



INNOVATIVE ELEMENTS TO AMELIORATE LIFE



ZLEY-PE701

– COBURRHY –

Brightening

Redness Relief

Anti-Dark Spots

Effectively against "Dark, Red, Yellow, and Dull" skin tones



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

「THE DEMAND FOR WHITENING HAS EXISTED SINCE ANCIENT TIMES」

SPRING AND AUTUMN PERIOD AND WARRING STATES PERIOD

As early as the Warring States Period, women began to apply white powder to their faces, marking the earliest attempts at whitening in Chinese history.



Main ingredients: Natural materials such as rice powder.

COVERING WHITENING

QIN AND HAN DYNASTIES

Some metallic ingredients were used as whitening agents, but they had significant side effects. Long-term use could cause "rotten face" and even poisoning.



Main ingredients: Chemical materials such as lead powder and mercury.

LIFE-THREATENING WHITENING

TANG AND SONG DYNASTIES

In addition to simple physical coverage, some functional whitening face mask formulas began to appear, making the skin glossy and moisturized.



Main ingredients: Motherwort, peach blossom powder mixed with black-bone chicken blood, etc.

FORMULA-BASED WHITENING

MING AND QING DYNASTIES

Internal regulation began to receive attention, and some nutritious and beautifying herbal formulas gradually became popular, such as pearl powder (for oral and topical use).



Main ingredients: Derived from flowers and Chinese herbs (such as Sanbai Decoction).

ORAL WHITENING

THE ITERATION OF WHITENING 1.0~4.0



4 SKIN TONES PROBLEMS

THE PATH TO WHITENING IS LONG AND ARDUOUS

Overtime/late nights/sweets/improper sun protection/emotional stress/electronic radiation/environmental pollution...



"Skin Dangers Lurk, Whitening Journey Frequently Blocked"



Dark

Pigmentation



Red

Red acne spots



Yellow

Yellowish aging

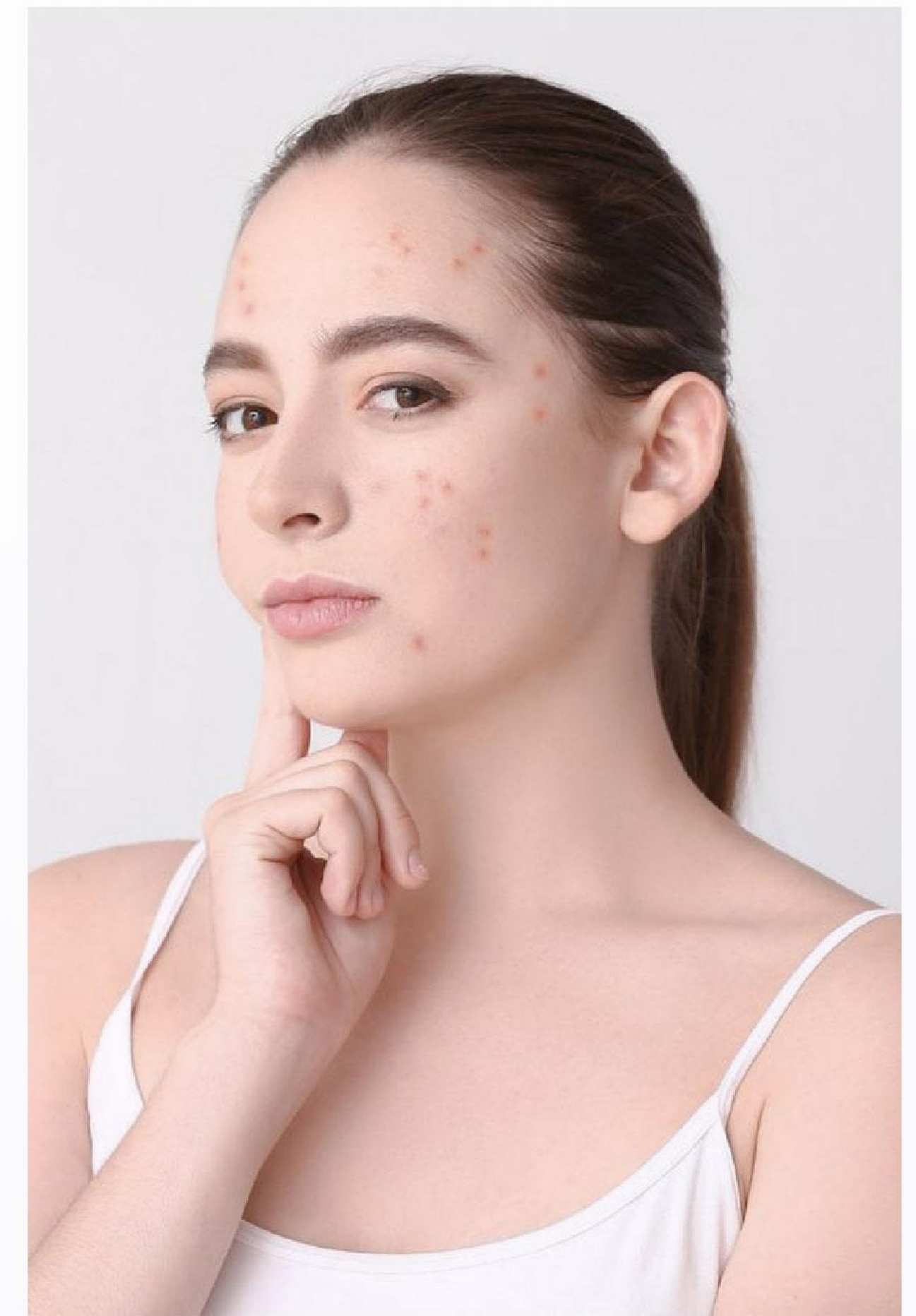


Dull

Dull and rough skin



Do you want healthy, even, bright, and glowing skin?





PRODUCT DEVELOPMENT CONCEPT

The ZLEY R&D team, based on research on Oriental skin types, combined with current market and consumer demand insights for whitening products, analyzed the whitening mechanisms of the four dimensions: dark, red, yellow, and dull. Breaking through traditional whitening concepts, they proposed new ideas for healthy whitening, scientific whitening, efficient whitening, and safe whitening. **We launched the ZLEY®PE701-COBURRHY.**

Specializing in the research of sparganium stoloniferum brightening plant extracts, it unlocks the skin's glowing potential in multiple dimensions with a scientific approach of **"1 Brightening, 2 Redness Soothing, 3 Anti-Darkness."** This revolutionary approach deciphers the Four Skin Tones Problems: Dark, red, yellow, and dull.

The skin reveals a crystal-clear glow, naturally becoming more good-looking while maintaining skin health.

Part . 02

「PRODUCT INTRODUCTION」



「PRODUCT INTRODUCTION」

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

「THE PAST AND PRESENT OF SPARGANIUM STOLONIFERIUM PLANT」



1. First recorded in the Tang Dynasty's "Supplement to Materia Medica," it has been used for over 1250 years^[1];
2. It has the effects of promoting blood circulation, relieving pain, and is a commonly used traditional Chinese medicine for activating blood and resolving stasis^[1];
3. It has excellent adaptability and strong resistance to adversity, thriving in cold mountain peaks. To adapt to the harsh mountain environment, it increases the activity of antioxidant enzymes in the body, loaded with energy to counteract adverse environmental stress^[2~3];
4. It gathers its innate magical brightening ability.
Through the changing seasons and day-night cycles, it accumulates high-activity molecules such as sparstolonin, flavonoids, polyphenols, and polysaccharides, concentrating powerful whitening and skincare energy. It promotes dual resistance to oxidation and glycation, soothes redness and dullness, blocks melanin at the source, and achieves even, translucent, and bright skin layer by layer.



「Sparganium stoloniferum plant」

[1]Data sourced from Baidu Encyclopedia

[2]Chen Guangyun, Study on the Impact of Eutrophic Water on the Quality of Sparganium Stoloniferum. [D]. Nanjing University of Chinese Medicine, 2013.

[3]Li Zhenguo, Li Qiang, Song Yan, et al. Analysis of Peroxidase on the Growth and Development of Sparganium Stoloniferum Seedlings under Different Water Depths [J]. Seed Science and Technology, 2017, 35(08): 132-134.

PRODUCT INTRODUCTION OF ZLEY®PE701-COBURRHY



ZLEY®PE701-COBURRHY is composed of Sparganium Stoloniferum Extract and Pentylene Glycol.

Scientific - Utilizing directional temperature-controlled extraction technology, with 11 specialized processes and 168 hours of meticulous refinement, the actives of Sparganium Stoloniferum is extracted in the dark, ultimately concentrating the essence 70 times^[1]. Each drop is pure and highly active.

Powerful - Rich in strong brightening energy, following the scientific approach of "1 Brightening, 2 Redness Soothing, 3 Anti-darkness," it revolutionarily deciphers the four skin tones problems: red, dark, yellow, and dull. It not only whitens and fades spots but also makes the skin more delicate, and glowing.



**Directional Temperature-Controlled Extraction
Technology**

**Extracting the the actives of Sparganium
Stoloniferum in the dark**

Each drop is pure and highly active

11

Specialized processes

168 hours

Meticulous refining

70 times

Concentrated essence

*^[1]ZLEY internal data.

MECHANISM OF ACTION OF COBURRHY

1. Brightening

Antioxidation: Inhibits the generation of reactive oxygen species (ROS), removes excess free radicals, prevents the oxidation of skin sebum, and reduces yellowing.

Anti-glycation: Inhibits the formation of advanced glycation end-products (AGEs), reduces glycation reactions, and brightens the skin.

2. Redness Soothing

Targeting HMGB1 to Inhibit Photo-damage:

Inhibits UV-induced HMGB1 expression, down-regulates the NF-KB signaling pathway, suppresses the production of inflammatory cytokine TNF- α , reduces inflammatory responses, mitigates skin photo-damage, and soothes redness, darkness, and sensitivity

3. Anti-darkness

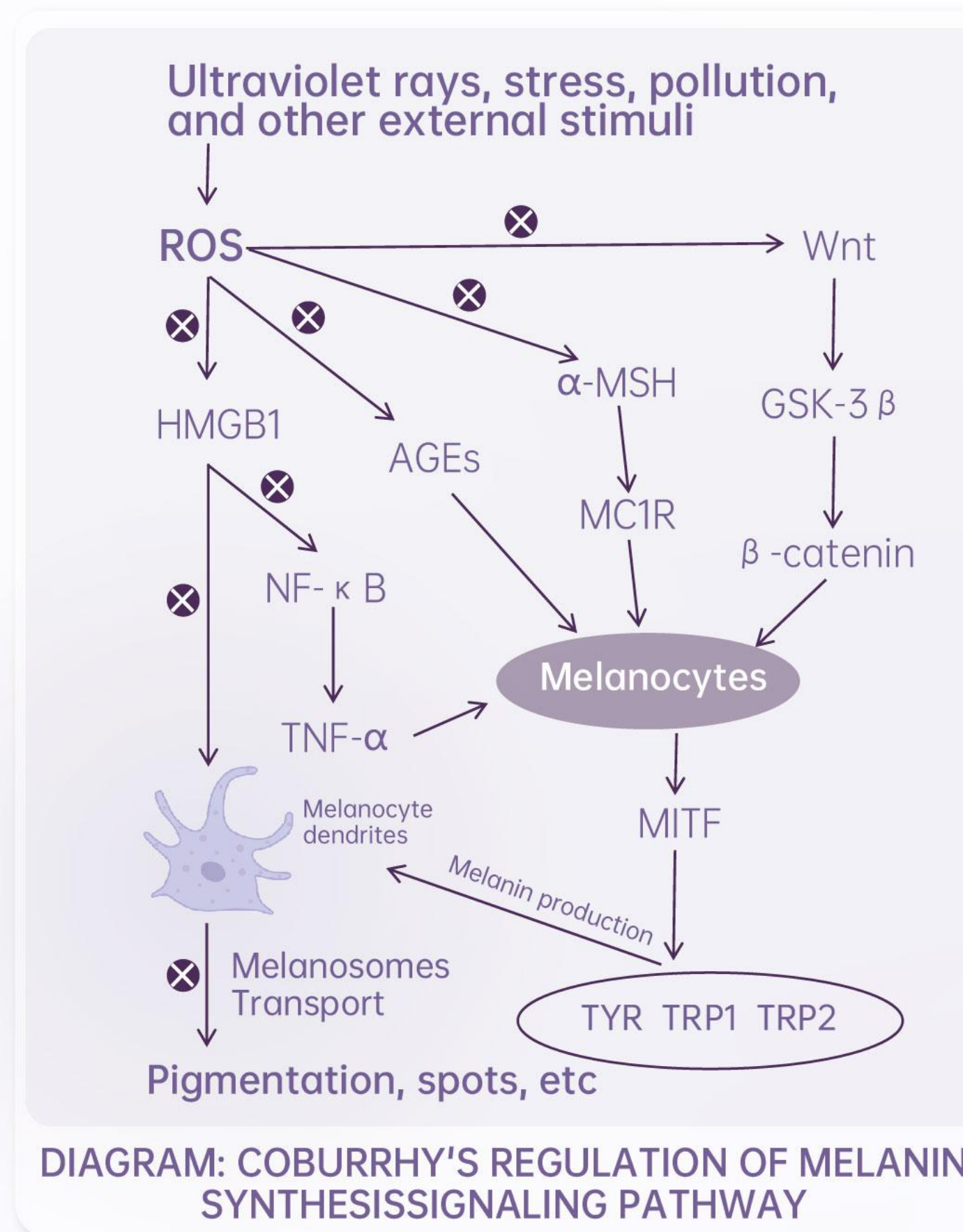
Upstream:

Inhibits the activation of the MC1R/ α -MSH signaling pathway: Intercepts the expression of the darkening signal α -MSH at the source, preventing darkening in advance.

Blocks the activation of the Wnt/ β -catenin signaling pathway: Inhibits the expression of the key gene β -catenin in melanin production through the Wnt signaling pathway.

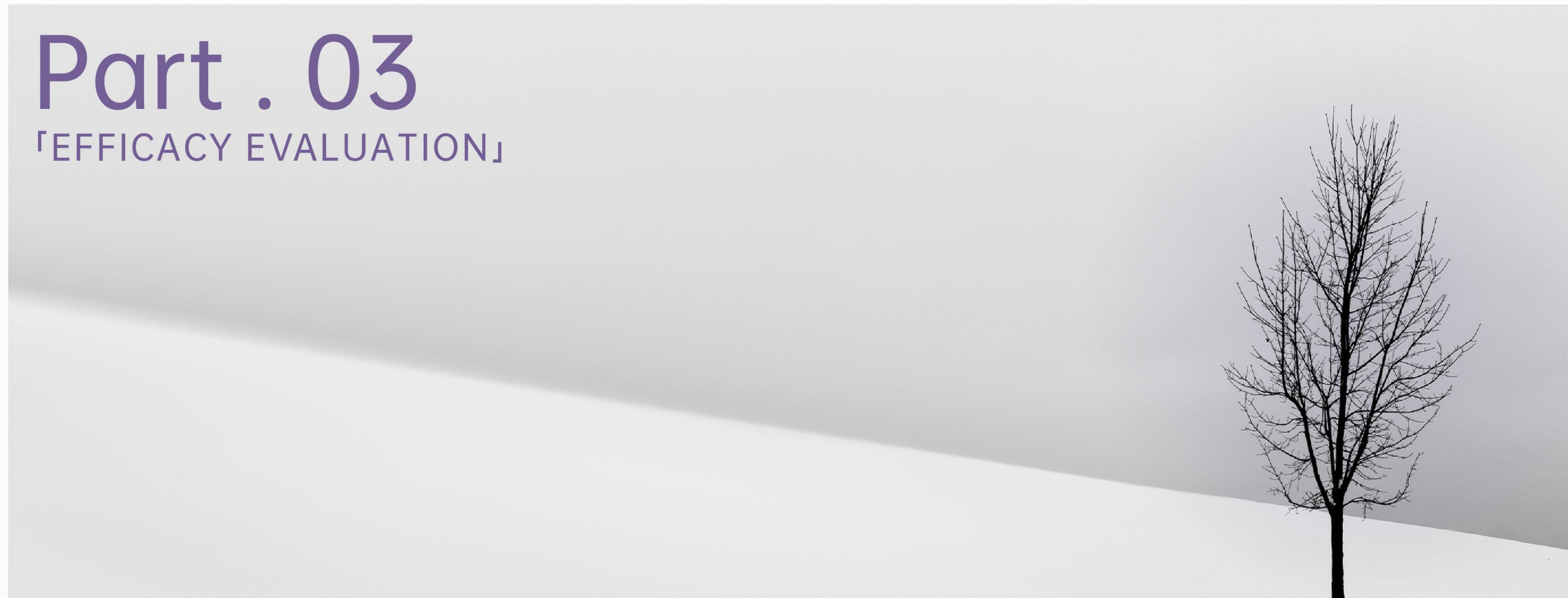
Downstream:

Maintains melanocyte homeostasis, blocks the formation of melanosome dendrites, and inhibits melanosome transport: Inhibits the expression of HMGB1 under stress, preventing the transport of melanosomes from dendrites to the stratum corneum, effectively stopping darkening at the root.



Part . 03

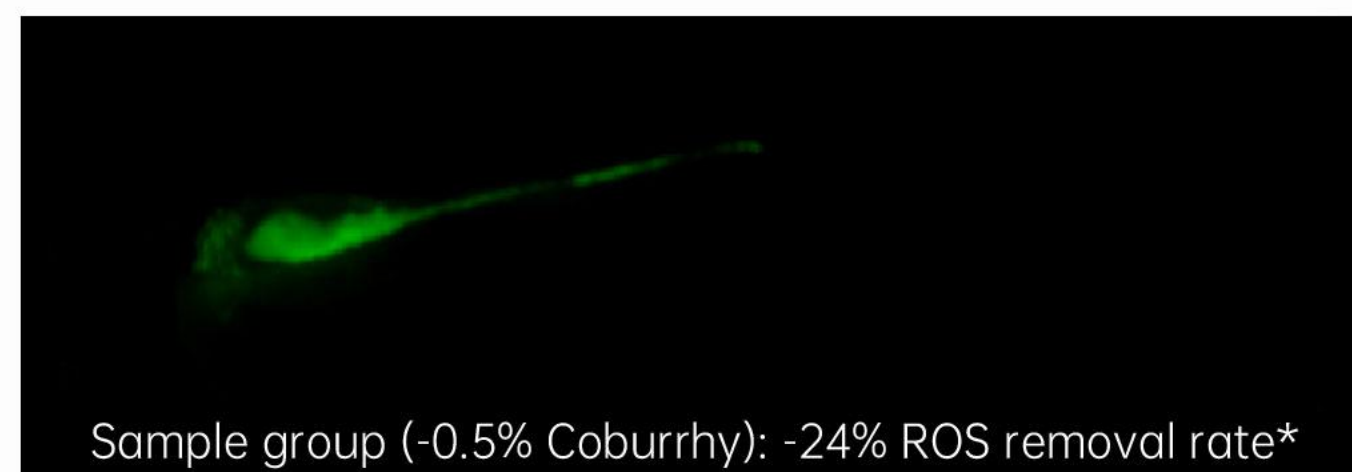
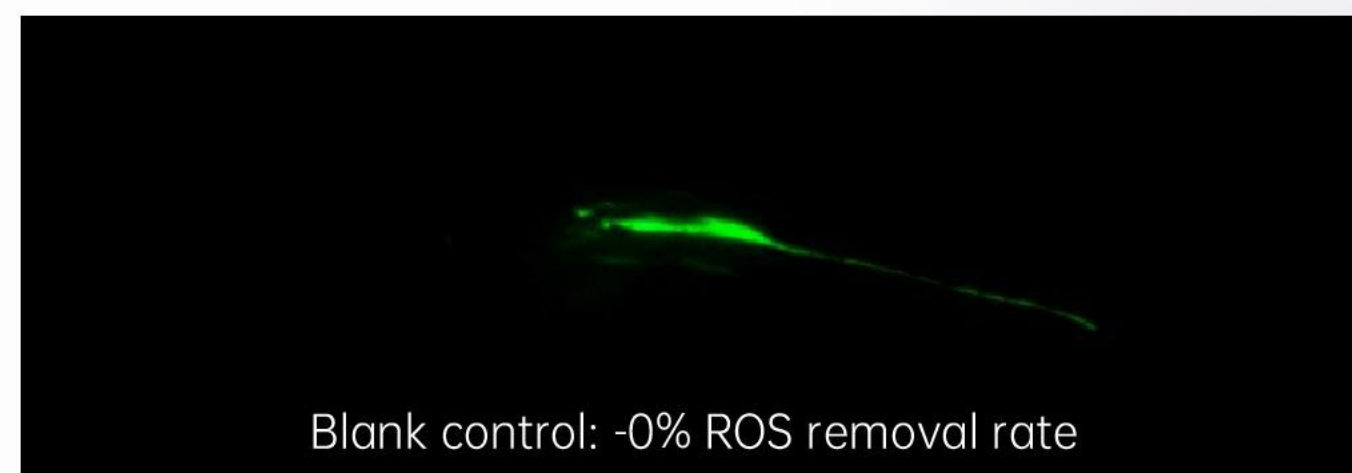
「EFFICACY EVALUATION」



「EFFICACY EVALUATION」

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

Zebrafish Embryo Reactive Oxygen Species (ROS) Removal Rate Results



The dimming of green fluorescence indicates a decrease in ROS signal intensity (* $p < 0.05$).

「01-ANTIOXIDANT (ROS REMOVAL)」

1. Test item:

- Anti-wrinkle and firming efficacy: T/HPCIA 001-2023 "Cosmetic Anti-wrinkle and Firming Efficacy - Zebrafish Embryo Reactive Oxygen Species (ROS) Removal Test Method"

2. Test Samples:

- Positive control group: Glutathione
- Sample group: 0.5% Coburrhy

3. Test Results:

- 0.5% Coburrhy showed a 24% ROS removal rate in zebrafish embryos ($p < 0.05$), with an anti-oxidant effect 1.6 times stronger than glutathione.

Results of DPPH and Hydroxyl Radical Removal
by ZLEY-PE701-Coburrhy

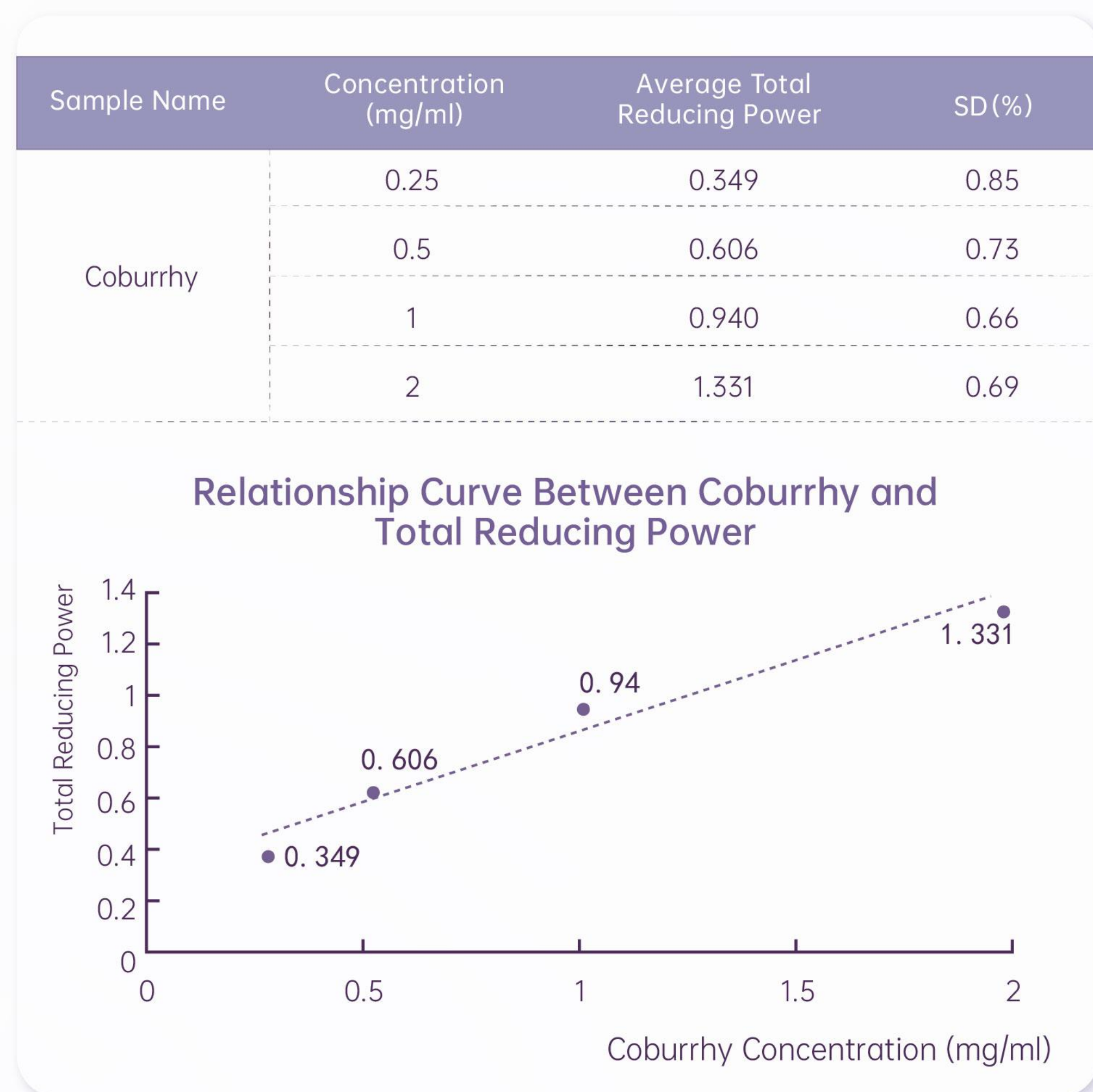
Free Radicals	Coburrhy Concentration (mg/ml)	Radical Removal Rate (%)	IC ₅₀ Value
DPPH	0.0625	32.79	0.181mg/ml
	0.125	48.41	
	0.25	60.76	
	0.5	78.86	
Hydroxyl	5	5.77	19.38mg/ml
	10	13.46	
	20	53.85	

「01-ANTIOXIDANT」

(DPPH AND HYDROXYL RADICAL REMOVAL)

- ▶ IC₅₀ Value:

 - The concentration of antioxidant required to inhibit lipid peroxidation or remove 50% of radicals.
 - Generally, the smaller the IC₅₀ value, the higher the antioxidant activity.
- ▶ As the concentration of Coburrhy increases, the removal of DPPH and hydroxyl radicals significantly enhances, showing a dose-response relationship.
- ▶ Coburrhy exerts strong antioxidant effects by removing excess DPPH and hydroxyl radicals, combating skin damage caused by oxidative stress.



「01-ANTIOXIDANT」

(STRONG REDUCING POWER)

► Test Principle:

Many studies have confirmed that antioxidant activity is closely related to reducing power. There is a positive correlation between reducing power and antioxidant activity; the stronger the reducing power, the stronger the antioxidant capacity.

► Test Method:

Q/SXZL 006-2022 "Cosmetics - Total Reducing Power Determination Test Method"

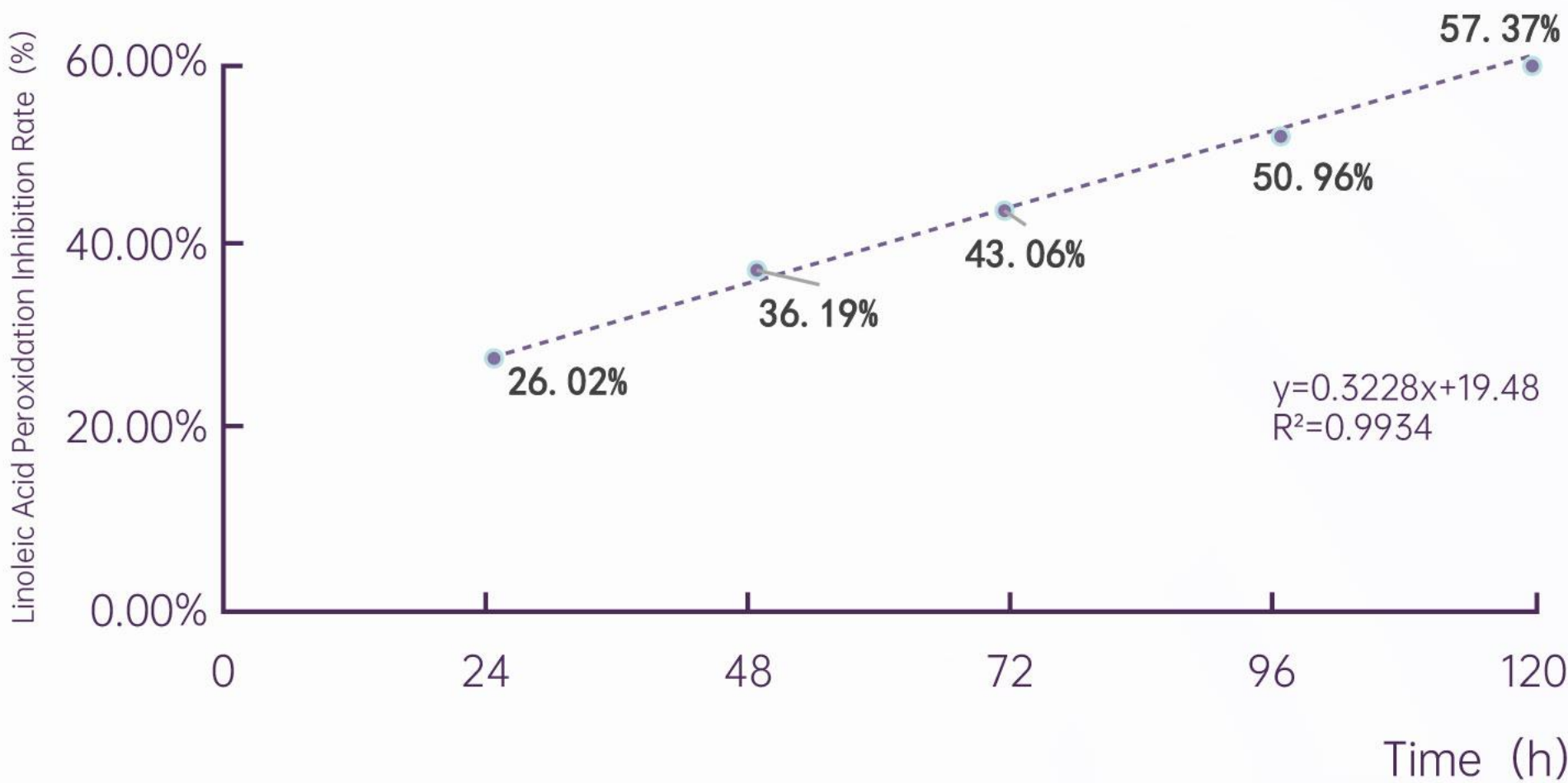
► Reducing Power Test Results:

The results show that ZLEY-PE701-Coburrhy has a strong reducing ability for Fe^{3+} .

► When the total reducing power equals 1, the concentration of ZLEY-PE701-Coburrhy is 1.3mg/ml.

Sample Name	OD500nm	OD500nm Comparison	Linoleic Acid Peroxidation Inhibition Rate	Time
1%Coburrhy	0.236	0.319	26.02%	24h
	0.231	0.362	36.19%	48h
	0.238	0.418	43.06%	72h
	0.233	0.475	50.96%	96h
	0.237	0.536	57.37%	120h

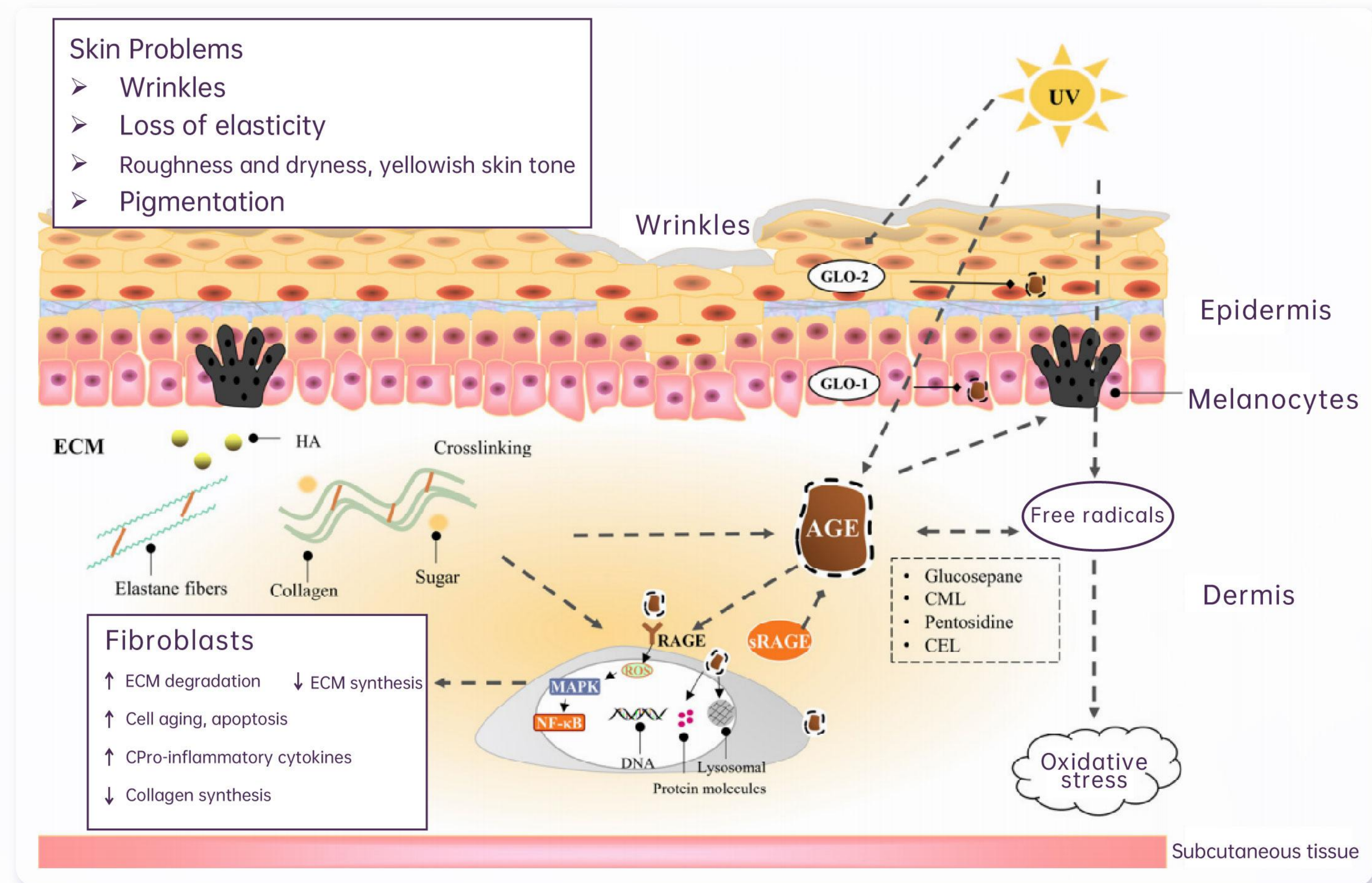
1% CoburrhyLinoleic Acid Peroxidation Inhibition Rate



「01-ANTIOXIDANT」

(LONG-TERM INHIBITION OF LIPID PEROXIDATION OVER 5 DAYS)

- ▶ **Lipid Oxidation and Skin Dullness:**
When the skin secretes excessive oil, the oil undergoes a series of oxidation reactions, ultimately producing carboxylic acids and low-level aldehydes. These not only irritate the skin but also make the skin surface appear dull.
- ▶ Linoleic Acid Peroxidation Inhibition Rate test results show that over time, 1% Coburrhy significantly enhances the inhibition rate of linoleic acid peroxidation. After 24 hours, the inhibition rate is 26.02%, and after 5 days (120 hours), the inhibition rate reaches 57.37%, demonstrating a long-term inhibition effect on lipid peroxidation.



「O2-ANTI-GLYCATION」

Coburrhy inhibits the formation of AGEs (advanced glycation end-products), reduces glycation reactions, brightens the skin, and prevents a dull, yellowish "caramel face."

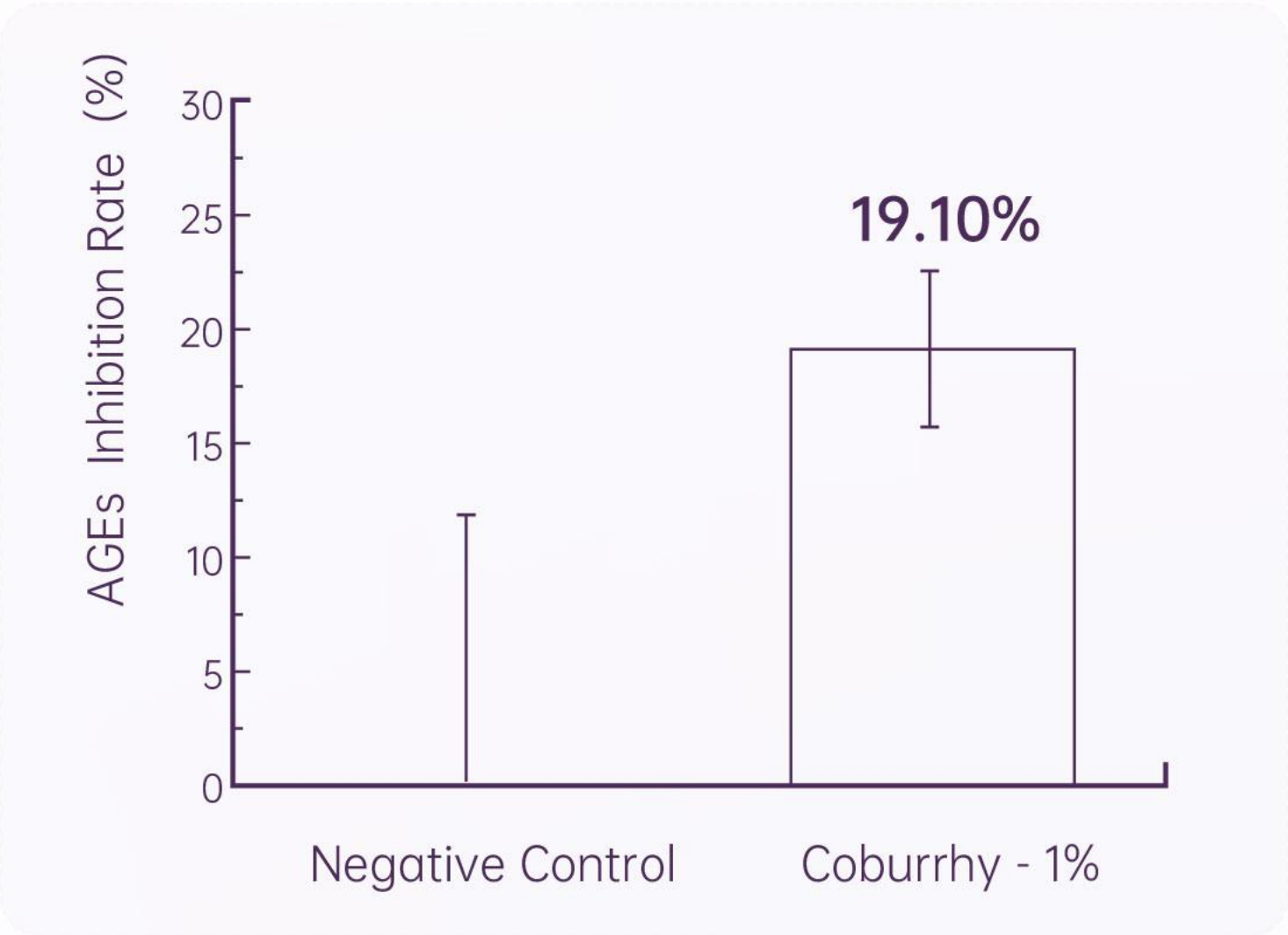
「02-ANTI-GLYCATION」

► **Test Method:** The anti-glycation efficacy of the sample is evaluated by testing its inhibitory effect on AGEs in the glycation reaction solution.

• AGEs Inhibition Test Results •

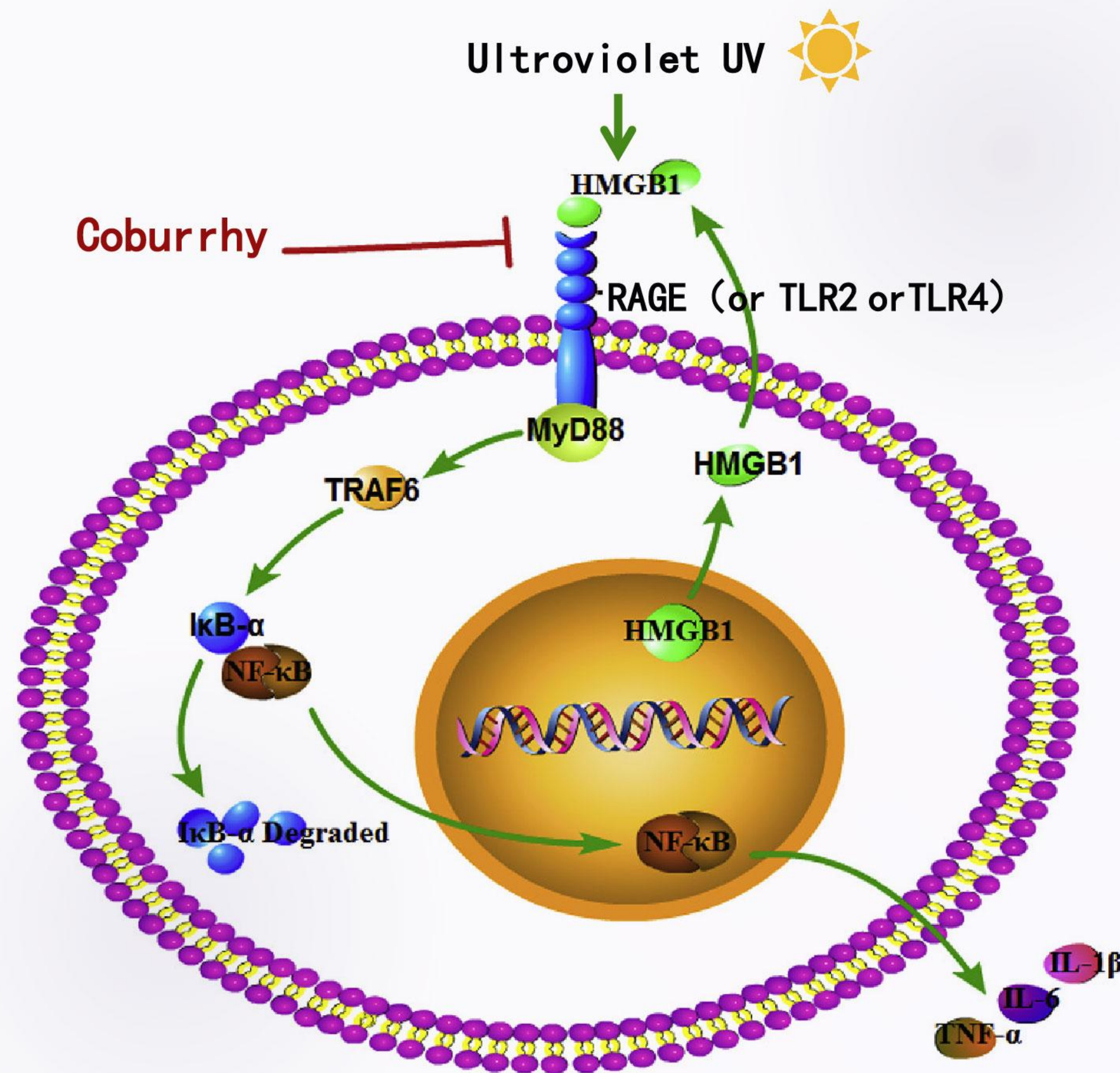
Group	Sample Name	AGEs Inhibition Rate	Significance Difference
Sample Group	Coburrhy-1%	19.10%	P < 0.05
Positive Control Group	Aminoguanidine Hydrochloride	91.04%	P < 0.05
Negative Control Group	/	0.00%	/

(Note: P<0.05 indicates a significant difference compared to the negative control group.)



► **Test Results and Conclusion:** The AGEs inhibition rate of the sample ZLEY-PE701-Coburrhy at a 1% concentration is 19.10%, significantly higher than the AGEs inhibition rate of the negative control group (P<0.05), indicating that the sample has anti-glycation efficacy.

*AGEs: Advanced Glycation End-products



「03-REDNESS SOOTHING」

(TARGETING HMGB1 TO INHIBIT PHOTO-DAMAGE)

...

HMGB1 is also known as High Mobility Group Box 1 protein.

- ▶ Extracellularly, HMGB1 is a typical DAMP (damage-associated molecular pattern). Extracellular HMGB1 binds to receptors such as RAGE, TLR2, and TLR4, activating MyD88, which leads to the activation of the NF-κB signaling pathway. This promotes the release of inflammatory cytokines TNF-α and IL-6, causing skin inflammation.
- ▶ Coburrhy inhibits UV-induced HMGB1 expression, downregulates the NF-κB signaling pathway, suppresses the production of inflammatory cytokine TNF-α, reduces inflammatory responses, mitigates skin photo-damage, and repairs skin inflammation, soothing redness, darkness, and sensitivity.

「03-REDNESS SOOTHING」

(INHIBITION OF HMGB1, NF-KB, TNF-A EXPRESSION)

► Test Method: Based on UVB-irradiated keratinocytes, the changes in the content of the inflammatory cytokine TNF- α and the gene expression levels of NF-kB and HMGB1 were detected.

Group	Sample Name	Stimulation Condition	Detection Model	Detection Index	Detection Method
BC Blank Control(BC)	/	/	Keratinocytes	1. TNF-α 2. NF-κB、HMGB1	1. ELISA 2. qRT-PCR
NC Negative Control(NC)	/	UVB(300J/cm²)			
Positive Control	0.01% Dexamethasone				
Sample Group	0.02% Coburrhy				

► Test Results for 0.02% Coburrhy

Detection Index	Inhibition Rate (compared to NC group)	Inhibition Effect (compared to Dexamethasone)
High Mobility Group Box 1 protein(HMGB1)	33.57%	/
Nuclear Factor-kB(NF-kB)	59.31%	/
Tumor Necrosis Factor- α (TNF- α)	20.00%	Stronger than Dexamethasone by 1.46 times

「03-REDNESS SOOTHING」

(INHIBITION OF HMGB1, NF- κ B, TNF- α EXPRESSION)

- 0.02% ZLEY-PE701-Coburrhy significantly inhibits the secretion of the inflammatory cytokine TNF- α and downregulates the gene expression of NF- κ B and HMGB1.

Figure 1: HMGB1 Gene Expression Results

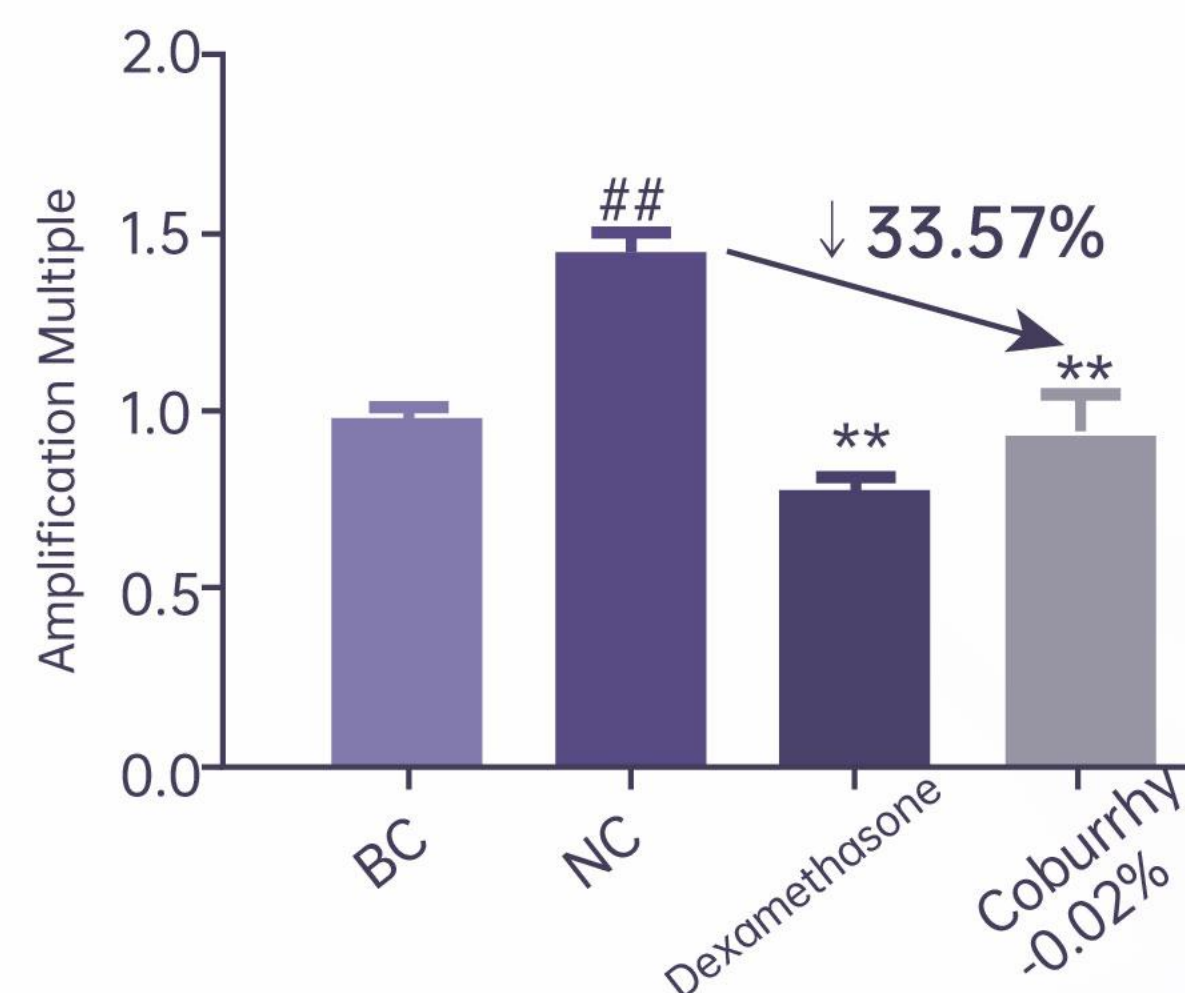


Figure 2: NF- κ B Gene Expression Results

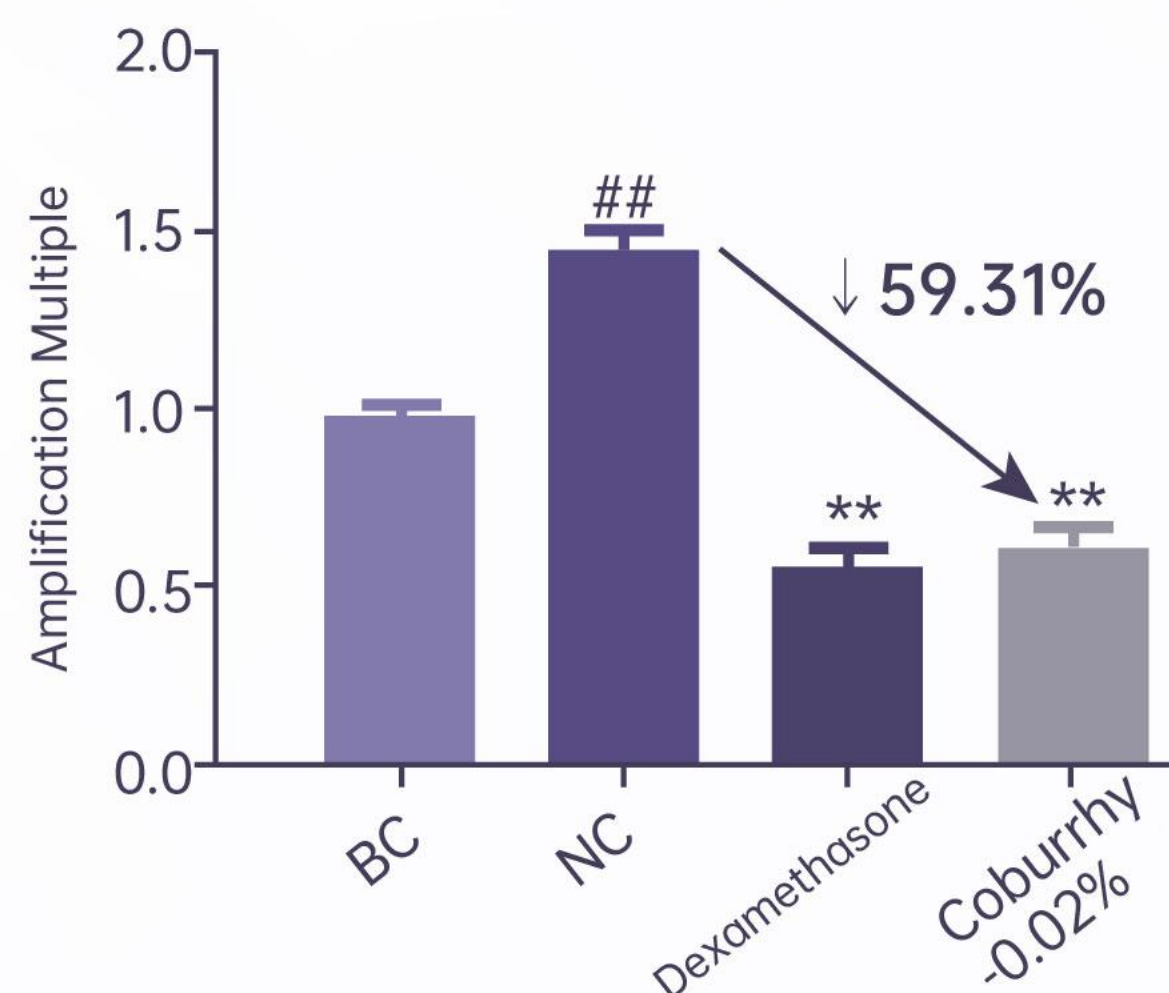
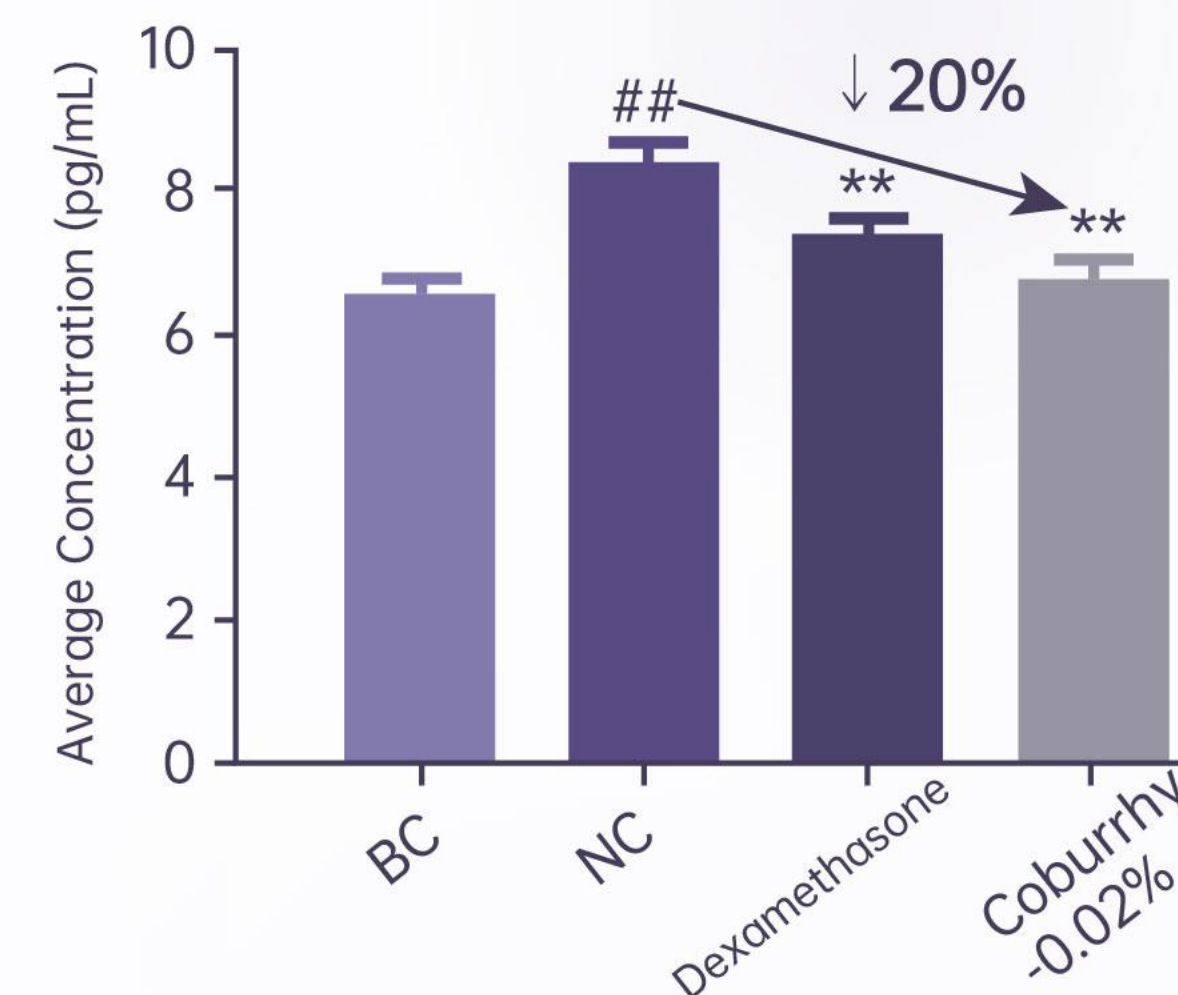


Figure 3: TNF- α Content Detection Results



(Note: When using the t-test method for statistical analysis, significance compared to the BC group is indicated by #, with P value<0.05 as #, and P value<0.01 as ##; significance compared to the NC group is indicated by *, with P value<0.05 as *, and P value<0.01 as **)

「04-WHITENING」 (HMGB1 AND MELANOCYTE DENDRITES)

In 2022, P&G published a new research paper^[1]



identifying HMGB1 as a new target for whitening
 revealing the relationship between HMGB1 and melanocyte dendrites.



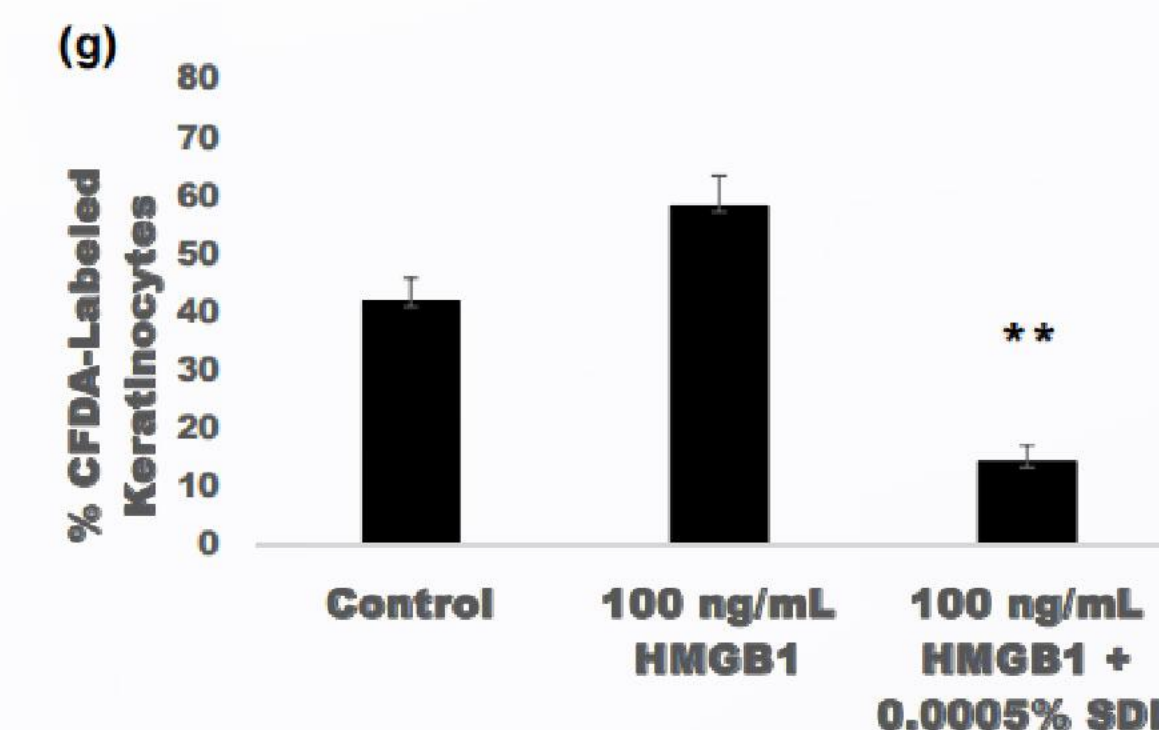
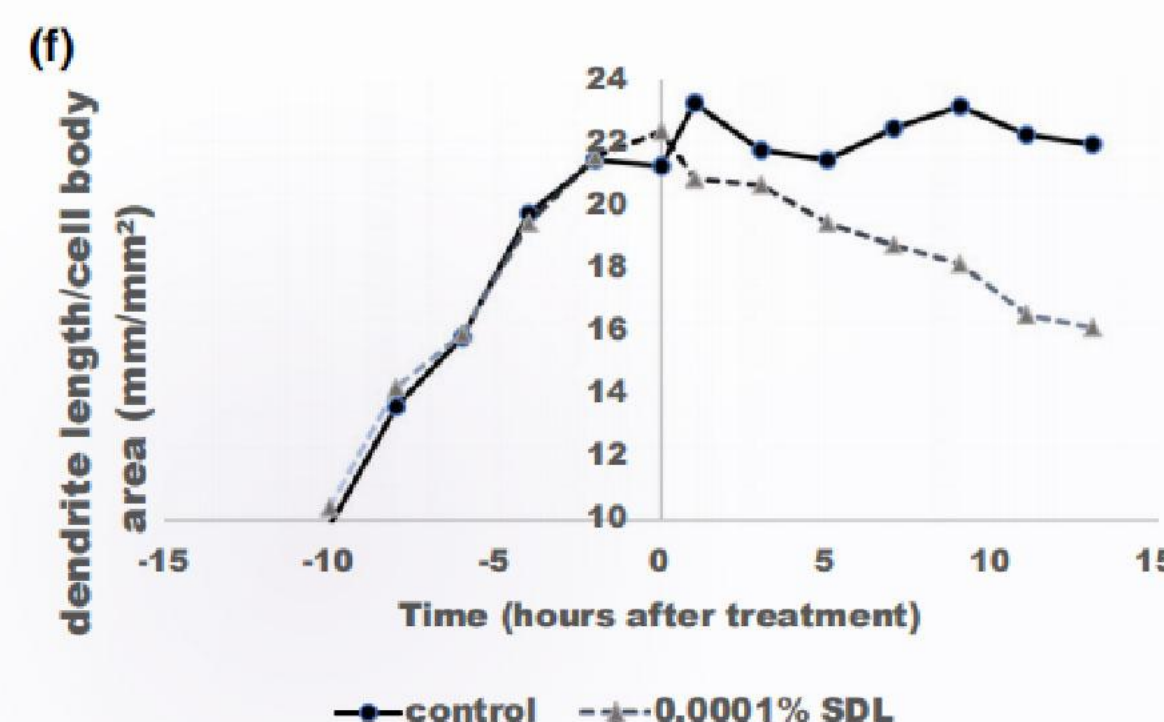
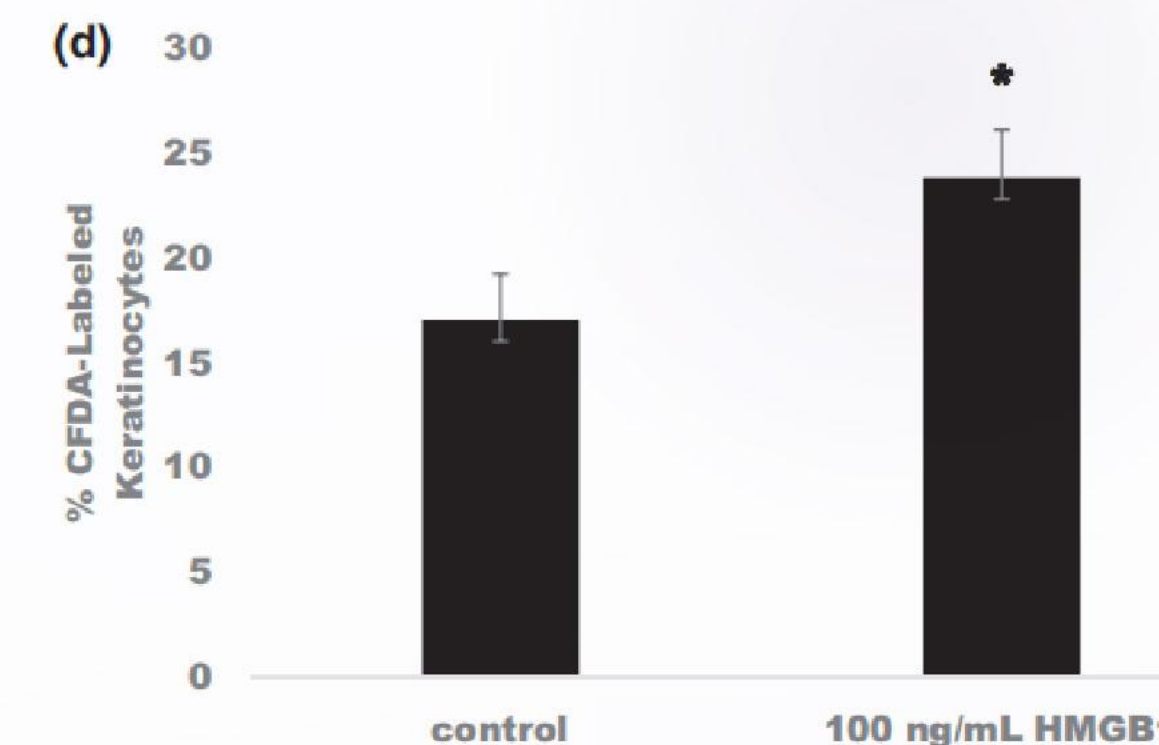
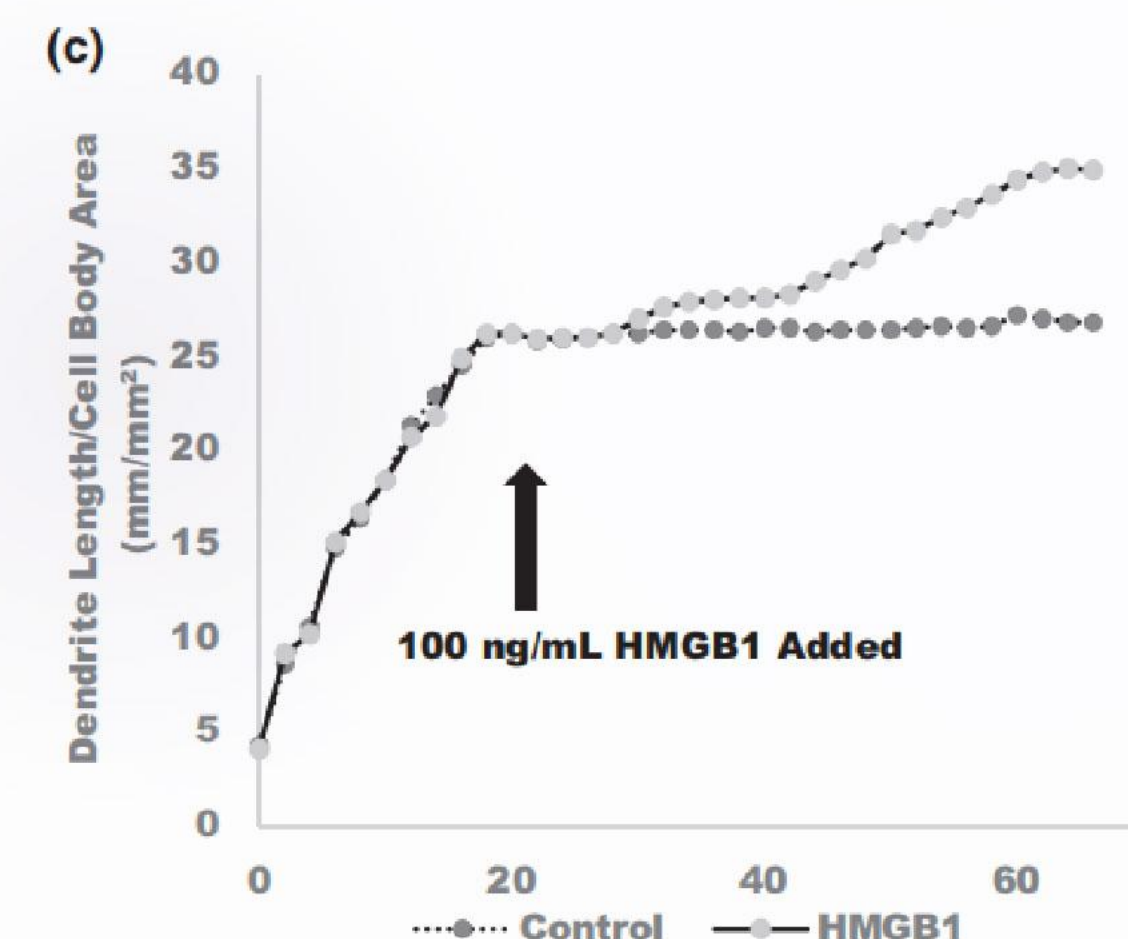
Figures c, d: HMGB1 can stimulate the elongation of melanocyte dendrites
 and promote the transfer of melanosomes to keratinocytes.



Figures f, g: SDL reduces the release of HMGB1,
 inhibiting the dendritic nature of melanocytes and the transfer of melanosomes.



Applied in OLAY's second-generation spot-lightening serum.



*[1]: The combination of sucrose dilaurate and sucrose laurate suppresses HMGB1: an enhancer of melanocyte dendricity and melanosome transfer to keratinocytes. 2022

「04-WHITENING」

Triple Protection Against Blackening

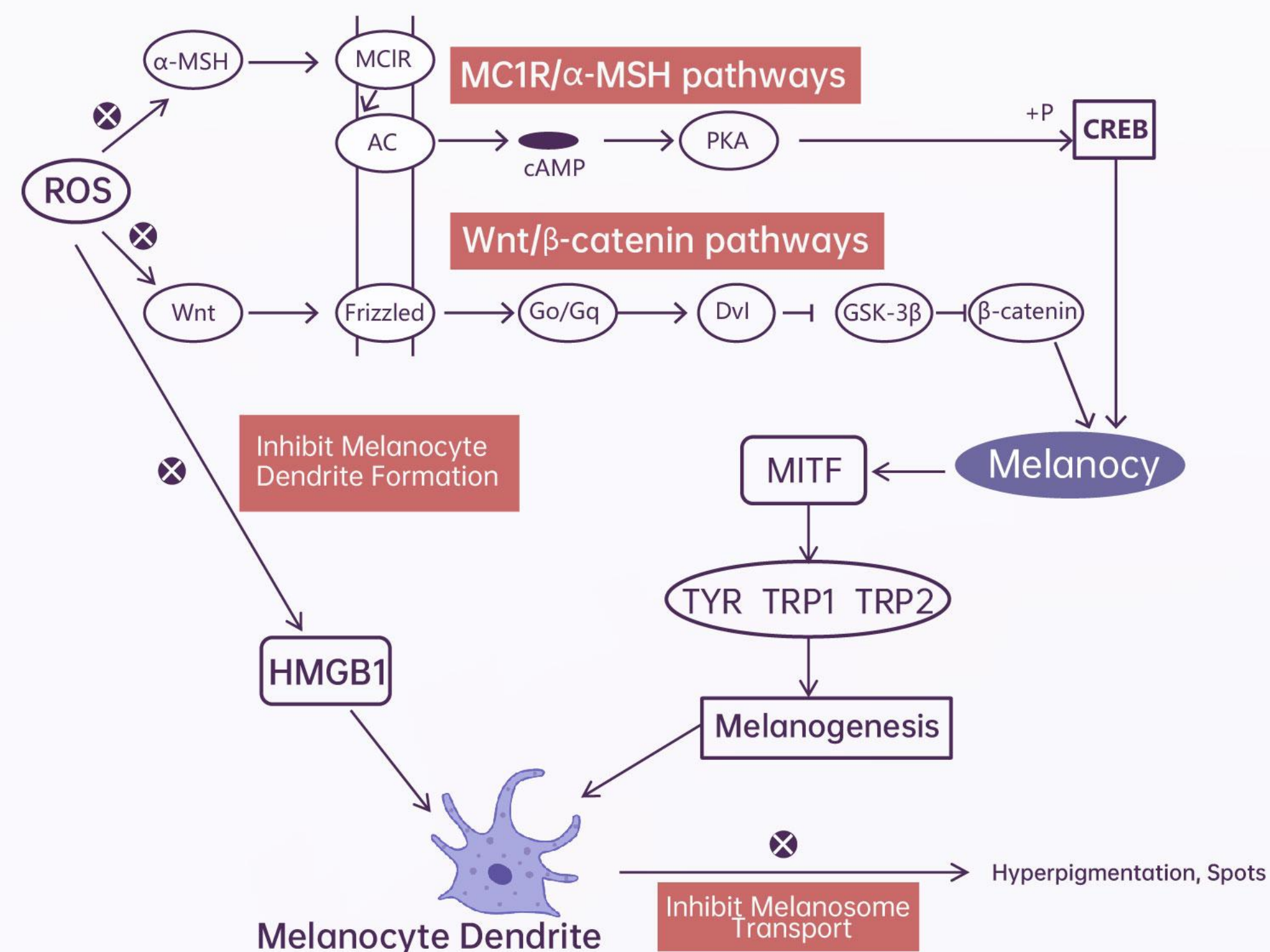
1. Upstream (Before Melanin Synthesis)

- **Inhibit MC1R/ α -MSH Signaling Pathway Activation:** Intercept the melanogenic signal α -MSH at its source, preventing early melanogenesis.
- **Block Wnt/ β -Catenin Pathway Activation:** Inhibit the expression of key melanin-producing genes, such as β -Catenin, via the Wnt signaling pathway.

2. Downstream (After Melanin Synthesis)

- **Maintain Melanocyte Homeostasis and Block Dendrite Formation:** Inhibit the expression of HMGB1 under stress conditions, preventing melanosomes from being transported from dendrites to the stratum corneum, ultimately addressing the root cause of blackening.

(Coburrhy Regulation of Melanin Synthesis Pathways)



「04-WHITENING」

(INHIBIT A-MSH AND B-CATENIN EXPRESSION)

Group	sample	Irritation conditions	Testing model	Testing indicators	Test method
Negative control NC	/	UVB(300J/cm²)	keratinocytes	1. α-MSH 2. β-catenin	1. ELISA 2. qRT-PCR
Positive	VE				
Sample group	0.02% Coburrhy				

Figure 1: Detection Results of α-MSH Content

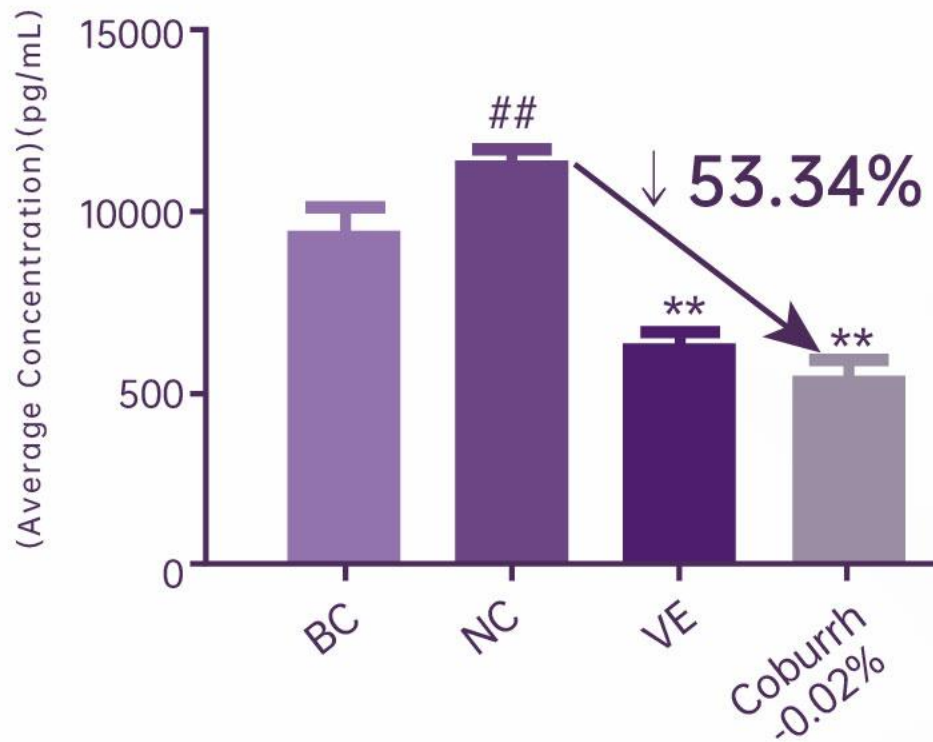
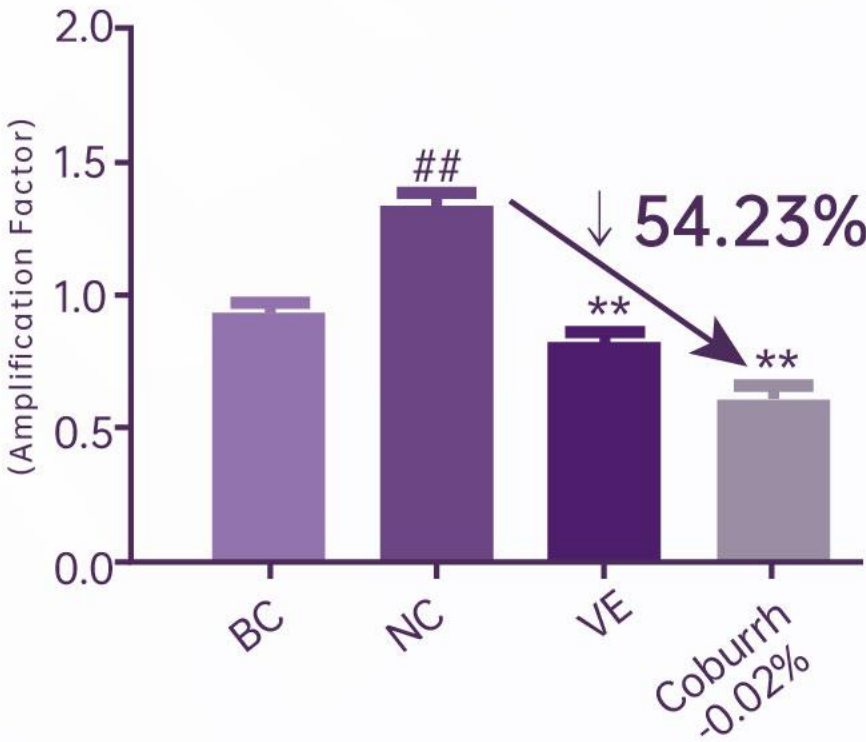


Figure 2: β-Catenin Gene



► Based on UVB-irradiated keratinocytes, compared to the NC group, α-MSH content significantly decreased by 53.34% with a 0.02% concentration of ZLEY-Coburrhy, and β-catenin gene expression was significantly down regulated by 54.23%.

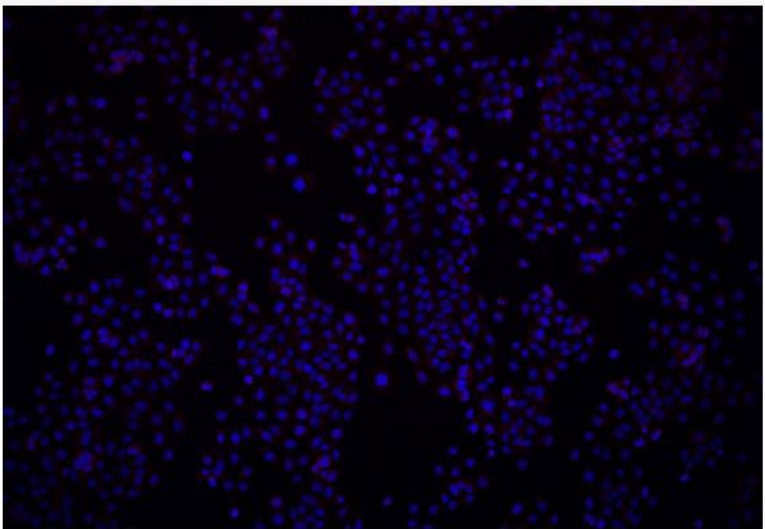
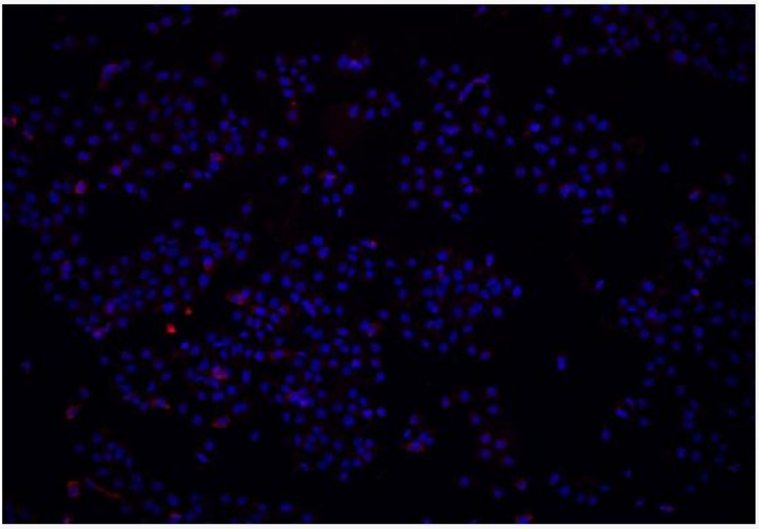
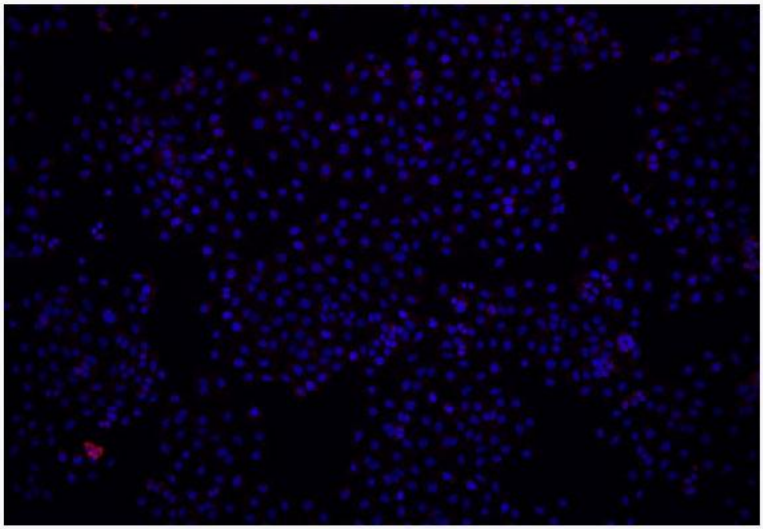
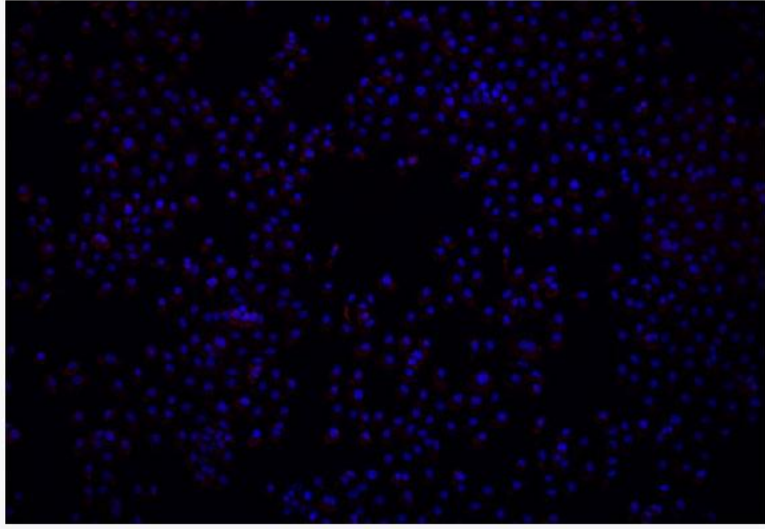
Note: Statistical analysis was performed using the t-test method. Compared to the BC group, significance is indicated by #, with P-value < 0.05 marked as # and P-value < 0.01 marked as ##; compared to the NC group, significance is indicated by *, with P-value < 0.05 marked as *, and P-value < 0.01 marked as **.

「04-WHITENING」

(INHIBIT MELANOSOME TRANSPORT))

Detection Principle: After melanin synthesis is completed, melanosomes are transported to keratinocytes through melanocyte dendrites, ultimately leading to skin pigmentation darkening.

Detection Method: Pro-24-010.01 - Fluorescent labeling scheme for melanosome localization in the co-culture cell system.

GROUP	BCGROUP	MODEL GROUP	COBURRHY-0.06%	COBURRHY-0.12%
Fluorescence Results				
Relative Melanosome Content	36.53%±4.16%**	100.00%±1.99%	43.84%±8.93%**	7.45%±2.15%**
Melanosome Transport Inhibition Rate	/	/	56.16%	92.55%

(Note: Red fluorescence represents melanosomes. The brighter the fluorescence, the greater the number of melanosomes.)

At concentrations of 0.06% and 0.12%, Coburrhy demonstrated melanosome transport inhibition rates of 56.16% and 92.55%, respectively, in the co-culture system of HaCaT and A375 cells.

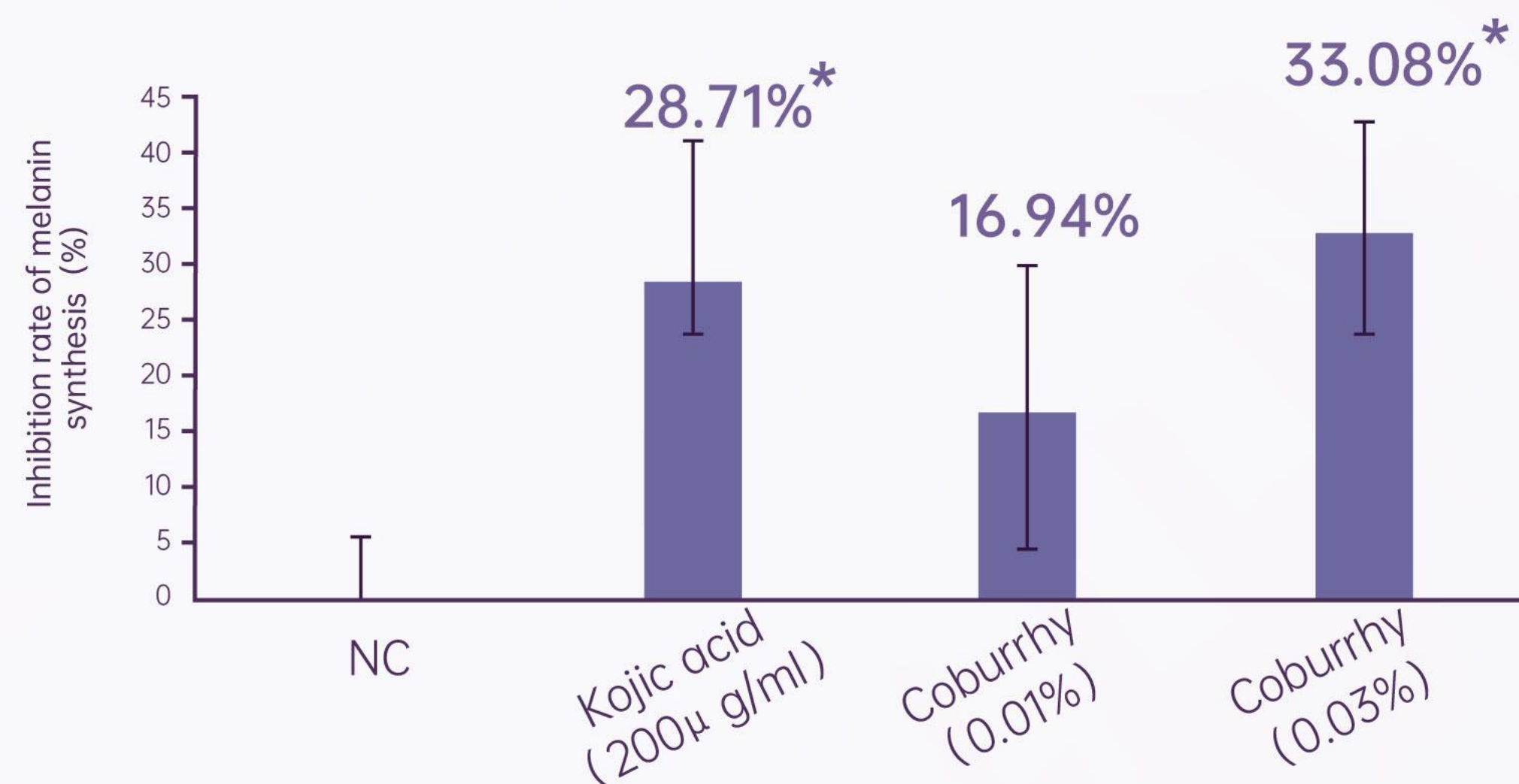
Coburrhy effectively inhibits melanosome transport, thereby exerting whitening and anti-pigmentation effects.

「04-WHITENING」

(INHIBITION OF MELANIN PRODUCTION IN B16 MELANOCYTES)



Inhibition Rate of Melanin Production in B16 Cells by Coburrhy



(When statistical analysis was performed using the T-test, significance compared to the negative control group is indicated by *. A P-value < 0.05 is marked as *, and a P-value < 0.01 is marked as**)

1、「Test Basis」:

In Vitro Test for Melanin Synthesis Inhibition in B16 Cells (T/SHRH 027-2019)

2、「Test Sample」:

Positive Control Group: 200 μg/ml Kojic Acid

Sample Groups: 0.01% and 0.03% COBURRHY

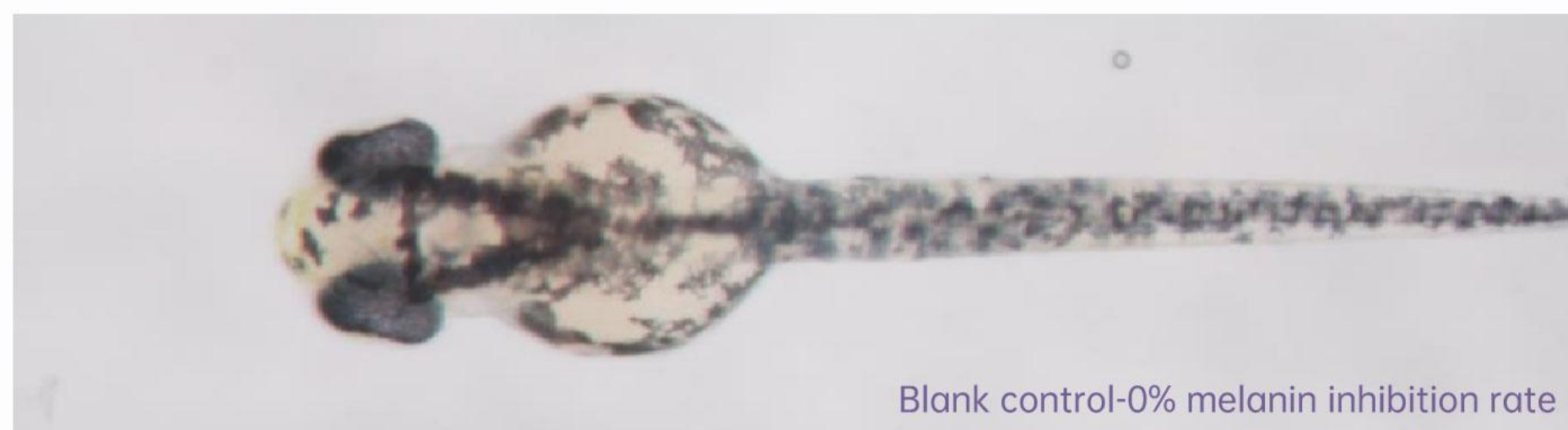
3、「Test Results」:

Compared to the negative control group, 0.01% and 0.03% COBURRHY showed melanin synthesis inhibition rates of 16.94% and 33.08%, respectively, in B16 cells.

4、「Conclusion」:

COBURRHY inhibits melanin production, thereby achieving a whitening effect.

Whitening Efficacy Screening Test Results



「04-WHITENING」

(INHIBITION OF MELANIN PRODUCTION IN ZEBRAFISH EMBRYOS)



① Test Item:

Whitening Efficacy Screening: T/SHRH036-2021 Cosmetic Melanin Inhibition Test - Zebrafish Embryo Test Method

② Test Samples:

100% Melanin Inhibition Model Group: 30 mg/L Phenylthiourea

Positive Control Group: 2.5 g/L Kojic Acid

Sample Group: 0.5% COBURRHY

③ Test Results:

0.5% COBURRHY showed a 17% inhibition of melanin production in zebrafish embryos (P=0.000048).

④ Conclusion:

0.5% COBURRHY significantly inhibits melanin production in zebrafish embryos, demonstrating whitening effects.

「05-CLINICAL ASSESSMENT」

(AFTER 14 DAYS, SIGNIFICANT REDUCE SPOT AND BRIGHTENING)

PHASE	INGREDIENT	INCI NAME	ω / %	SUPPLIER
A	Water	Water	TO 100	—
	Glycerin	Glycerin	3.00	—
	ZEN	Polyacrylate Crosspolymer-6	0.35	—
	Sodium Gluconate	Sodium Gluconate	0.05	—
	PCM	Xanthan Gum	0.06	—
	HA	Sodium Hyaluronate	0.06	—
	ZLEY®BIOCARE-PHA	Hydroxyacetophenone	0.50	ZLEY
	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.60	ZLEY
	Propylene Glycol	Propylene Glycol	4.00	—
B	Squalane	Squalane	2.00	—
	GTCC	Caprylic/Capric Triglyceride	3.00	—
	IPM	Isopropyl Myristate	4.00	—
	MONTANOVL	C14-22 Alcohols / C12-20 Alkyl Glucoside	0.60	—
	Stearic Acid	Stearic Acid	0.30	—
	6/18 Alcohol	Cetearyl Alcohol	2.00	—
	OLIEVR 1000	Cetearyl Alcohol Oleate, Sorbitan Oleate	1.50	—
	SPAN 60	Sorbitan Stearate	0.40	—
C	ZLEY®PE701-COBURRHY	Sparganium Stoloniferum Extract, Pentylene Glycol	2.00	ZLEY

「PRODUCT USED」

2% Sparganium Brightening Essence

「USAGE PERIOD」

14 days, 28 days, 56 days

「APPLICATION METHOD」

Twice a day (morning and evening)

「TESTING INSTRUMENT」

VISIA Skin Analysis System

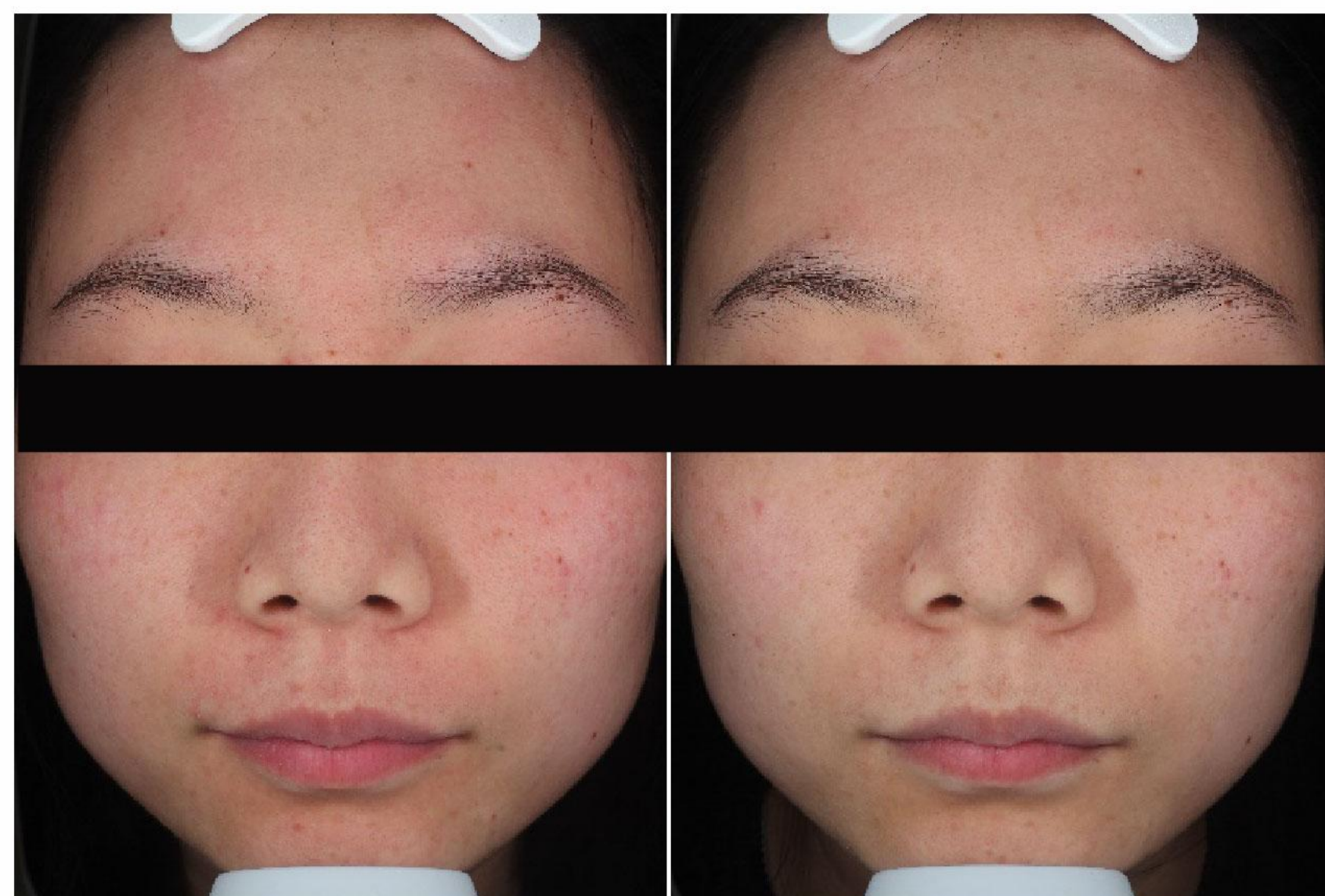
「05-CLINICAL ASSESSMENT」

(AFTER 14 DAYS, SIGNIFICANT REDUCE SPOT AND BRIGHTENING)

Before



D14



Subject 1: Significant reduction in skin redness, with a more even and brighter complexion.

Before



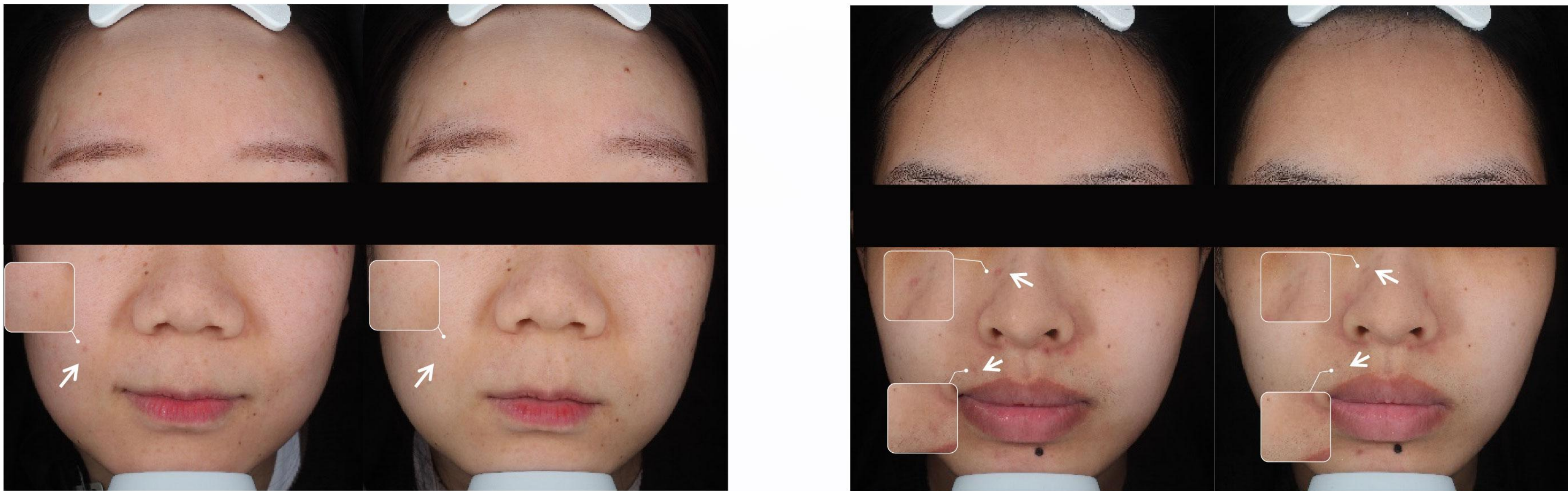
D14

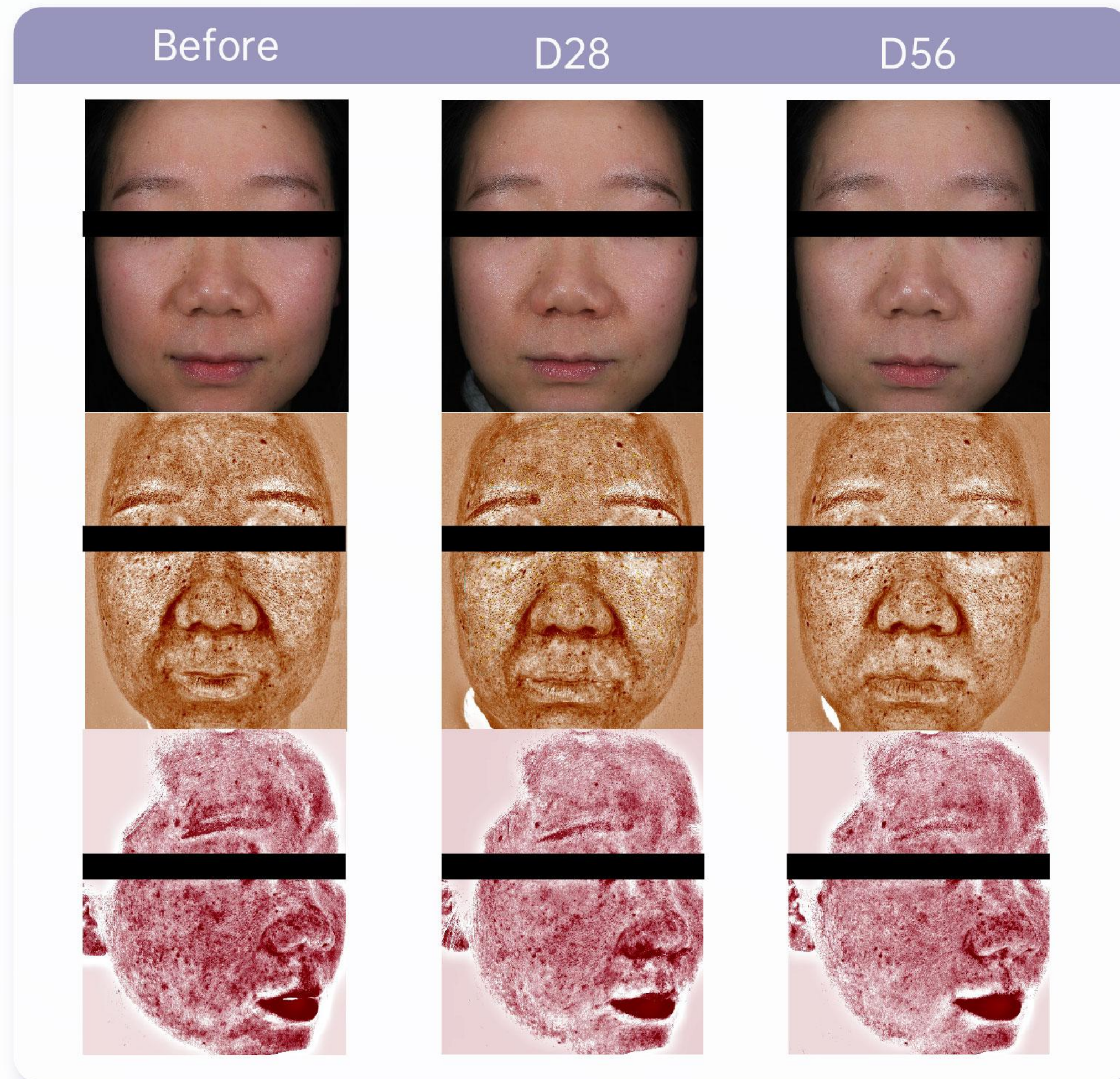


Subject 2: Spot and redness reduction, bright, radiant complexion with a healthy glow.

「05-CLINICAL ASSESSMENT」

(AFTER 14 DAYS, SIGNIFICANT REDUCE SPOT AND BRIGHTENING)

Before	»»	D14	Before	»»	D14
					
Subject 3: Local spots fade and disappear, leaving the skin even-toned and radiant.			Subject 4: Significant reduction in localized erythema, with a brightened facial complexion.		



「05-CLINICAL ASSESSMENT」

(28 DAYS, 56 DAYS)



After 28 and 56 days of continuous use of the 2% Sparganium Brightening Essence, subjects experienced significant reduction in facial redness, with skin becoming smoother, more even-toned, translucent, and radiant.

「06-SAFETY」
(PESTICIDE RESIDUE TESTING)

Pesticide Residue - Detection of Lindane and DDT Residues

ZLEY-Coburrhy showed no pesticide residues.

Detection item	Unit	Result	Detection method	Method Detection limit concentration
α -HCH	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01
β-HCH	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01
γ-HCH	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01
δ-HCH	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01
p,p'-DDE	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01
p,p'-DDD	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01
o,p'-DDT	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01
p,p'-DDT	mg/kg	<0.01	GDSWYW/W21-005Detection of Lindane and DDT Residues in Cosmetics - Gas Chromatography Method	0.01

「07-PRODUCT EFFICACY」

4-color skin haze	Efficacy	Coburrhy concentration	Detection index	Detection result
Dull complexion	Antioxidant	0.5%	ROS	↓ 24%
		/	DPPH radical	IC ₅₀ value=0.181mg/ml
		/	Hydroxy radical	IC ₅₀ value=19.38mg/ml
		/	Total reduction force	total reduction force =1, the Coburrhy concentration of mebel is 1.3 MG/ML
		1%	Peroxidation of linoleic acid	26.02% after 24H and 57.37% after 120H
Yellowish skin tone	Anti-glycation	1%	AGEs	↓ 19.10%
Redness	Soothing / anti-photoaging	0.02%	HMGB1	↓ 33.57%
			NF-KB	↓ 59.31%
			TNF- α	↓ 20.00%
Dark skin tone	Whitening	0.02%	α-MSH	↓ 53.34%
		0.02%	β-catenin	↓ 54.23%
		0.06% ^[1] 、0.12% ^[2]	Melanosome	↓ 56.16% ^[1] 、↓ 92.55% ^[2]
		0.01% ^[1] 、0.03% ^[2]	B16 cell melanmelanin	↓ 16.94% ^[1] 、↓ 33.08% ^[2]
		0.5%	Zebrafish embryos with melanin	↓ 17.00%

* (CAM: Chick embryo chorioallantoic membrane)

Part . 04

「TECHNICAL INFORMATION」



「TECHNICAL INFORMATION」

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

「ZLEY®PE701-COBURRHY」

Brightening

Redness Relief

Anti-Dark Spots

Effectively against "Dark, Red, Yellow, and Dull" skin tones



INCI NAME:	Sparganium Stoloniferum Extract, Pentylene Glycol
CAS NO.:	/, 5343-92-0
INGREDIENT SAFETY	NO RISK
ACNE RIS	NO RISK
APPEARANCE	Red brown liquid
RECOMMENDED DOSAGE	1-3%
SOLUBILITY	Slightly soluble in water
RECOMMENDED SYSTEM PH VALUE	6.0-7.0(Prone to color changes under acidic or alkaline conditions)
RECOMMENDED TEMPRATURE	45~50°C
FORMULATION INCOMPATIBILITIES:	1. The formulation contains iron and copper ions, which can cause discoloration. A chelating agent should be added. 2. The system is prone to discoloration under light and heat conditions. It is recommended to add water-sol- uble antioxidants to prevent discoloration, such as 0.05%~0.2% sodium metabisulfite or 0.5~1% TT. 3. For high concentrations, it is recommended to use opaque or light-blocking packaging materials.

*TT refers to Sodium Ethylenediaminetetraacetate (EDTA) and Sodium Gluconate.

「OPERATION PROCESS」

1.Emulsion System:

Add below 45°C, stir and disperse evenly, avoid high-temperature operations.

2.Non-emulsion System:

It is recommended to first mix evenly with solubilizers or co-solvents at or below 45°C, then add to the system and stir thoroughly. Adjust the system's pH to 6-7 for optimal results.

3.For Thickening Systems:

The ionic strength is not strong, and common thickening systems (940, U20, SK425, ZEN, SILK) show no significant changes in viscosity.

4.For Transparent Essence Systems:

COBURRHY aqueous solution appears milky white. In transparent formula systems, solubilization needs to be enhanced using solubilizers/polyols in combination. The recommended ratio is COBURRHY: Solubilizer: Co-solvent = 2:1:3, resulting in a light yellow transparent liquid.



No.	Ratio	Operation process	Result
1	2% COBURRHY + 1% VH	Weigh Coburrhy and mix with soluzer VH, heat water to 100 and stir well	Transparent solution
2	2% COBURRHY + 1% NII-9	Weigh Coburrhy and mix with solubilizer NII-9, heat water to 100 and stir well	Transparent solution
3	2% COBURRHY + 1% RH-40	Weigh Coburrhy and mix with soluzer RH-40, heat water to 100 and stir well	Transparent solution

(RESASSOL®VH: PEG-40 HYDROGENATED CASTOR OIL / PPG-26-BUTETH-26;
NII-9: C12-13 PARETH-9; RH-40: PEG-40 HYDROGENATED CASTOR OIL.)

「NOTE」： Store in a dark place

「MARKET CLAIMS」

1.Product Claims:

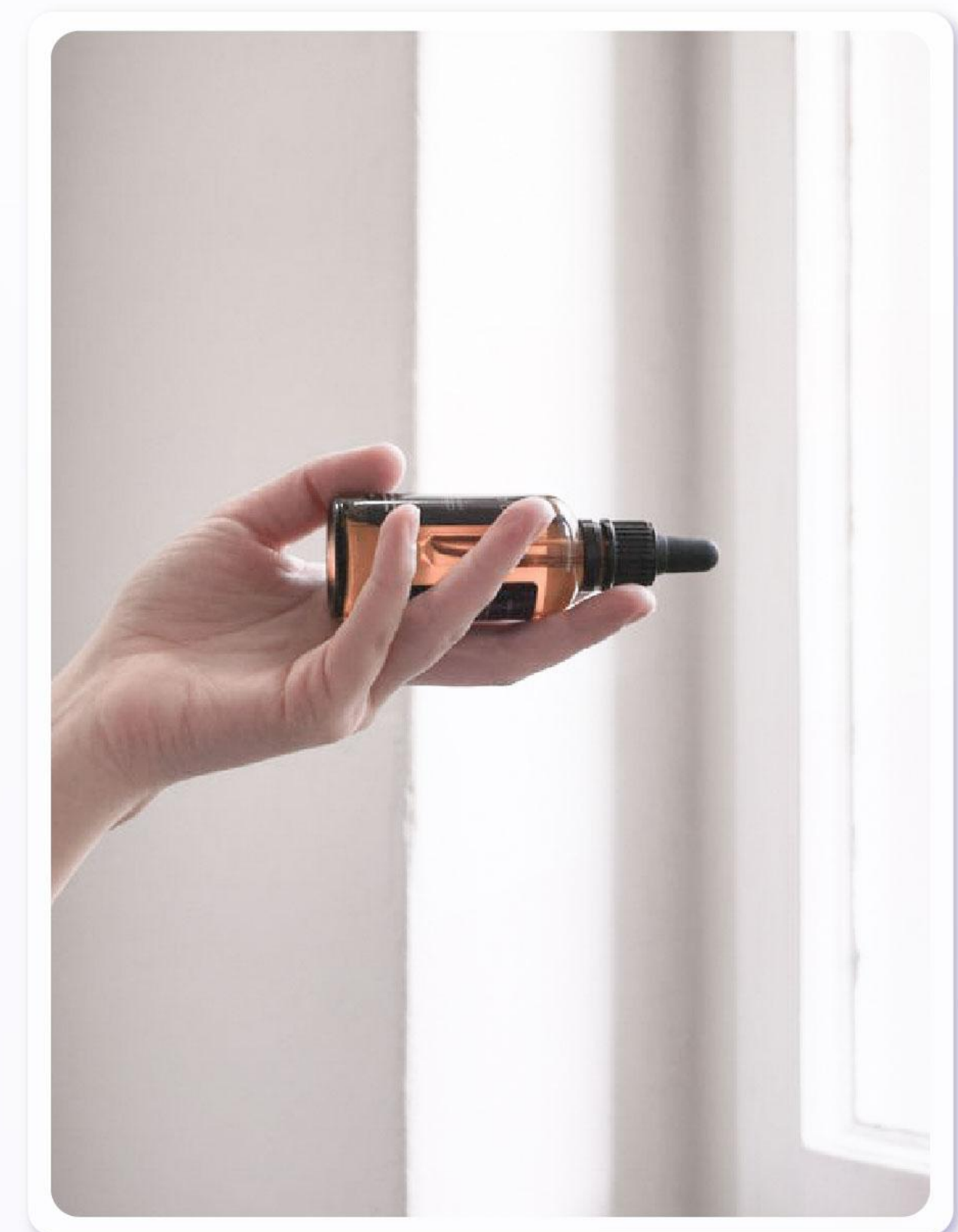
- ▶ Sparganium Brightening Essence uses a scientific approach of 1st Brightening, 2nd Redness Relief, and 3rd Anti-Dark to revolutionize the treatment of "4-color skin haze", tackling the four skin discolorations of red, dark, yellow, and dull. It promotes healthy, scientific, effective, and safe whiteness, revealing a crystal-clear radiance and glowing vitality.

2.New Whitening Direction/Target:

- ▶ Upstream: Blocking the activation of the MC1R/ α -MSH and Wnt/ β -catenin dual melanogenic signaling pathways to intercept pigmentation at the source.

3.Downstream:

- ▶ Inhibiting the expression of HMGB1 under stress, maintaining melanocyte homeostasis, blocking the formation of melanocyte dendrites, and preventing the transport of melanosomes from melanocytes to the stratum corneum, effectively stopping pigmentation at its root.



「FORMULA GUIDELINES」

PHASE	INGREDIENT	INCI NAME	ω / %	SUPPLIER
A	Water	Water	TO100	—
	Glycerin	Glycerin	2.00	—
	ZEN	Polyacrylate Crosspolymer-6	0.35	—
	PCM	Xanthan Gum	0.15	—
	ZLEY®BET	Betaine	2.00	—
B	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.60	ZLEY
	ZLEY®PE701-COBURRHY	Sparganium Stoloniferum Extract, Pentylene Glycol	2.00	ZLEY
	Propylene Glycol	Propylene Glycol	3.00	—
	NII-9	C12-13 PARETH-9	1.00	—
	Sodium Metabisulfite	Sodium Metabisulfite	0.05	—

「FORMULA NAME」

Sparganium Revitalizing Essence

「FORMULATION NUMBER」

T23083101

「APPEARANCE」

Transparent, viscous liquid

「PH (10% SOLUTION)」

6.98

「PROCESS」

- 1、Weigh Phase A ingredients, add a certain amount of aqueous solution, heat and stir to disperse evenly.
- 2、Weigh Phase B ingredients, stir at room temperature to disperse evenly, then combine the materials as described.

「FORMULA GUIDELINES」

PHASE	INGREDIENT	INCI NAME	ω / %	SUPPLIER
A	Water	Water	TO 100	—
	Glycerin	Glycerin	3.00	—
	ZEN	Polyacrylate Crosspolymer-6	0.35	—
	Sodium Gluconate	Sodium Gluconate	0.05	—
	PCM	Xanthan Gum	0.06	—
	HA	Sodium Hyaluronate	0.06	—
	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.60	ZLEY
B	Propylene Glycol	Propylene Glycol	4.00	—
	Squalane	Squalane	2.00	—
	GTCC	Caprylic/Capric Triglyceride	3.00	—
	IPM	Isopropyl Myristate	4.00	—
	MONTANOVL	C14-22 Alcohols / C12-20 Alkyl Glucoside	0.60	—
	Stearic Acid	Stearic Acid	0.30	—
	6/18 Alcohol	Cetearyl Alcohol	2.00	—
C	OLIEVR 1000	Cetearyl Alcohol Oleate, Sorbitan Oleate	1.50	—
	SPAN 60	Sorbitan Stearate	0.40	—
	ZLEY®PE701-COBURRHY	Sparganium Stoloniferum Extract, Pentylene Glycol	2.00	ZLEY

「FORMULA NAME」

Sparganium Skin Revitalizing Emulsion

「FORMULATION NUMBER」

T23083102

「APPEARANCE」

White emulsion

「PROCESS」

- 1、 Accurately weigh Phase A, heat in a water bath at 80°C, and homogenize rapidly for 5 minutes until uniform. Set aside.
- 2、 Accurately weigh Phase B, heat and dissolve the ingredients in Phase B. Then, add Phase B to Phase A and homogenize for 5 minutes.
- 3、 Once the temperature of the mixture drops below 50°C, add Phase C and stir thoroughly. Allow the mixture to cool to room temperature and then dispense.

ZLEY GROUP

[INNOVATIVE ELEMENTS TO AMELIORATE LIFE]

IF YOU'RE INTERESTED, PLEASE SCAN THE QR CODE TO
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