-53-5
SAFETY RISK	None(Data sourced from EWG, BEBD)
APPEARANCE	Semi-transparent gel-like paste with a characteristic raw material aroma.
RECOMMENDED DOSAGE	0.5~3.0%
SOLUBILITY	Oil-soluble
PROCESSING METHOD	Oil-soluble, participates in emulsification
PRODUCT EFFICACY	Soothing and repairing, Anti-wrinkle and firming, Moisturizing and hydrating



「PRODUCT CLAIMS」



「Exterior - Biomimetic Lipid Supplementation」:

- ▶ Directly replenishes skin with homologous lipids, builds a lipid barrier, and enhances barrier protection.

「Interior - 3 Steps to Boost Skin's Self-Healing Power」:

- ▶ Innovative dual-technology of "AMPK Cell Energizing & PPARs Barrier Self-Repair"
- ▶ Establishes a skin repair system of "Purification, Energization, and Activation"
- ▶ Three steps to enhance the skin's self-healing power.

「FORMULA GUIDELINES」

PHASE	TRADE NAME	INCI NAME	ω / %	SUPPLIER
A	Deionized Water	Aqua	TO 100	—
	Glycerin	Glycerin	3.00	—
	ZEN	Polyacrylate Crosspolymer-6	0.15	—
	AVC	Acryloyldimethyl Taurate/VP Copolymer	0.45	—
	EG-1	Glycereth-26	3.00	—
	HA	Sodium Hyaluronate	0.12	—
	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.50	ZLEY
	1,3-Butanediol	Butylene Glycol	3.00	—
B	Emulsifier SL1	Glyceryl/Inulin Lauryl Carbamate	1.50	—
	Squalane	Squalane	3.00	—
	GTCC	Caprylic/Capric Triglyceride	3.50	—
	VE	Tocopherol	0.20	—
	A165	Glyceryl Stearate (and) PEG-100 Stearate	0.30	—
	ZLEY®HOLELLIA	Camellia Reticulata Seed Oil, Olea Europaea(Olive) Oil	2.00	ZLEY
		Unsaponifiables, Phytosterols, Oryzanol, Tocopherol		

「FORMULA NAME」

Redness Relief and Repair Lotion

「FORMULA NUMBER」 : T24012503

「EFFICACY POSITIONING」

Soothing, Redness- relief and Repairing

「APPEARANCE」 : Milky White Essence

「PH(10%SOL.)」 : 6.56

「μ/MPA.S (25°C)」: 7656/3#12R

「MANUFACTURING PROCESS」

- 1.Accurately weigh Phase A and heat in an 80°C water bath. Homogenize quickly until uniform.
- 2.Accurately weigh Phase B and heat to 70-80°C until completely dissolved.
- 3.Pour Phase B into Phase A, homogenize for 5-10 minutes, stir while cooling, and discharge.

*Data sourced from a third-party testing organization.

ZLEY GROUP

[INNOVATIVE ELEMENTS TO AMELIORATE LIFE]

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