



INNOVATIVE ELEMENTS TO AMELIORATE LIFE



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



ZLEY®HPR

— Hydroxypinacolone Retinoate —

「The Next-Gen Retinol Innovation」

「Enhanced Stability · Superior Gentleness · Proven Efficacy」

「Gentle Aging Care & Radiant, Even-Toned Skin」

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

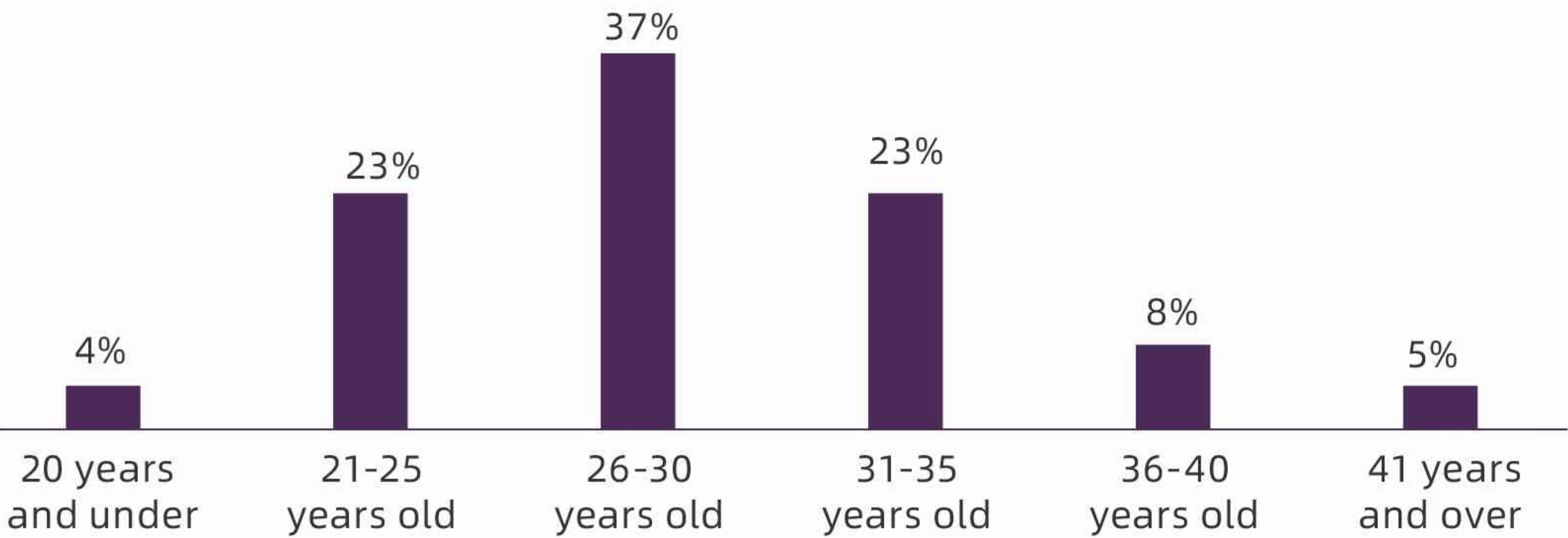
「MARKET ANALYSIS」



MARKET ANALYSIS

INNOVATIVE ELEMENTS TO
AMELIORATE LIFE

「Anti-Aging Demand is Becoming Younger; Policy Drives Technological Innovation」



In January 2024, the General Office of the State Council issued China’s first “Silver Economy” policy document –Opinions on Developing the Silver Economy and Enhancing the Well-being of the Elderly., It clearly proposes to develop the anti-aging industry, and incorporates into the document such contents as “strengthening the R&D and application of gene technology, regenerative medicine, laser and radiofrequency in the field of anti-aging” and “promoting the R&D of cosmetic raw materials, as well as formulation and production process design and development.”



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首

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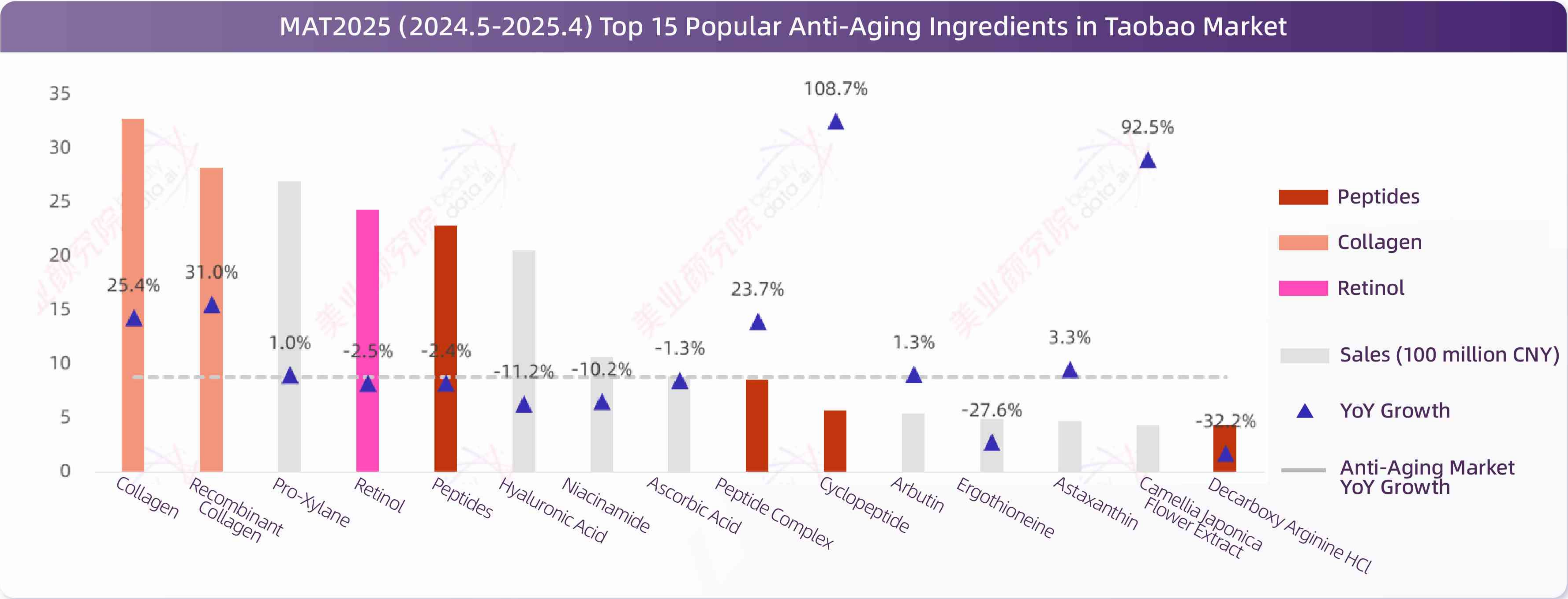
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Opinions of the General Office of the State Council on
Developing the Silver Economy and Enhancing the
Well-being of the Elderly
Guoban [2024] No. 1

「Retinol as One of the “Big Four” Anti-Aging Ingredients」



「High Efficacy of Retinoid-Like Ingredients」



Anti-Aging & Anti-Wrinkle

- Retinol stimulates fibroblasts to synthesize collagen, increasing skin elasticity.
- Retinol inhibits matrix metalloproteinases (MMPs) and promotes the synthesis of tissue inhibitors of metalloproteinases (TIMPs), thereby preventing the breakdown of collagen fibers.

Oil Control & Acne Treatment

- All-trans retinoic acid inhibits TLR expression, suppressing the production of interleukins and interferons, and reduces infiltration of CD4+ and CD8+ lymphocytes and macrophages. This helps clear sebaceous gland blockage and reduces the population of Cutibacterium acnes.

Brightening & Spot Reduction

- Retinol inhibits the expression of tyrosinase and tyrosinase-related proteins in B16 melanoma cells, reducing melanin synthesis.
- It also regulates melanocyte function, lowering melanocyte activity and preventing melanin transfer to the skin surface.

Barrier Repair

- Retinoid-like compounds can influence transcription and the secretion of growth factors, stimulating proliferation in the epidermal basal layer, enhancing barrier function, and reducing transepidermal water loss (TEWL).
- Retinol also promotes glycosaminoglycan (hyaluronic acid) expression in chronologically aged skin.

Retinoids	Functional (anti-aging/whitening/ acne treatment/ skin rejuvenation)	Irritating	stability	summary
Retinol (Tretinoin)	√	√	×	It is highly effective and was the first prescription drug approved by the FDA for topical treatment of acne. However, it is also highly irritating and can easily cause peeling.
Retinol	√	√	×	It has high efficacy but is highly irritating to the skin and has poor stability. It is phototoxic.
Retinaldehyde	√	√	×	It has high efficacy, but is highly irritating to the skin and has poor stability.
Retinyl esters	reduce	×	√	It has reduced efficacy, reduced irritation, and increased stability.



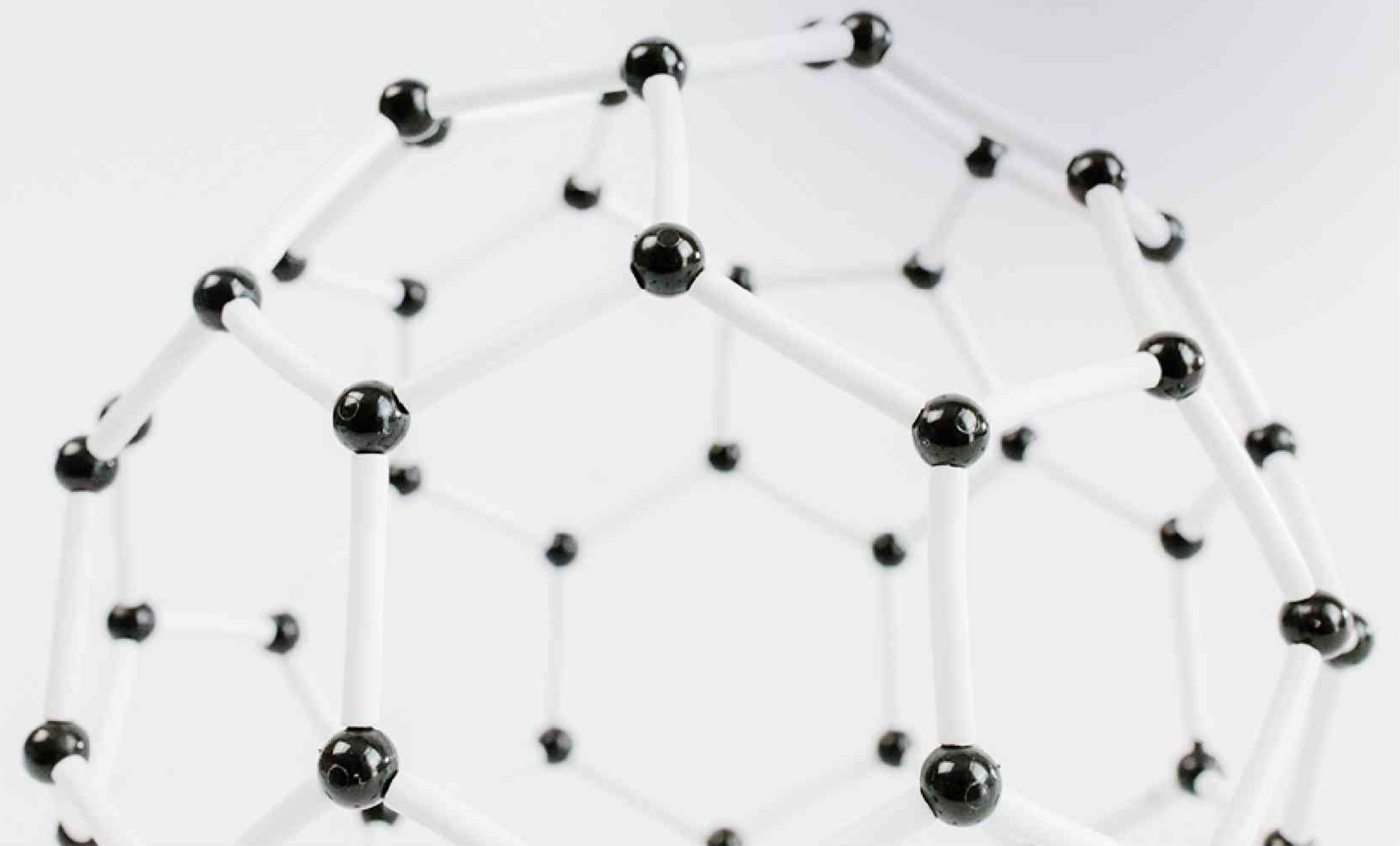
upgrade

High efficacy
High stability
Low irritation

Traditional retinoids cannot simultaneously possess high efficacy, high stability, and low irritation. Therefore, there is an urgent need to develop a new generation of retinoids that are more effective, more stable, and gentler!

Part . 02

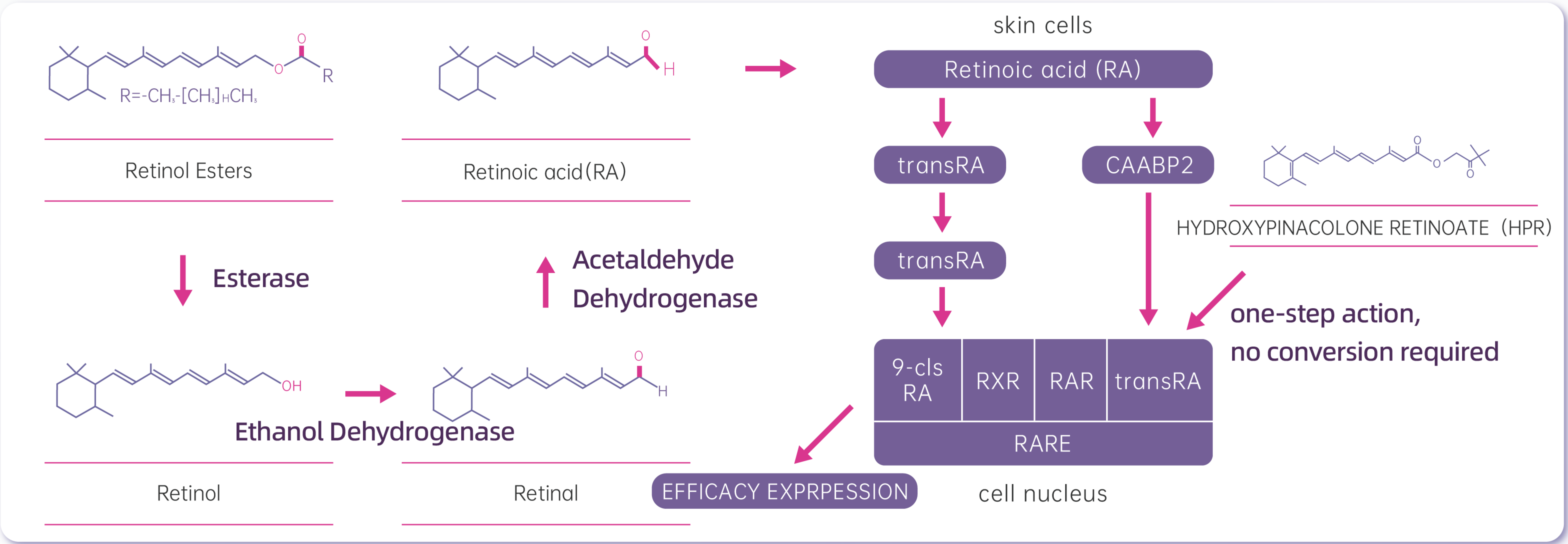
「PRODUCT INTRODUCTION」



PRODUCT INTRODUCTION

INNOVATIVE ELEMENTS TO AMELIORATE LIFE

- ZLEY®HPR-Hydroxypinacolone Retinoate, as the **“next-generation advanced retinol,”** is synthesized from retinoic acid and a small-molecule pinacol derivative. It offers the product advantages of **greater stability, gentleness, and efficacy**, with stability **5 times higher than retinol** and **anti-wrinkle effects comparable to tretinoin (retinoic acid)**.
- **HPR does not require conversion to retinoic acid in the skin, directly binding to relevant receptors to exert its effects.** This reduces skin irritation while improving its functional efficiency.



ZLEY® HPR

HYDROXYPINACOLONE RETINOATE



「ZLEY® HPR-Efficacy & Mechanism of Action」



① Anti-Wrinkle & Firming / Anti-Photoaging

- Stimulates the production of key youth proteins (Type I Collagen & Elastin), tightening collagen fibers and reinforcing the elastic network.
- Inhibits MMP-1 activity, preventing extracellular matrix degradation.
- Thickens the dermis, addressing age-related thinning of the skin.

② Exfoliation & Skin Smoothing

- Gently accelerates the removal of old keratin, promoting epidermal turnover.
- Unclogs pores and improves roughness, comedones, and acne-prone areas.

③ Brightening & Spot Reduction

- Inhibits tyrosinase activity, reducing melanin content in the skin.
- Promotes epidermal turnover, improving surface pigmentation.
- Upregulates endogenous antioxidant enzymes (SOD & CAT) to provide antioxidant protection.

Part . 03

「STABILITY, GENTLENESS & EFFICACY」

STABILITY, GENTLENESS, EFFICACY

INNOVATIVE ELEMENTS TO AMELIORATE LIFE

Retinoids	Functional (anti-aging/whitening/ acne treatment/ skin rejuvenation)	Irritating	stability	summary
Retinol (Tretinoin)	√	√	×	It is highly effective and was the first prescription drug approved by the FDA for topical treatment of acne. However, it is also highly irritating and can easily cause peeling.
Retinol	√	√	×	It has high efficacy but is highly irritating to the skin and has poor stability. It is phototoxic.
Retinaldehyde	√	√	×	It has high efficacy, but is highly irritating to the skin and has poor stability.
Retinyl esters	reduce	×	√	It has reduced efficacy, reduced irritation, and increased stability.
Hydroxypinacolone Retinoate (HPR)	√	×	√	High efficacy, low irritation. Improved stability. No phototoxicity.

ZLEY®HPR-Hydroxypinacolone Retinoate--As a new generation of super retinol, it boasts advantages such as greater stability, gentler properties, and higher efficacy!

「01) Enhanced Stability – 5× More Stable than Retinol」

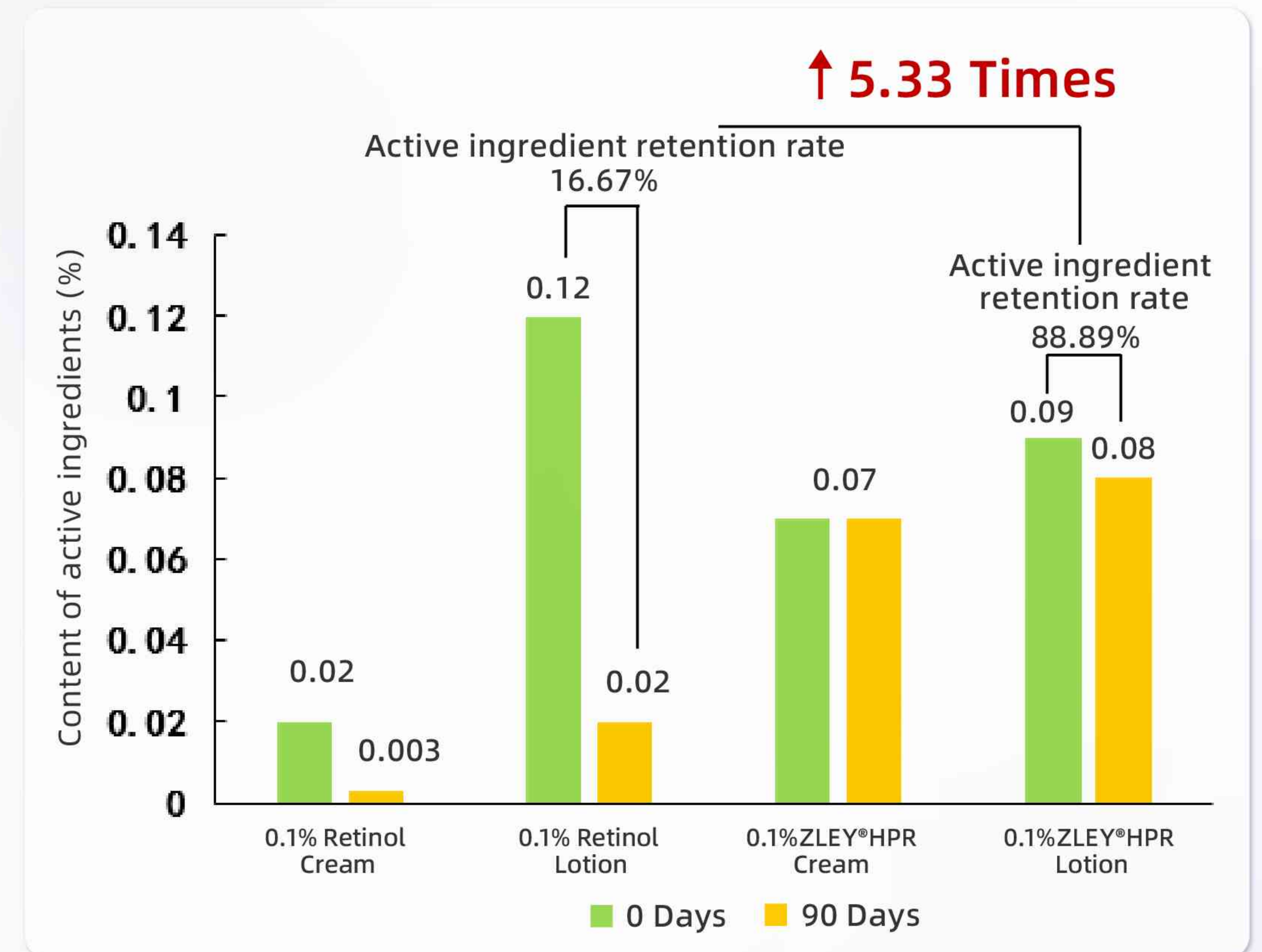


1.1) Experimental Procedure

- 0.1% retinol and 0.1% ZLEY®HPR-Hydroxypinacolone Retinoate were added as active ingredients to the same base formula to prepare emulsions and creams, respectively, and stored at room temperature and protected from light for 90 days.
- The changes in the content of retinol and Hydroxypinacolone Retinoate in the emulsion and cream formulations were measured at 0 days and 90 days, respectively.

1.2) Experimental Results

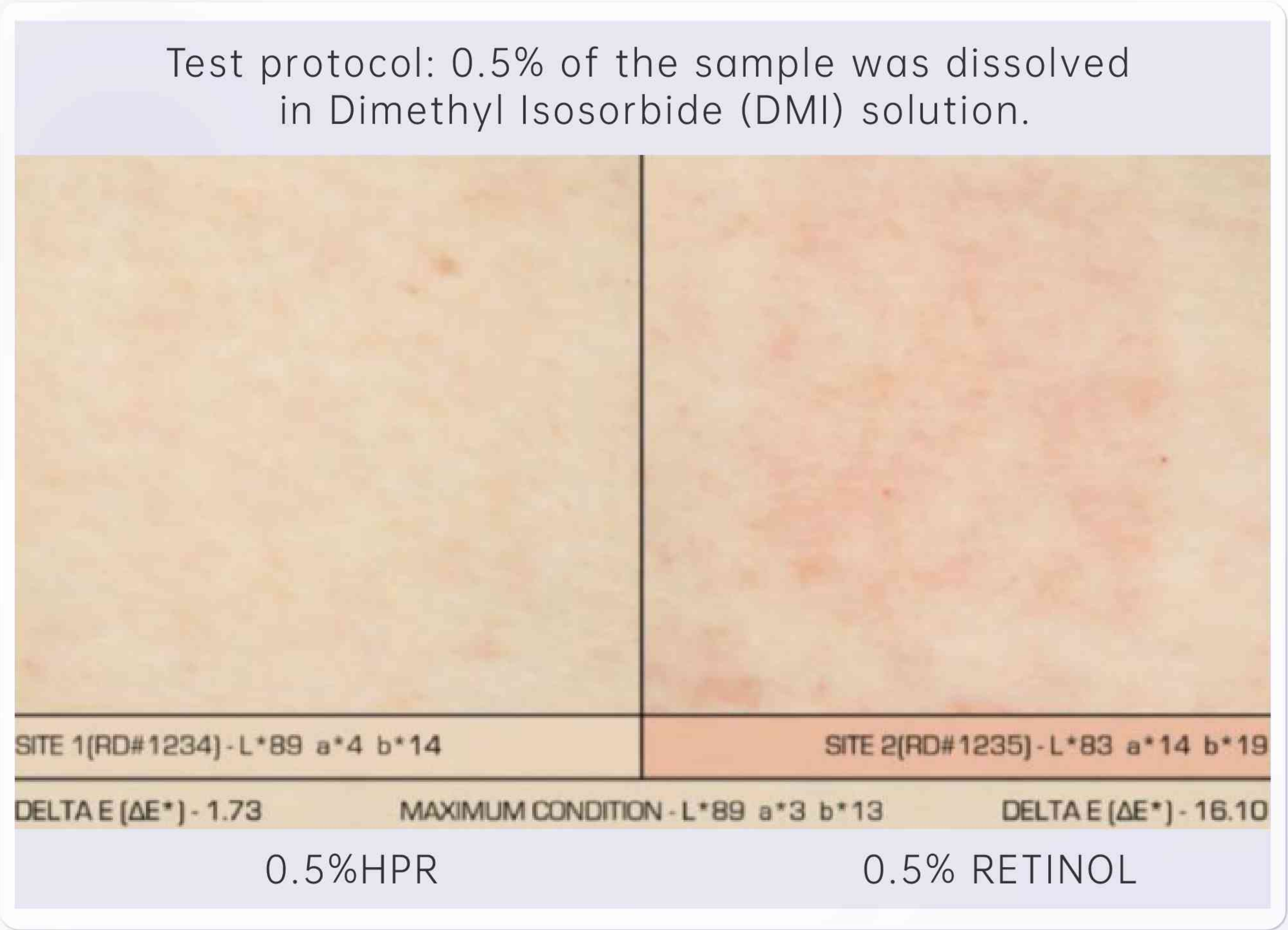
- "5 times more stable than retinol":** After 90 days of storage at room temperature and protected from light, the active ingredient retention rate of the 0.1% ZLEY®HPR emulsion was 5.33 times that of the 0.1% retinol emulsion.



「02) Safer & Gentler」



● In a 24-hour Closed Patch Test, the result was further proof that HPR as a topical cosmetic should be safer and less irritating. The image on the right is a comparison for the irritation of Hydroxypinacolone retinoate and retinol.



* 信息来源: Elizabeth Grant Skin Care

Estée Lauder publishes

7932

Antiaging effects of retinoid hydroxypinacolone retinoate on skin models



Nora Ruth, MA, Estée Lauder Companies; Thomas Mammone, PhD, MBA, Estée Lauder Companies

Tretinoin, also known as all-trans retinoic acid (ATRA), is well known for its antiaging effects on skin. However, skin irritation, photochemical instability, and concerns about toxicity have hindered the use of ATRA in cosmetic products. Typically, milder retinoid derivatives are used, which must first be metabolized to more active forms by several enzymatic steps in the skin, which reduces their potency. Therefore, it is desirable to find new molecules that have increased retinoic acid-like activity without the negative side-effects. Hydroxypinacolone retinoate (HPR), a cosmetic grade ester of ATRA, is unique in that it processes innate retinoic acid activity, binding directly with retinoid receptors without the need for metabolic breakdown to more biologically active forms. It has been demonstrated to be more stable and cause less skin irritation than retinol. Here, we compared levels of gene transcription by HPR, ATRA, retinol (Rol), retinaldehyde (Ral), and retinyl palmitate (RP) by evaluating binding of the retinoic acid receptor to retinoid acid responsive elements (RARE) in DNA using a RARE reporter assay. In addition, we compared the antiaging properties of HPR to ATRA by testing the effects on collagen levels and skin irritation in organotypic skin models. Skin models were treated for 5 days with three doses of HPR and ATRA; vehicle controls skins were treated with vehicle alone. Basal media was collected for procollagen and IL-1 α ELISA analysis. On day 5, skins were fixed, paraffin embedded, sectioned, and stained with Masson trichrome (for collagen). RARE assay results showed that HPR had greater levels of gene transcription than Rol, Ral, and RP at the same concentrations, and was less cytotoxic to cells at a 10 times higher concentration; however, HPR did not achieve gene transcription levels of ATRA. Procollagen ELISA results showed that skins treated with HPR significantly increased procollagen production compared with untreated control skins, and was similar to ATRA. Qualitative assessment of collagen levels from histologic staining of skins corroborated these results, with the highest dose of HPR out-performing ATRA. IL-1 α ELISA analysis showed that HPR did not induce more (or less) inflammatory response than either ATRA or the vehicle control. Together these data suggest that HPR is an effective alternative to ATRA and other less potent retinoids in the treatment of aging skin without the detrimental side-effects.

Commercial support: Estée Lauder Companies.

「03) Higher Efficacy」



Hydroxypinacolone retinoate(HPR), a cosmetic grade ester of ATRA, is unique in that it processes innate retinoic acid activity, binding directly with retinoid receptors without the need for metabolic breakdown to more biologically active forms.

HPR had greater levels of gene transcription than Rol, Ral, and RP at the same concentrations, and was less cytotoxic to cells at a 10 times higher concentration;

Skins treated with HPR significantly increased pro-collagen production as compared with untreated control skins, and was comparable to ATRA.

▲ HPR acts in a single step, requires no conversion, and delivers anti-wrinkle effects comparable to ATRA.

Part . 04

「EFFICACY EVALUATION」



EFFICACY EVALUATION

INNOVATIVE ELEMENTS TO AMELIORATE LIFE

「01) Anti-Wrinkle & Firming - Promotes Type I Collagen & Elastin Production」

- Compared with the blank control group, the positive control group showed a positive upregulation rate of Type I collagen and elastin, with a statistically significant difference ($P < 0.001$), indicating that the test results are valid.
- Based on human skin fibroblasts (HSF), compared with the blank control group, 0.0031% ZLEY®HPR significantly increased the content of Type I collagen and elastin, with upregulation rates of 20.64% and 20.66%, respectively, showing extremely significant differences ($P < 0.001$).

Figure 1: Effect of ZLEY®HPR on type I collagen levels

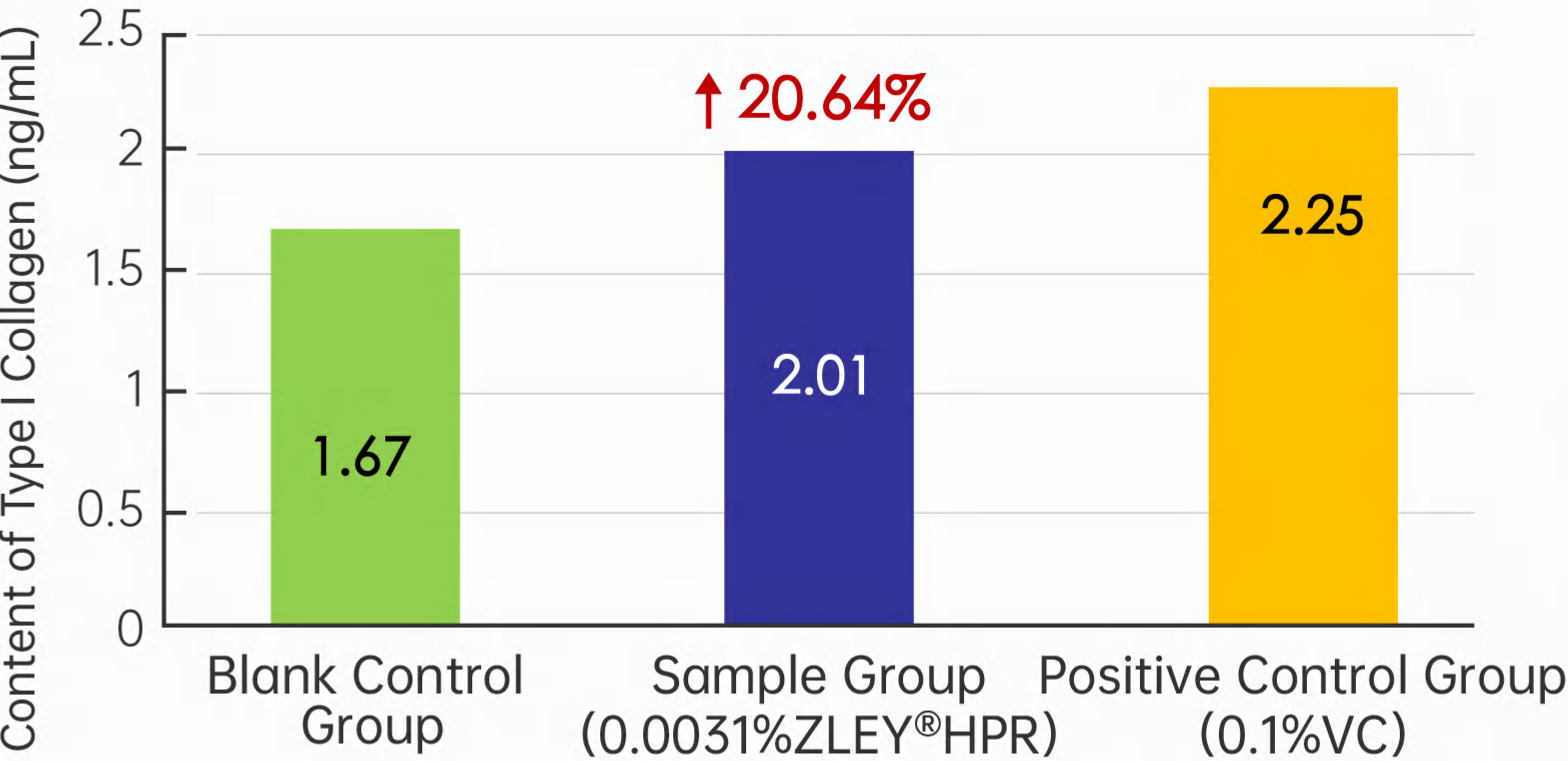
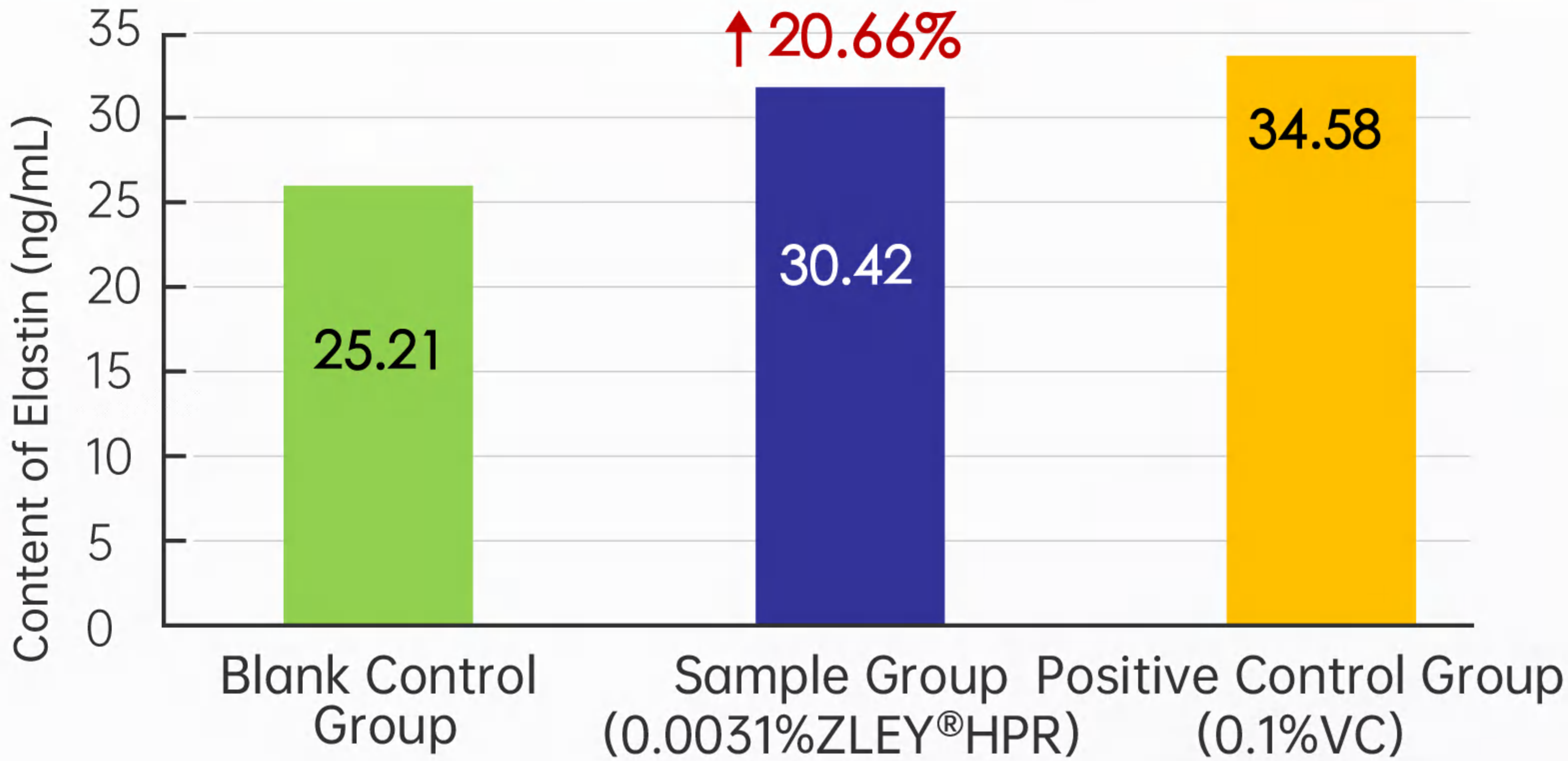


Figure 2: Effect of ZLEY®HPR on elastin levels



ZLEY®HPR promotes the production of Type I collagen and elastin, thereby delivering anti-wrinkle and firming effects.

*Data sourced from third-party testing institutions

「02) Anti-Photoaging – Inhibits MMP-1 Activity」

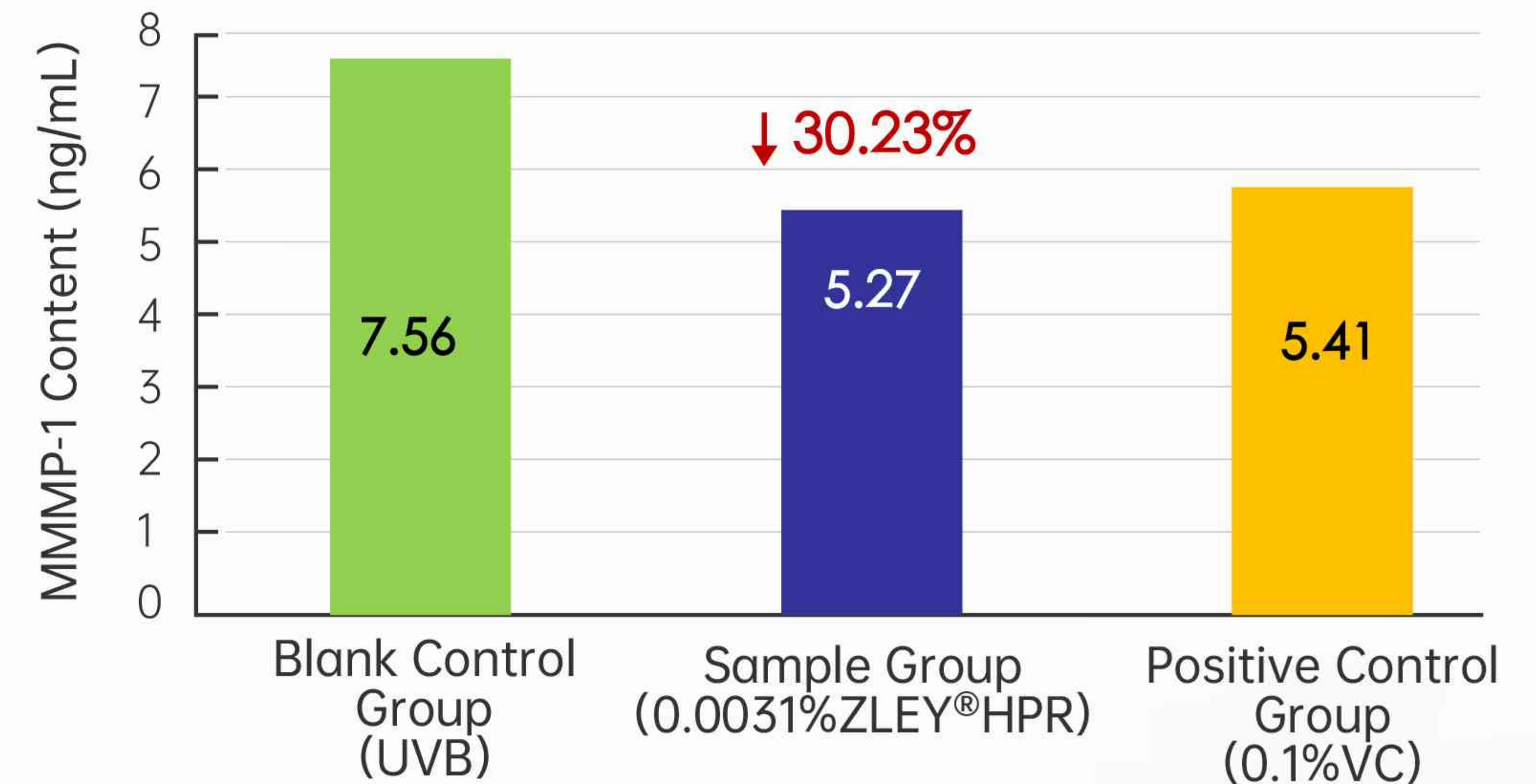
2.1) Experimental Principle

- Long-term exposure of the skin to ultraviolet (UV) radiation activates intracellular signaling pathways, inducing the production of matrix metalloproteinases (MMPs), which leads to photoaging.
- MMP-1 primarily degrades collagen secreted by dermal fibroblasts. Inhibiting MMP-1 activity can prevent extracellular matrix degradation, thereby delivering anti-wrinkle and firming effects.

2.2) Results

- Compared with the blank control group, the positive control group showed a significant decrease in MMP-1 content, with an extremely significant difference ($P < 0.001$), indicating that the test results are valid.
- Compared with the blank control group, 0.0031% ZLEY®HPR significantly reduced MMP-1 levels in fibroblasts after UVB-induced damage, with an inhibition rate of 30.23% ($P < 0.001$).

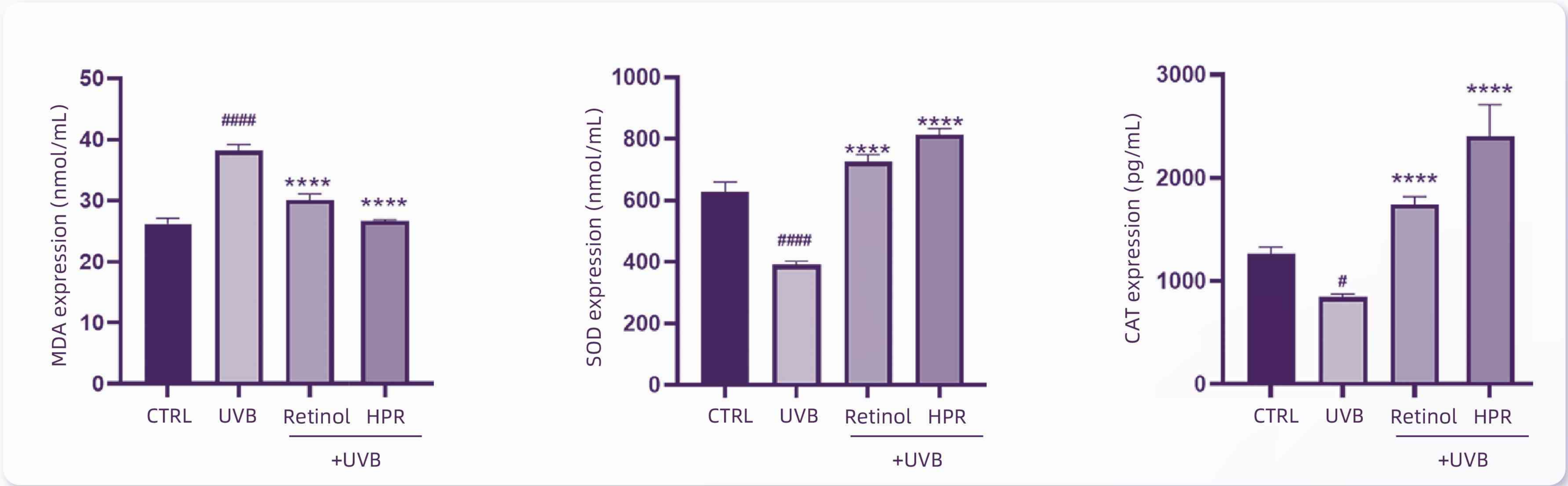
Effect of ZLEY®HPR on MMP-1 Levels in UVB-Damaged Cells



ZLEY®HPR inhibits UVB-induced MMP-1 activity, prevents extracellular matrix degradation, and provides anti-photoaging effects.

「03) Antioxidant – Upregulates SOD & CAT Expression」

As shown in the figure below, the results of UVB-induced mouse NIH-3T3 fibroblasts showed that HPR (5 µg/mL) significantly inhibited the expression of malondialdehyde (MDA, a marker of oxidative stress) and promoted the expression of endogenous antioxidant enzymes SOD and CAT (****p<0.0001), and both were significantly better than retinol (5 µg/mL).



04) Clinical Study - 0.2% ZLEY®HPR Cream



- Study Objective: To evaluate the efficacy of the test product in anti-wrinkle, firming, exfoliating, brightening, and its mildness (non-irritating) and suitability for sensitive skin.
- Subjects: A total of 32 valid subjects were enrolled, including 4 males and 28 females, aged between 35 and 60 years, with a mean age of 50.16 ± 6.69 years. All subjects had sensitive skin of Asian type.
- Test Product : 0.2% ZLEY®HPR Anti-Aging Essence Cream
- Directions for Use: Apply an appropriate amount of 0.2% ZLEY®HPR Anti-Aging Essence Cream evenly to the face and gently massage until fully absorbed. Use twice daily (morning and evening) for 28 consecutive days.
- Results: The 0.2% ZLEY®HPR Anti-Aging Essence Cream demonstrated efficacy in reducing wrinkles, improving skin firmness, promoting exfoliation, brightening skin tone, and was mild (non-irritating) and suitable for sensitive skin.

*Data sourced from third-party testing institution

Formula - 0.2% ZLEY®HPR Anti-Aging Serum Cream

Phase	Ingredient	Ingredient	ω/%	Supplier
A	Deionized water	Water	To 100	—
	EG-1	Glycereth-26	3.00	—
	HA	Sodium Hyaluronate	0.12	—
	Glycerin	Glycerin	5.00	—
	SK425	Ammonium Polyacryloyldimethyl Taurate	0.30	—
	ZLEY®BIOCARE-CPH	Chlorphenesin	0.15	ZLEY
	Panthenol	Panthenol	0.30	—
B	A165	Glyceryl Stearate; PEG-100 Stearate	1.00	—
	16/18S	Cetearyl Alcohol	2.00	—
	GTCC	Caprylic/Capric Triglyceride	5.00	—
	ININ	Isononyl Isononanoate	5.00	—
	Squalane	Squalane	3.00	—
	OLV-10	Cetearyl Glucoside, Sorbitan Olivatate, Cetearyl Alcohol	1.50	—
	DC200/350cst	Dimethicone	2.00	—
C	Butyrospermum Parkii (Shea)Butter	Butyrospermum Parkii (Shea)Butter	2.00	—
	305	Polyacrylamide, C13-14 Isoparaffin, Laureth-7	0.50	—
D	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.64	ZLEY
	ZLEY®PE401-PHEACNE	Stephania Tetrandra Extract, Butylene Glycol, Water	1.00	ZLEY
	ZLEY®PE203-KAENDA	Piper Methysticum Root Extract, Hydroxypropyl Cyclodextrin, Butylene Glycol, Water	2.00	ZLEY
	ZLEY®HPR-10	Hydroxypinacolone Retinoate, Dimethyl Isosorbide	2.00	ZLEY
	ST Liquid	Diethylhexyl Syringylidenemalonate	0.20	—

0.2%
ZLEY®HPR Anti-Aging
Serum Cream

100%
Mild and non-irritating

Data sourced from third-party testing institutions

I. Materials and Methods

- 1. Test Substance: The original final product.
- 2. Negative Control: Blank.
- 3. Participants: 30 participants in total (28 females, 2 males), aged 28 to 59 years, with a mean age of 48.67 ± 8.31 years, meeting the voluntary inclusion criteria.
- 4. Patch Test Method: Using qualified patch testing equipment, approximately 0.020 g to 0.025 g (solid or semi-solid) or 0.020 mL to 0.025 mL (liquid) of the test substance was placed in the patch tester using a closed patch test method. A hypoallergenic adhesive tape was applied to the flexor surface of the subject's forearm. The test substance was removed after 24 hours. Skin reactions were observed at 0.5, 24, and 48 hours after removal, and the results were recorded according to the skin reaction grading standards in the currently effective technical specifications.

II. Experimental Results

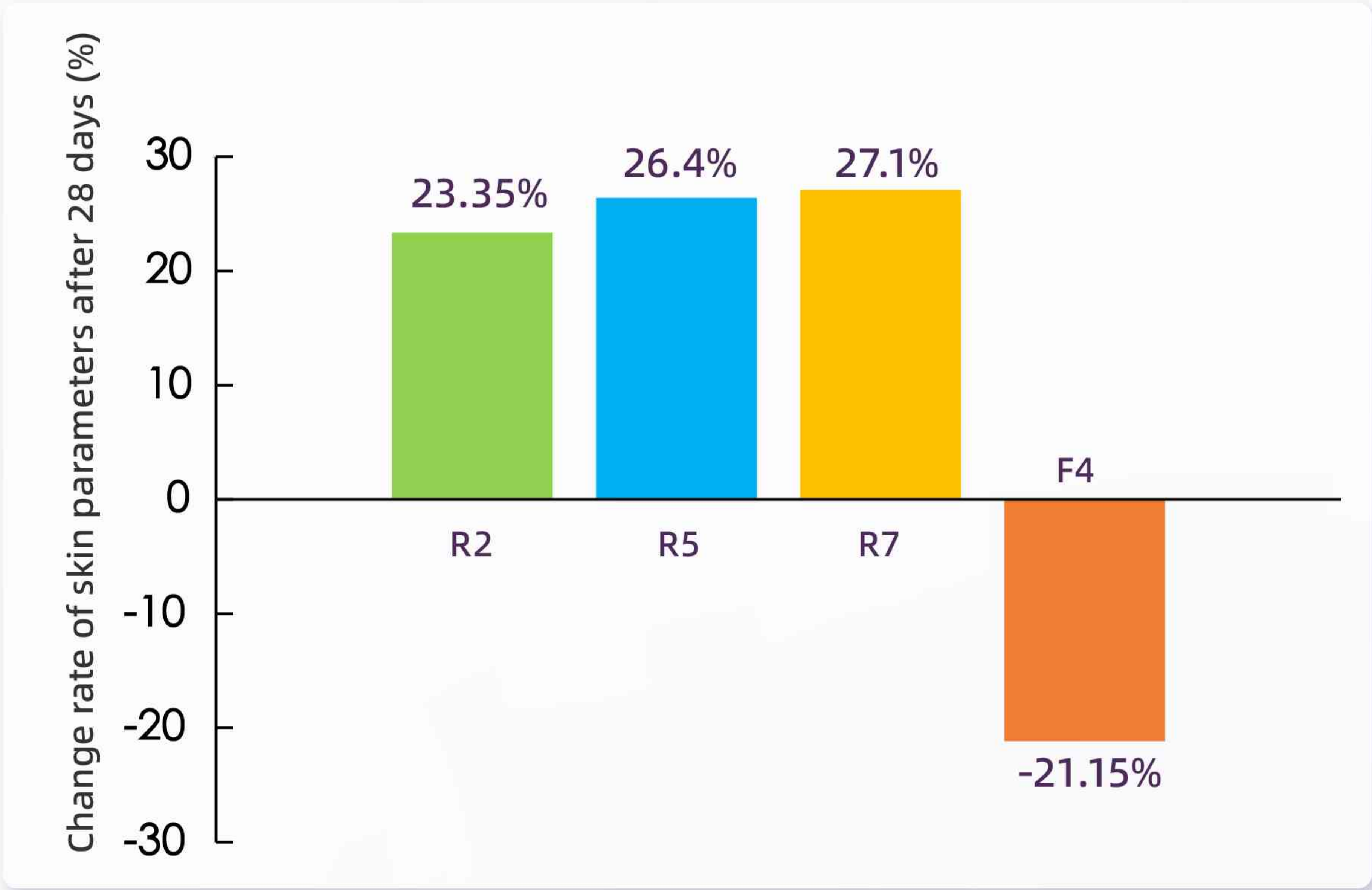
Summary of Cosmetic Human Skin Patch Test Results							
Group	Number of Subjects	Observation Time	Number of Subjects with Different Skin Reactions in Patch Test				
			0	1	2	3	4
Test Substance	30	0.5h	30	0	0	0	0
		24h	30	0	0	0	0
		48h	30	0	0	0	0
Negative Control	30	0.5h	30	0	0	0	0
		24h	30	0	0	0	0
		48h	30	0	0	0	0

Note: See the appendix for skin reactions of the 30 subjects at different observation times.

The human skin patch test results showed that 0 of the 30 subjects experienced adverse skin reactions.

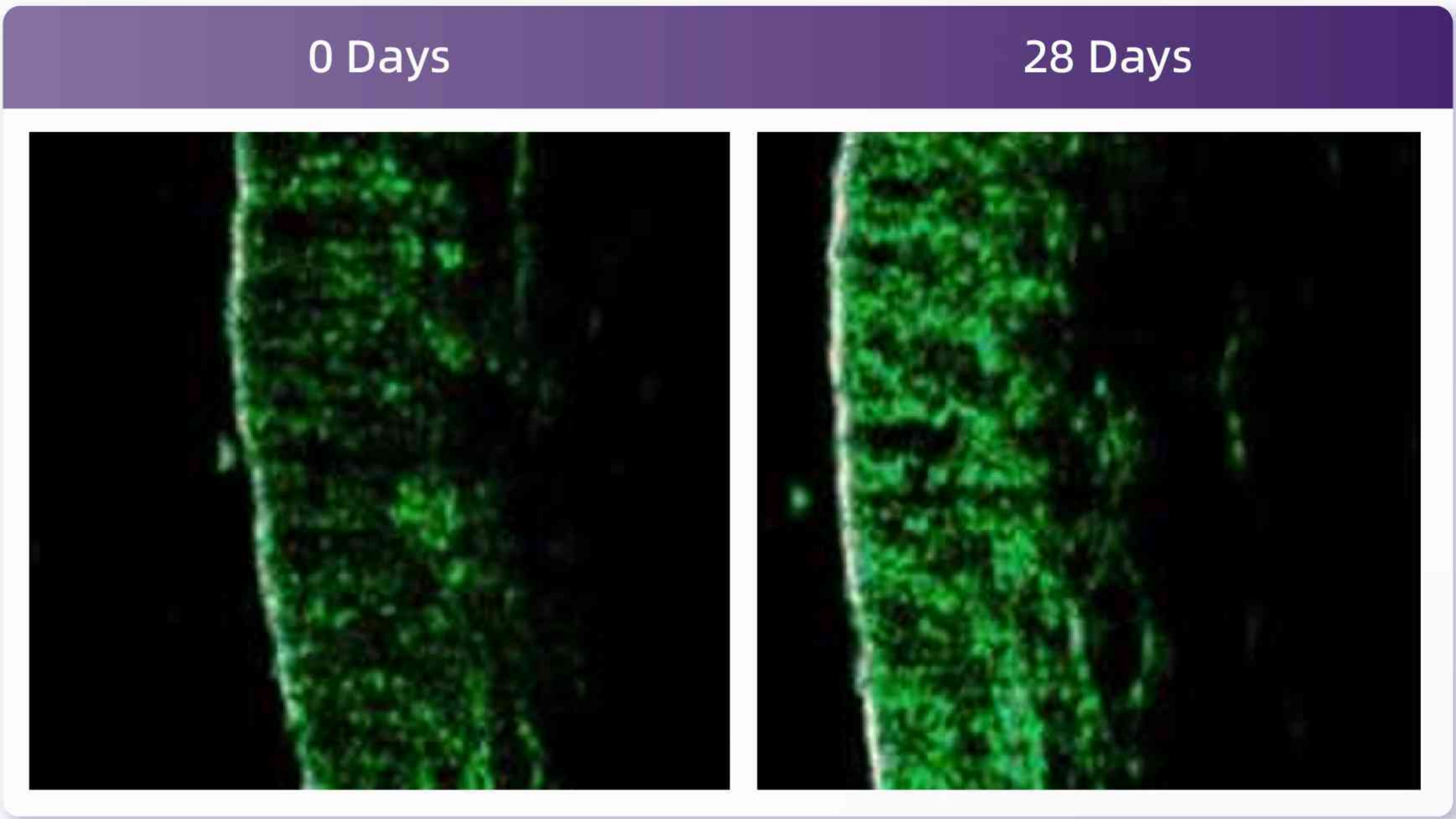
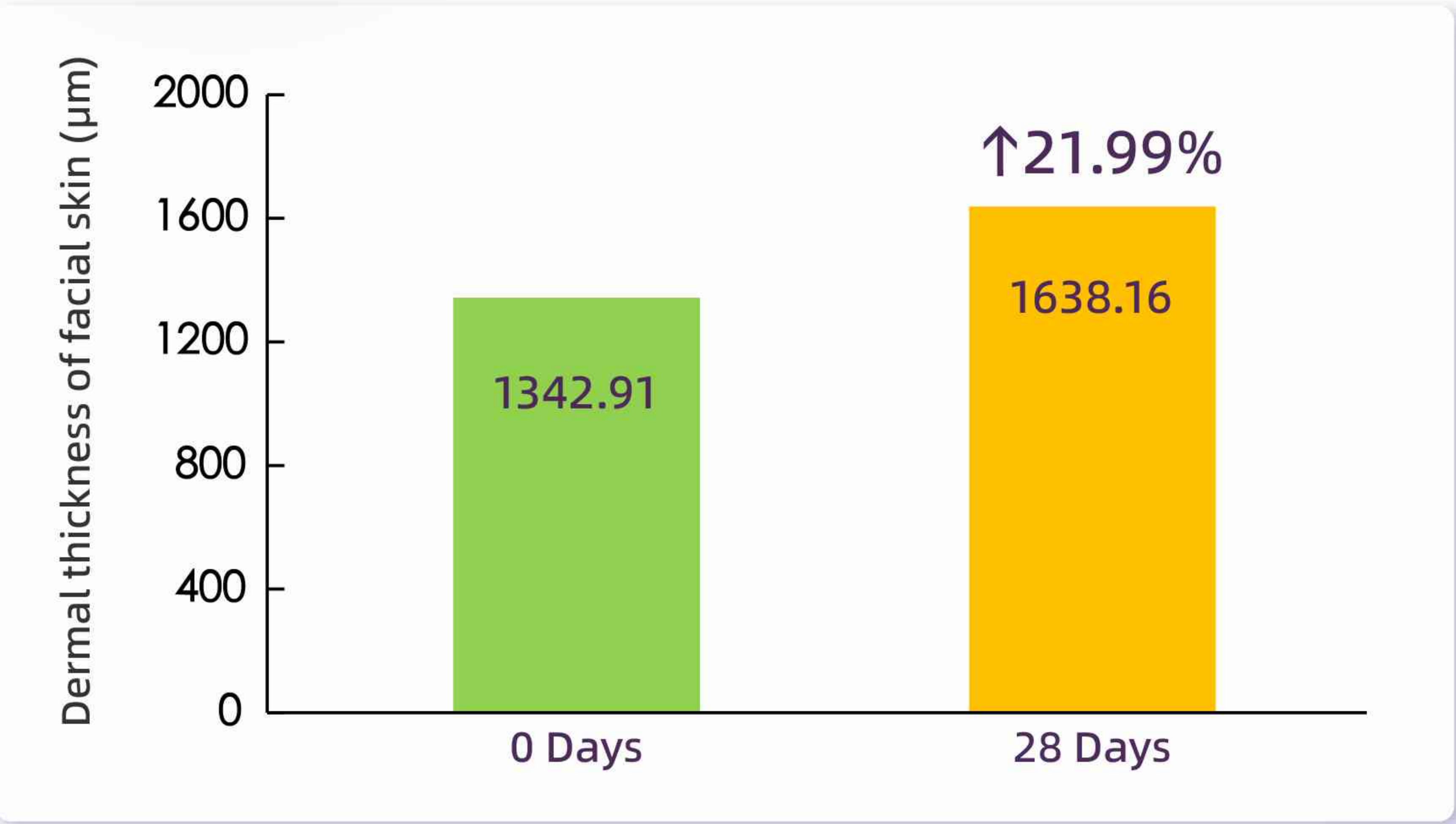
4.1 Improvement in Skin Elasticity and Firmness

- R2, R5, and R7 represent the skin' s ability to recover after de-formation; higher values indicate better skin elasticity.
- F4 is an indicator of skin firmness; lower values reflect greater skin density and improved firmness.
- As shown in the figure on the right, compared with baseline, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, the facial skin elasticity parameters R2, R5, and R7 in-creased by 23.35%, 26.40%, and 27.10%, respectively, while the firmness parameter F4 decreased by 21.15%. All changes were statistically significant (P < 0.05).



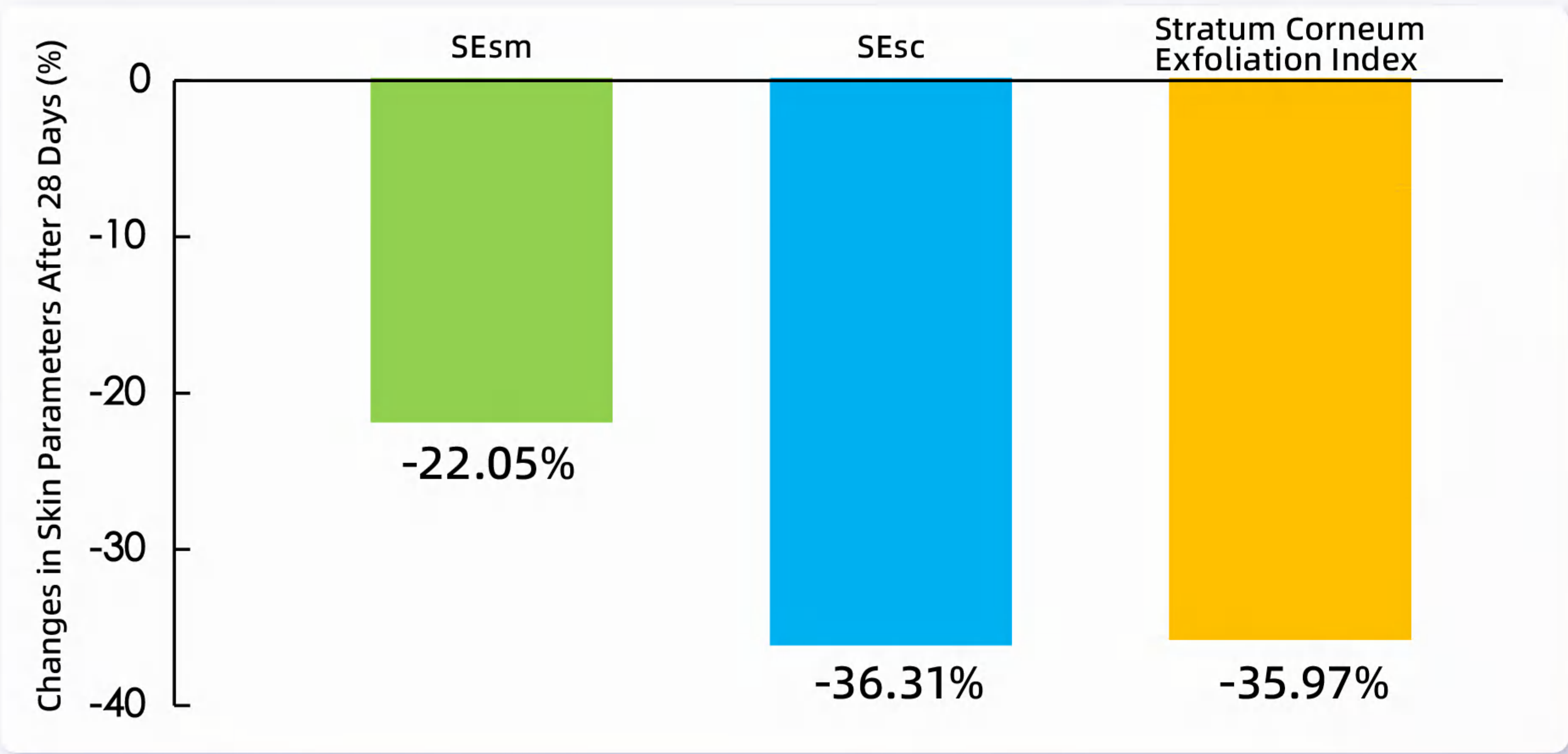
4.2) Increased Dermal Thickness

- The greater the dermal thickness value, the better the skin.
- As shown in the figure below, compared with before use, after using 0.2% ZLEY®HPR Anti-Aging Essence Cream for 28 days, the dermal thickness of facial skin significantly increased by 21.99% ($P < 0.05$).



4.3 Exfoliation and Skin Smoothing

- A lower SEsm value indicates better skin smoothness.
- A lower Sesc value (stratum corneum cell desquamation parameter) indicates improved skin hydration, fewer shed corneocytes, and overall better skin condition.
- A higher desquamation index reflects more severe shedding of stratum corneum cells.
- As shown in the figure on the right, compared with baseline, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, facial skin smoothness (SEsm) improved by 22.05%, the stratum corneum desquamation parameter (Sesc) improved by 36.31%, and the desquamation index decreased by 35.97%. All changes were statistically significant ($P < 0.05$).



Data sourced from third-party testing institutions

Improvement in skin smoothness

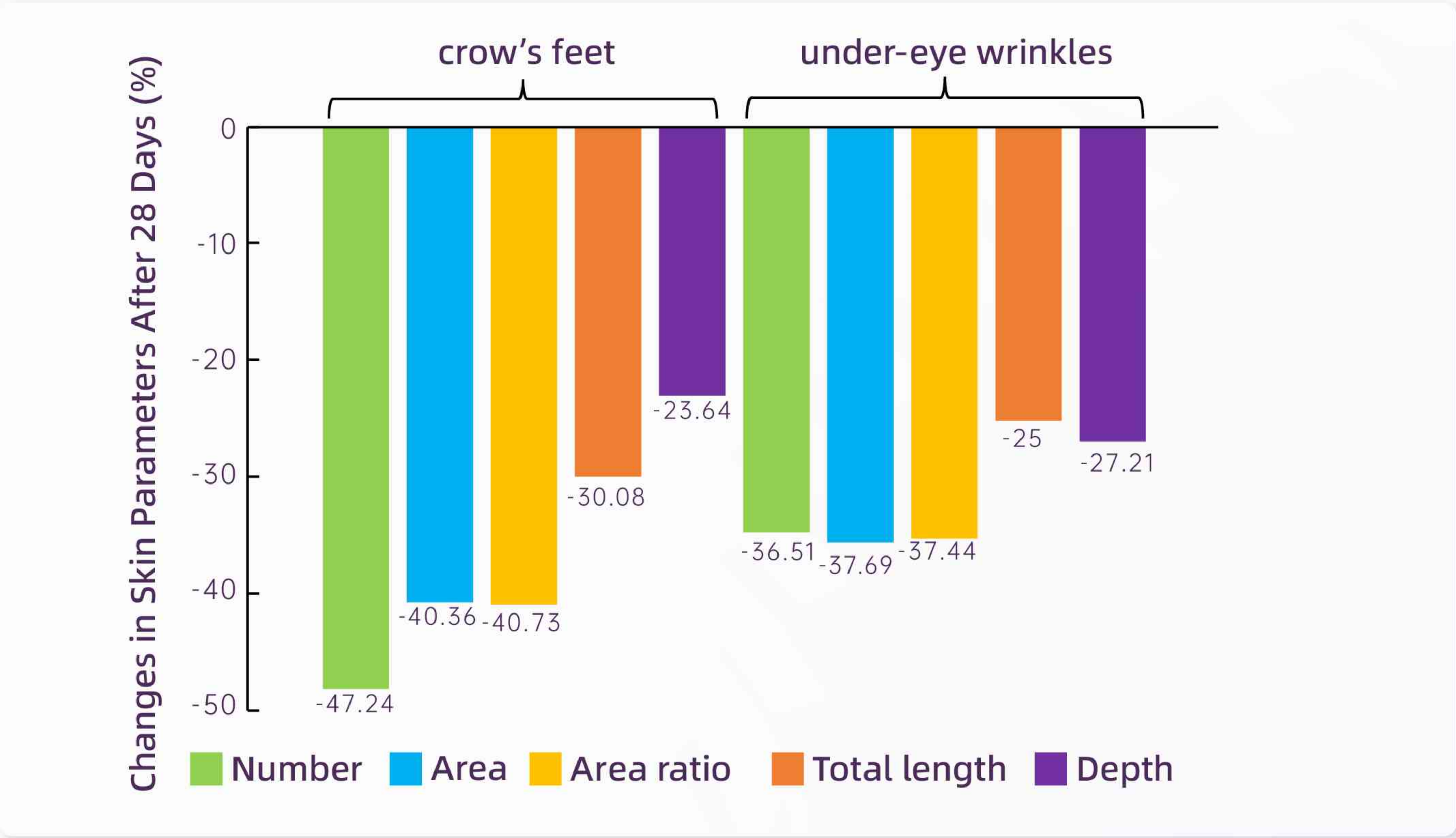
0 Days 28 Days

Improvement in skin desquamation condition

0 Days 28 Days

「4.4 Reduction of Crow's Feet and Under-Eye Wrinkles」

As shown in the figure below, compared with baseline, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, the number, area, area ratio, total length, and depth of both crow' s feet and under-eye wrinkles decreased significantly ($P < 0.05$).

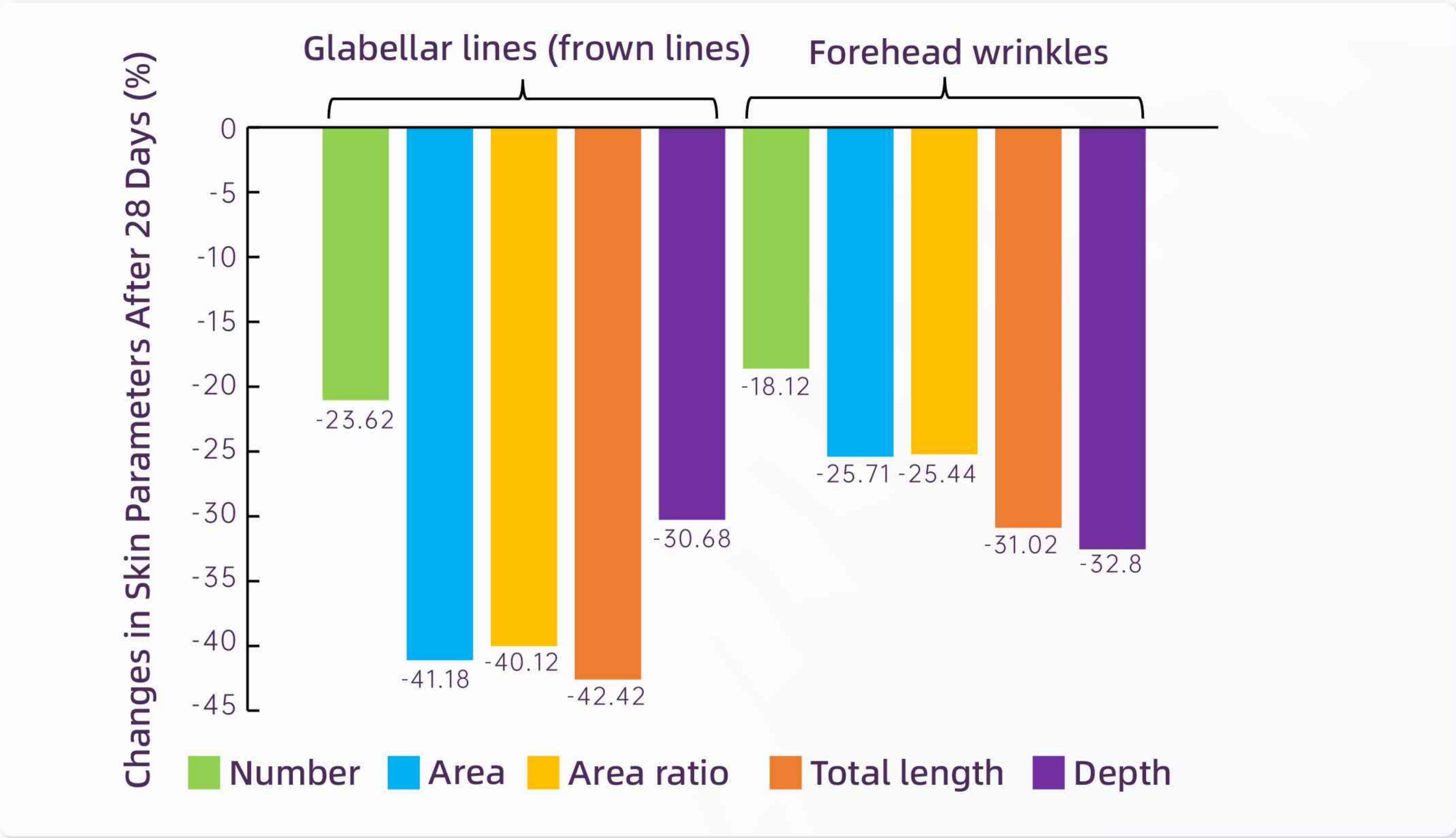


Data sourced from third-party testing institutions

「4.5) Reduction of Glabellar Lines and Forehead Wrinkles」



► As shown in the figure below, compared with baseline, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, the number, area, area ratio, total length, and depth of both glabellar lines (frown lines) and forehead wrinkles decreased significantly ($P < 0.05$).

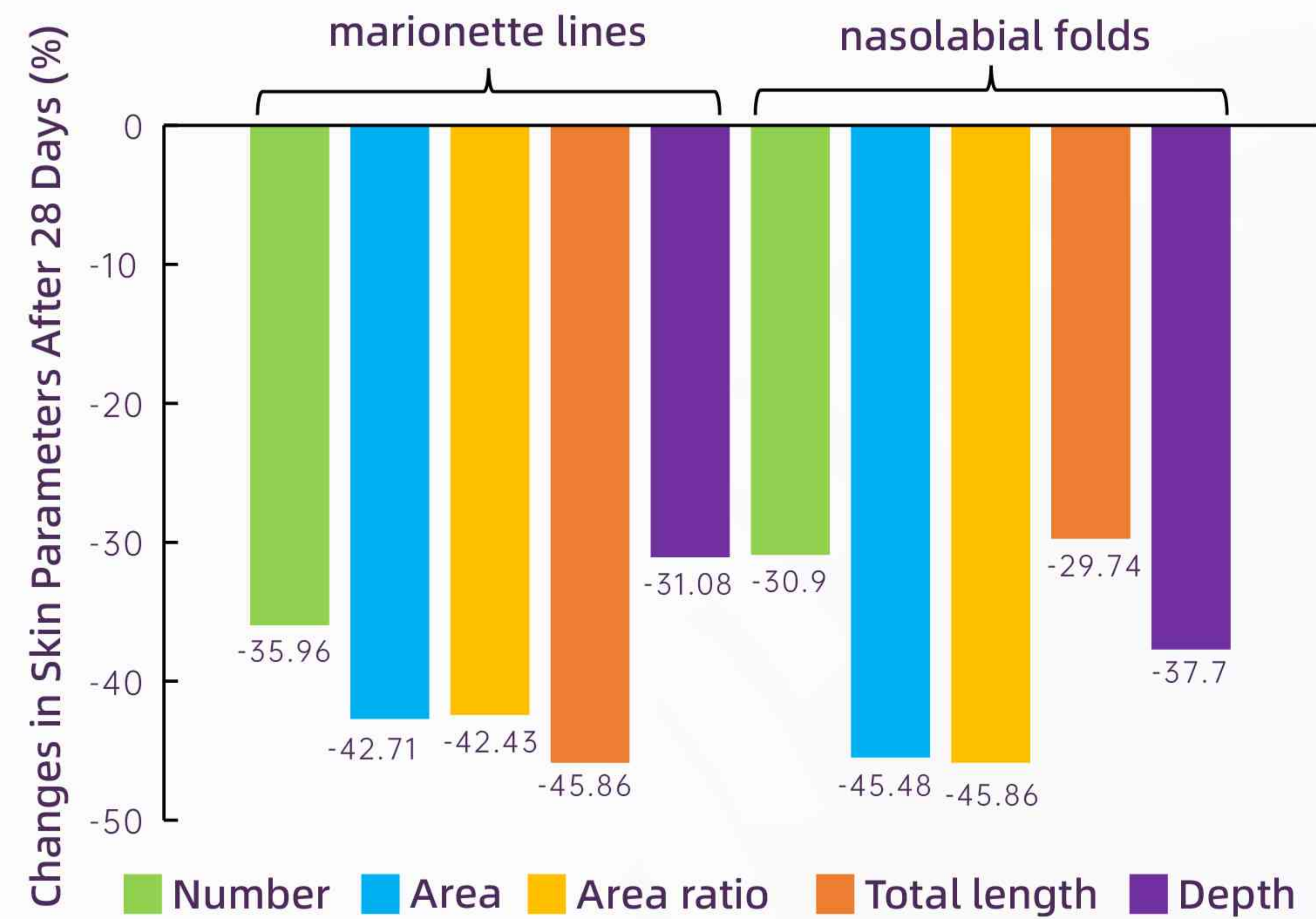


Data sourced from third-party testing institutions

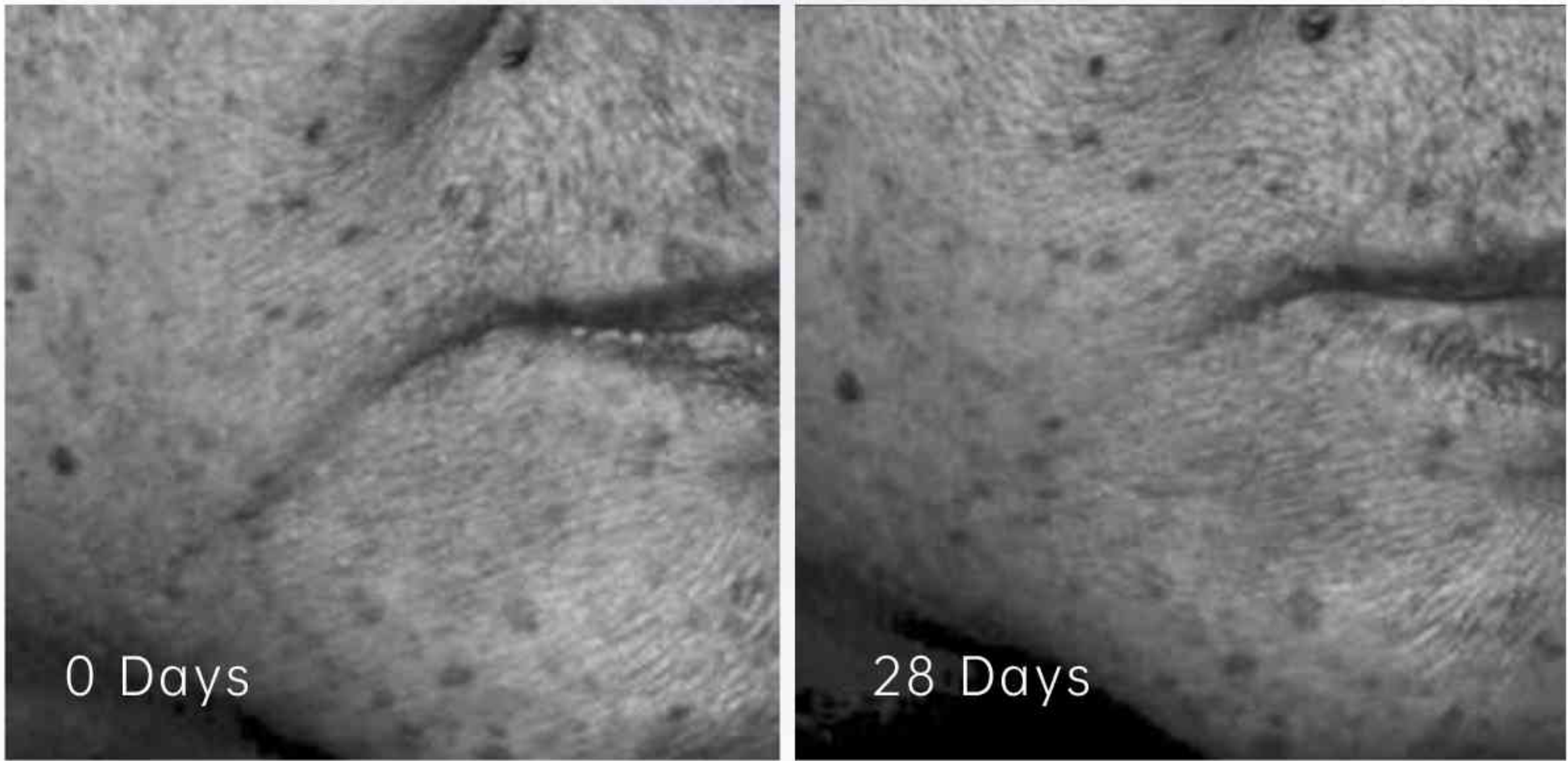


「4.6 Reduction of Marionette Lines and Nasolabial Folds」

► As shown in the figure below, compared with baseline, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, the number, area, area ratio, total length, and depth of both marionette lines and nasolabial folds decreased significantly ($P < 0.05$).



Improvement in marionette lines



Improvement in nasolabial folds

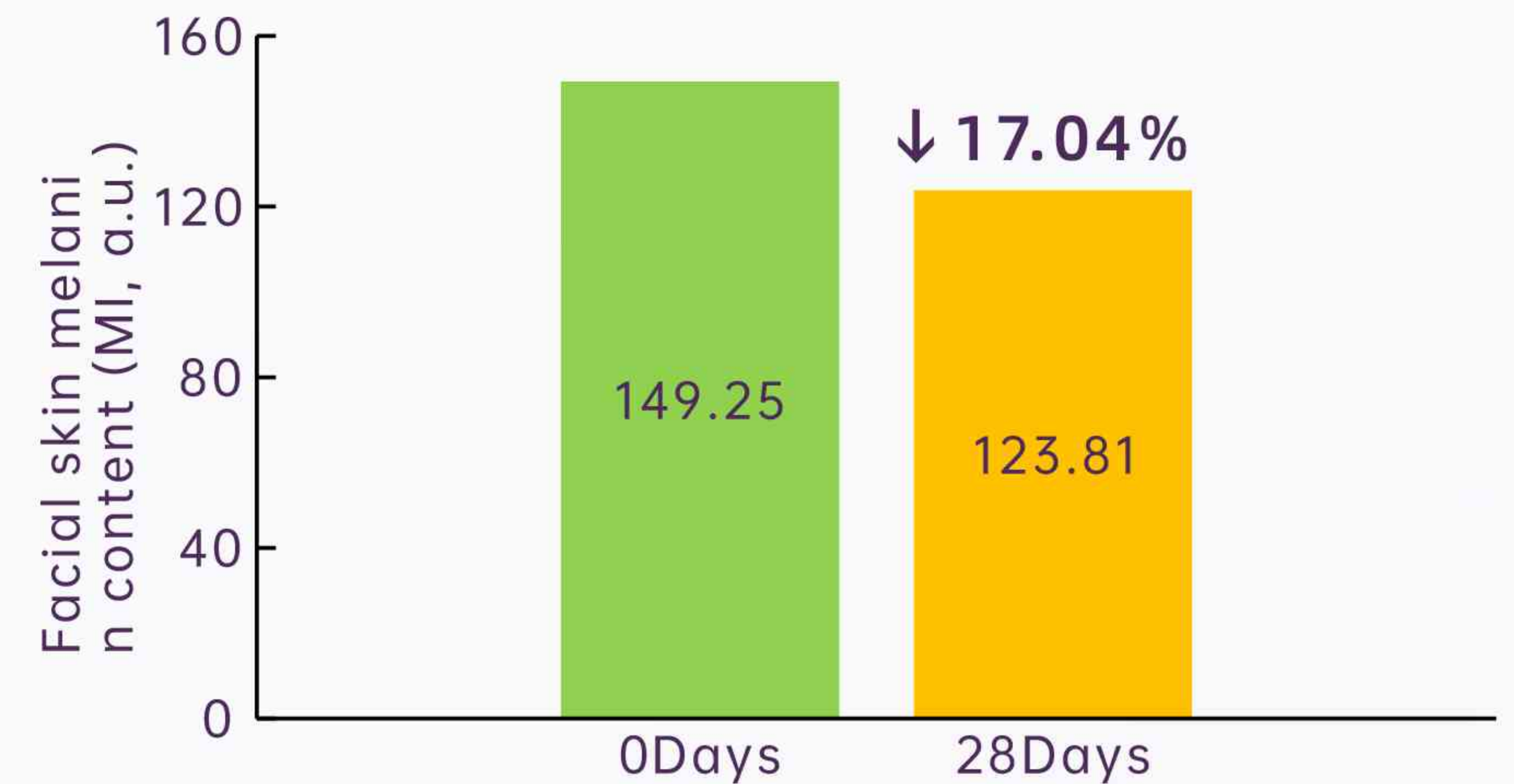


Data sourced from third-party testing institutions

「4.7 Reduction of Skin Melanin Content」



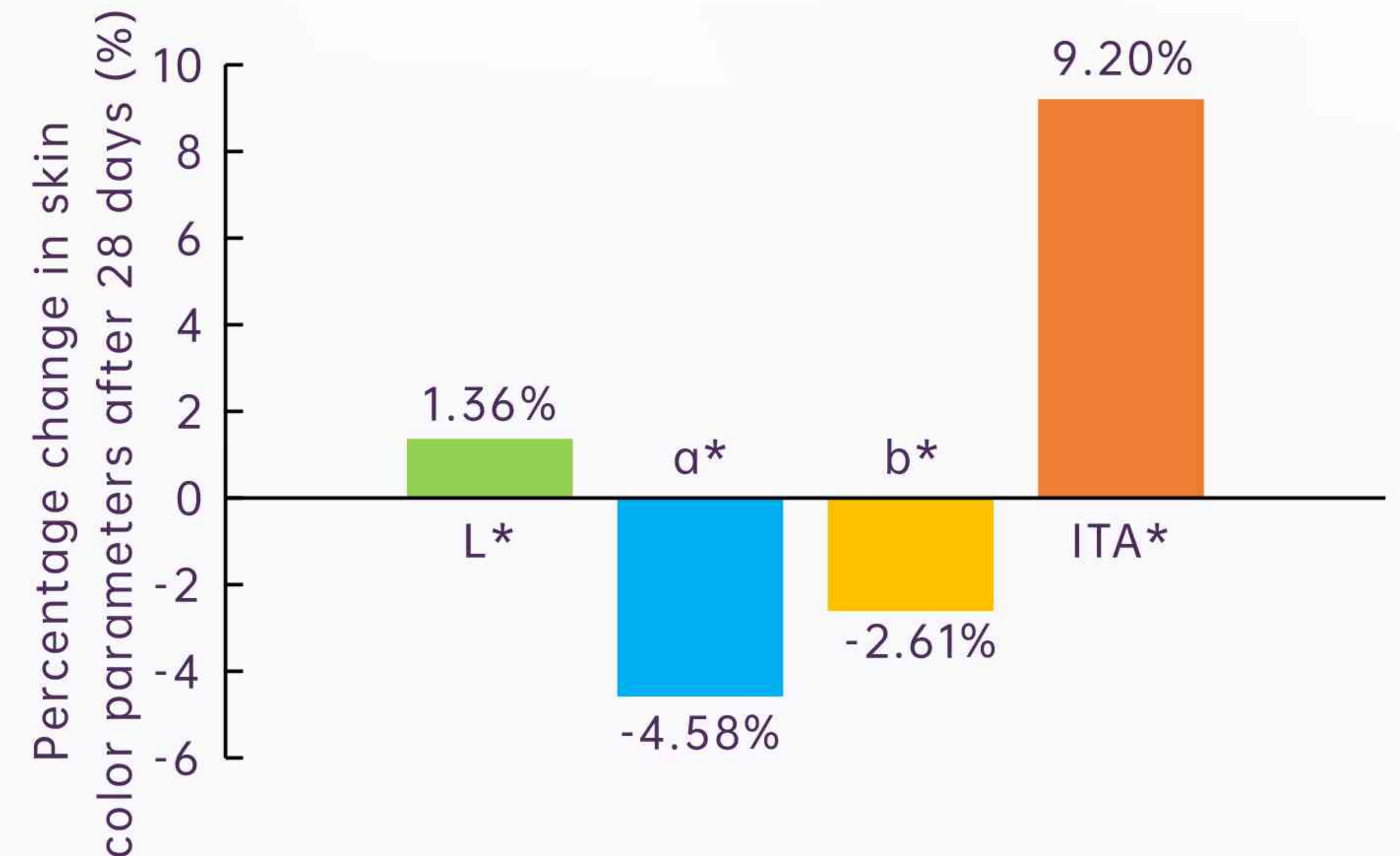
- ▶ Higher MI values indicate higher melanin content in the skin.
- ▶ As shown in the figure on the right, compared with baseline, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, the facial skin melanin content (MI value) decreased significantly by 17.04% ($P < 0.05$).



「4.8 Brightening of Skin」



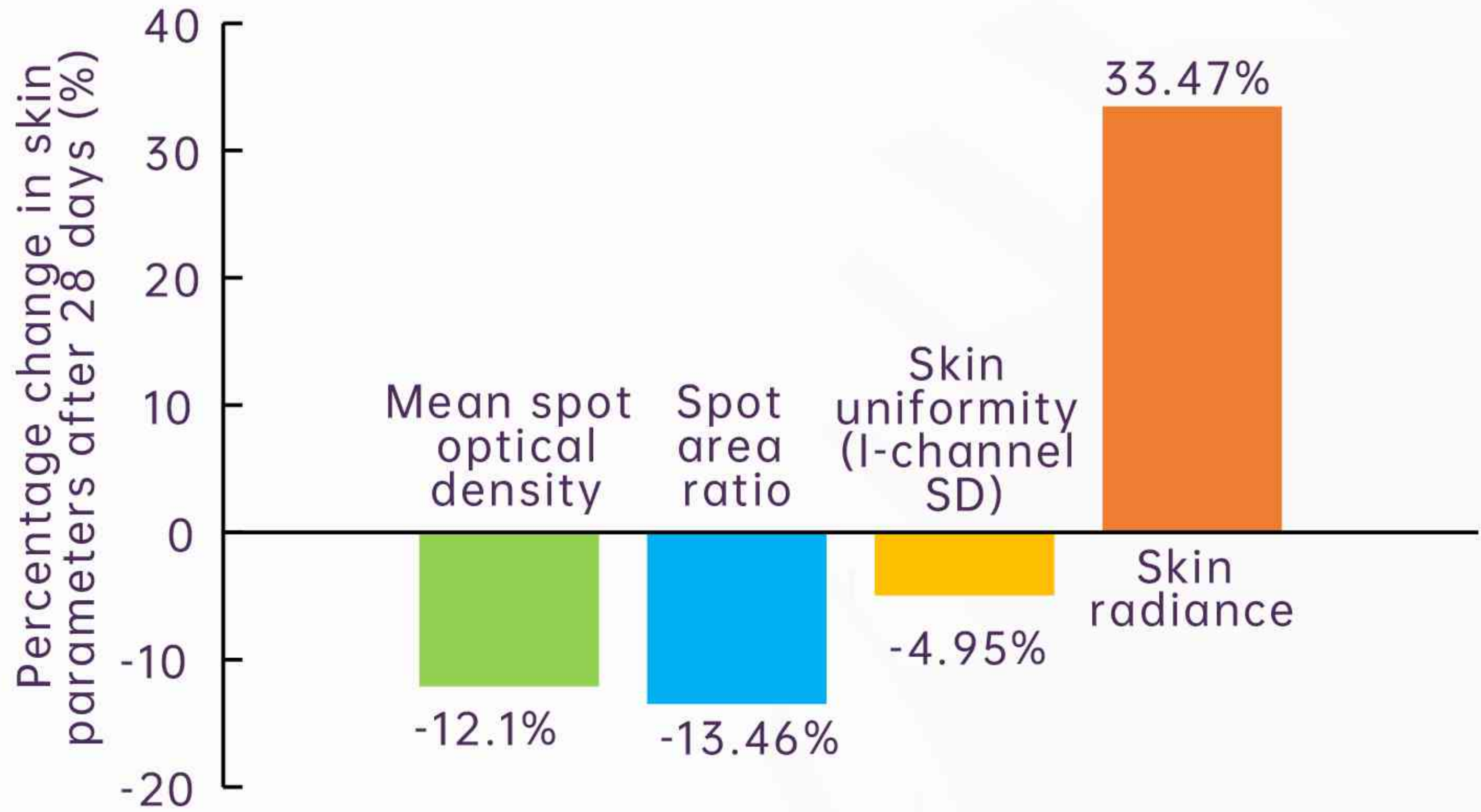
- Higher L* values indicate brighter skin. Lower a* values indicate reduced redness. Lower b* values indicate reduced yellowness. ITA ° (Individual Typology Angle) indicates skin tone; higher values correspond to lighter, more radiant skin.
- As shown in the figure on the right, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, facial skin color parameters changed as follows: L* increased by 1.36%, a* decreased by 4.58%, b* decreased by 2.61%, and ITA° increased by 9.20%, all changes being statistically significant (P < 0.05).



「 4.9 Reduction of Facial Spots and Improvement in Skin Uniformity and Radiance 」



- ▶ Lower values of spot optical density, spot area ratio, and skin uniformity (I-channel SD) indicate improvement. Higher values of skin radiance indicate improvement.
- ▶ As shown in the figure below, after 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream: Mean spot optical density decreased by 12.10%; Spot area ratio decreased by 13.46%; Skin uniformity (I-channel SD) improved by 4.95%; Skin radiance increased by 33.47%. All changes were statistically significant ($P < 0.05$).



Data sourced from third-party testing institutions

Improvement in skin spots



Improvement in skin radiance



「4.10 Consumer Usage Test」



► After 28 days of using 0.2% ZLEY®HPR Anti-Aging Essence Cream, all 32 subjects reported significant agreement that the test product provided anti-wrinkle, firming, exfoliating, mild (non-irritating), and sensitive-skin-friendly benefits.

Data sourced from third-party testing institutions

Table 48. Evaluation of Product Sensory Attributes and Efficacy After 28 Days of Use (N = 32)			
Evaluation Item	D28		
	Top 2 Frequency ¹	Top 2 Percentage	Significance
After product use, the appearance of crow's feet was perceived to be reduced	32	100%	**
After product use, the appearance of nasolabial folds was perceived to be reduced	32	100%	**
After product use, the appearance of glabellar lines was perceived to be reduced	32	100%	**
After product use, the appearance of mouth corner wrinkles was perceived to be reduced	32	100%	**
After product use, the appearance of under-eye wrinkles was perceived to be reduced	32	100%	**
After product use, the appearance of forehead wrinkles was perceived to be reduced	32	100%	**
After product use, an anti-wrinkle effect was perceived	32	100%	**
After product use, the skin felt more elastic	32	100%	**
After product use, the skin felt firmer	32	100%	**
After product use, the product was perceived to remove aged keratin	32	100%	**
After product use, the product was perceived to clarify accumulated keratin	32	100%	**
After product use, the product was perceived to improve dull skin	32	100%	**
After product use, the skin was perceived to have improved radiance	32	100%	**
After product use, the skin was perceived to be clearer and more translucent	32	100%	**
After product use, a brightening effect was perceived	32	100%	**
After product use, facial spots were perceived to be reduced	31	97%	**
After product use, facial spots were perceived to be lighter	31	97%	**
Evaluation Item	Frequency ²		Percentage
The product is gentle (non-irritating)	32		100%
The product is suitable for sensitive skin	32		100%

「06) Clinical Evidence Review (Literature-Based)」

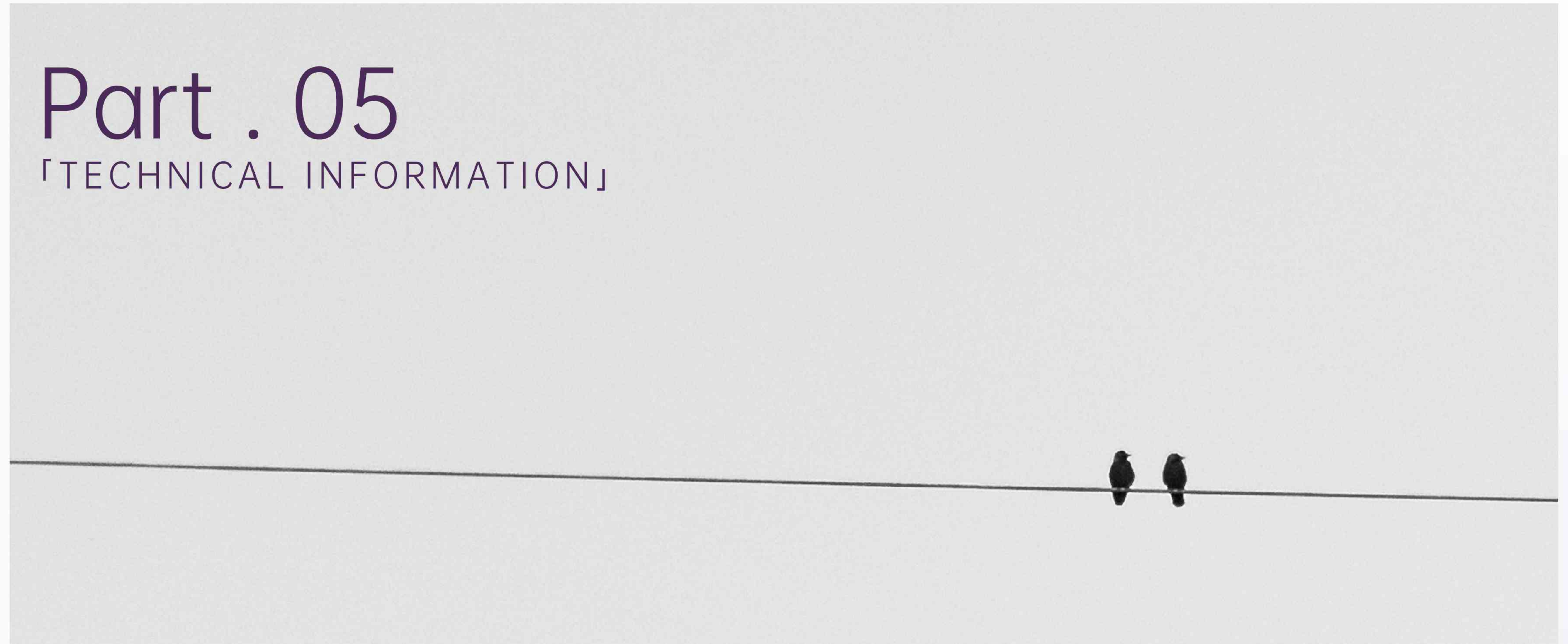


Year of Publication	Research Team	Ingredient Composition	Study Subjects	Experimental Results	References
2026	Proya	HPR, Retinol, Niacinamide, Peptides (Tripeptide-5, Tetrapeptide-7, etc.)	31 Chinese middle-aged women with mild photoaging skin 8-week single-arm trial	Significant improvements in skin sensitivity, elasticity and firmness, skin texture and pores, hydration, barrier function, and pigmentation	[1]
2025	Shanghai Jiao Tong University School of Medicine, Ninth People's Hospital	HPR, Retinol, VC	120 Shanghai women aged 25-40, randomly divided into 4 groups Used for 28 days	Significant improvements in skin elasticity, firmness, radiance, and reduction in fine lines and nasolabial folds	[2]
2025	Lianbi	0.1% HPR, 9.5% Peptides (Acetyl Hexapeptide-8, Tripeptide-1, Tetrapeptide-12, etc.)	42 Chinese women with moderate photoaging on the face Used twice daily for 16 weeks	Significant improvements in wrinkles, crow's feet, nasolabial folds, firmness, texture, smoothness, overall pigmentation; effects comparable to full-face CO ₂ laser treatment	[3]
2023	Youshiyan	HPR, Retinol Palmitate	42 Chinese urban women aged 25-40 8 weeks, once daily	Significant improvements in skin wrinkles, smoothness, TEWL, elasticity parameters R2 and R5	[4]
2023	Xiangya Hospital, Central South University, Dermatology Department	HPR	71 subjects, 4 weeks	Significant improvements in skin tone, texture, wrinkles, and pores	[5]

[1]An Innovative Serum With Retinol, Hydroxypinacolone Retinoate, Peptides, and Silybin Improves Mild Photoaged Facial Skin in Middle-Aged Chinese Women. J Cosmet Dermatol. 2026 Jan;25(1):e70627.
[2]A Functional Skincare Formulation Mixed With Retinyl Propionate, Hydroxypinacolone Retinoate, and Vitamin C on Antiaging and Whitening Han Women in Shanghai, China. J Cosmet Dermatol. 2025 Mar;24(3):e16747.
[3]Efficacy of Topical Hydroxypinacolone Retinoate-Peptide Product Versus Fractional CO₂ Laser in Facial Aging. J Cosmet Dermatol. 2025 Jan;24(1):e16621.
[4]The synergistic effect of retinyl propionate and hydroxypinacolone retinoate on skin aging[J]. Journal of cosmetic dermatology, 2023, 22(7): 2040-2049.
[5]以羟基频哪酮视黄酸酯（HPR）为主的护肤品改善皮肤早期老化征象的回顾性研究[J].中国美容医学,2023,32(05):10-14.

Part . 05

「TECHNICAL INFORMATION」



PRODUCT INFORMATION

INNOVATIVE ELEMENTS TO AMELIORATE LIFE

ZLEY®HPR

— HYDROXPINACOLONE RETINOAT—



「Technical Information」



Product Name	ZLEY®HPR-Hydroxypinacolone Retinoate
INCI NAME	HYDROXPINACOLONE RETINOATE
CAS No.	893412-73-2
Molecular Formula	C ₂₆ H ₃₈ O ₃
Molecular Weight	398.6
Number of Uses in Valid Registered Products	8541 (Source: Meili Xiuxing, as of February 3, 2026)
Product Efficacy	Anti-wrinkle and firming, anti-photoaging, exfoliation, brightening skin tone
Product Appearance	Yellow crystals or powder with a characteristic odor
Recommended Dosage	Whole body (leave-on) ≤0.3%, Eye area (leave-on) ≤0.2%
Solubility	Oil-soluble, readily soluble in 1,2-pentanediol, 1,2-hexanediol, ethoxydiethylene glycol, and isosorbide dimethyl ether
Processing	Add to the oil phase and heat to dissolve
Incompatibility	Avoid mixing with strong acids, strong bases, and strong oxidizing agents
Precautions	Store the product away from light.

ZLEY® HPR-10



「Technical Information」



Product Name	ZLEY®HPR-10
INCI NAME	HYDROXYPINACOLONE RETINOATE、DIMETHYL ISOSORBIDE
CAS No.	893412-73-2、5306-85-4
Content (HPR)	10%
Product Efficacy	Anti-wrinkle and firming, anti-photoaging, exfoliating, brightening skin tone
Product Appearance	Yellow liquid with a characteristic odor
Recommended Dosage	Whole body (leave-on) ≤3%, eye area (leave-on) ≤2%
Solubility	Oil-soluble
Preparation	Add to the system at room temperature and stir well
Incompatibility	Avoid mixing with strong acids, strong alkalis, and strong oxidizing agents
Precautions	Store away from light

样品名称: HPR 20251101p

进样体积: 20μL

报告方法: ---

进样结束时间: 2025/11/8 15:45:22

仪器方法: 维甲酸、异维甲酸

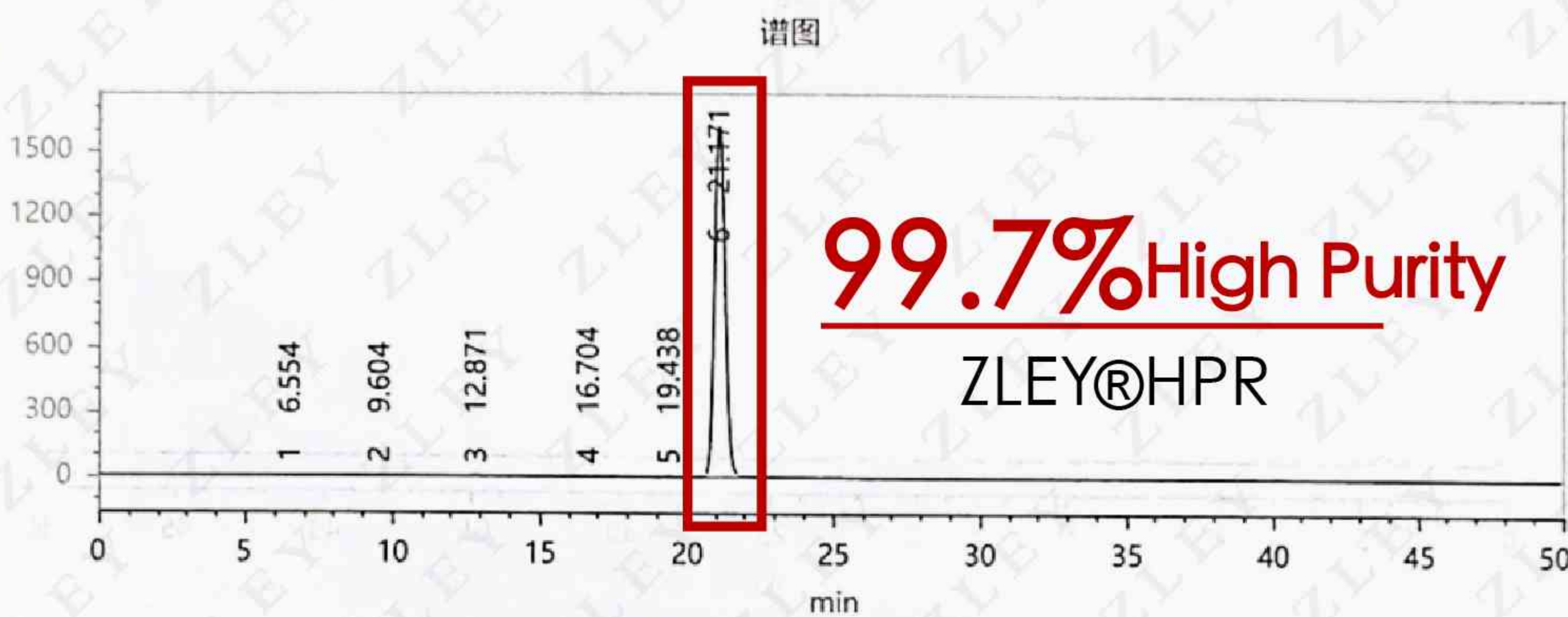
项目名称: TEST

样品类型: 未知样

进样时间: 2025/11/8 14:54:43

序列名称: HPR 20251101p-单次进样-2025/11/8 14:54:43

数据处理时间: 2025/11/8 15:45:12



☒ HPR 20251101p_通道1波长355nm
HPR 20251101p_PressureCurve

峰结果表				
序号	化合物名	保留时间	峰面积	峰面积%
1		6.554	4.224	0.011
2		9.604	1.714	0.004
3		12.871	48.947	0.122
4		16.704	16.282	0.041
5		19.438	43.114	0.107
6		21.171	40074.923	99.716
统计		86.342	40189.205	100.000

Empower
software

进样综合报告 报告

用户名称: System

项目名称: 2026\畅想复配\HPR

样品名称: HPR-10 20260126p样2

样品类型: 未知

瓶号: 42

进样次数: 1

进样体积: 20.00 ul

运行时间: 40.0 Minutes

样品组名称: 1月

采集者: System

采集时间: 2026/1/27 13:14:17 CST

采集方法组: HPR

处理日期: 2026/1/27 15:19:28 CST

处理方法: HPR

通道名称: 2487通道 1

处理通道注释: 2487通道 1



SampleName HPR-10 20260126p样2; Vial 42; Injection 1; Channel 2487通道 1; Date Acquired 2026/1/27 13:14:17 CST

处理通道: 2487通道 1

	处理通道	保留时间 (分钟)	面积	% 面积	峰高
1	2487通道 1	29.459	13972790	100.00	416217

ZLEY® HPR-10 羟基频哪酮视黄酸酯 (10%) 、异山梨醇酐二甲醚 (90%)



"Super Retinoid" — HPR

「Key Selling Points」



「More Stable · Gentler · More Effective」

- ▶ 5× more stable than retinol^[1]
- ▶ Works in one step with no conversion required^[2]
- ▶ Delivers anti-wrinkle efficacy comparable to retinoic acid^[2]

「Gentle Pro-Aging Care」

- ▶ Smooths fine lines
- ▶ Firms facial contours
- ▶ Helps defend against photoaging^[3]

「Brightening & Skin Refining」

- ▶ Promotes exfoliation
- ▶ Reduces the appearance of dark spots
- ▶ Enhances skin radiance and clarity^[3]

[1] Data sourced from a third-party testing laboratory. After 90 days of storage at room temperature and away from light, the active ingredient retention rate of the emulsion containing 0.1% ZLEY®HPR is 5.33 times that of the emulsion with 0.1% retinol.
[2] Cited from Anti-aging effects of retinoid hydroxypinacolone retinoate on skin models. HPR requires no conversion and can bind directly to relevant receptors to exert its efficacy. Its capacity to boost procollagen expression is comparable to that of all-trans retinoic acid.
[3] Data sourced from a third-party testing laboratory. Evaluation results based on 32 subjects who used the cream containing 0.2% ZLEY®HPR for 28 consecutive days.

Phase	Ingredient	INCI Name	ω/%	Supplier
A	Water	Water	To 100	—
	NMF-50	Betaine	1.00	—
	G-260	Glycereth-26	3.00	—
	HA	Sodium Hyaluronate	0.12	—
	EMT-10	Hydroxyethyl Acrylate/Sodium Acryloyldimethyl Taurate Copolymer	0.30	—
	VB3	Niacinamide	3.00	—
	Panthenol	Panthenol	0.50	—
B	OLV-10	Sorbitan Olivatate; Cetearyl Glucoside; Cetearyl Alcohol	2.50	—
	A165	Glyceryl Stearate; PEG-100 Stearate	0.20	—
	26#White Oil	Mineral Oil	2.50	—
	Hydrogenated Polyisobutene	Hydrogenated Polyisobutene	2.00	—
	DC200/350cst	Dimethicone	1.00	—
	DC200/10cst	Dimethicone	1.20	—
	18 Acid	Stearic Acid	2.00	—
	Phytosterol Ester	Phytosterol Ester	0.80	—
	KMP-590	Polymethylsilsesquioxane	0.50	—
	ZLEY®HPR	Hydroxypinacolone Retinoate	0.20	ZLEY
C	S-400	Polyacrylate-13; Polyisobutene; Polysorbate 20	1.20	—
D	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.65	ZLEY
	Parfum	Parfum	0.02	—
	ZLEY®DMI	Dimethyl Isosorbide	0.50	ZLEY
	ZLEY®PE203-KAENDA	Piper Methysticum Root Extract; Hydroxypropyl Cyclodextrin; Butylene Glycol; Water	1.50	ZLEY
	ZLEY®PE401-PHEACNE ST Liquid	Stephania Tetrandra Extract; Butylene Glycol; Water	1.50	ZLEY
D1	Water	Water	5.00	—
	Caffeine	Caffeine	0.50	—
	Sodium Metabisulfite	Sodium Metabisulfite	0.05	—

「Formulation Guidance」

► 「Formula Name」: HPR Anti-Aging Cream

► 「Formula Number」: L-24010202

► 「Product Efficacy」: Anti-wrinkle, firming, and smoothing skin

► 「Product Appearance」: Yellow, fine cream

► 「Process Parameters」:

- Accurately weigh phase A and add it to an 80°C water bath. Homogenize rapidly for 5 minutes until uniform, then keep warm for 20 minutes.
- Accurately weigh phase B and heat it in an 80°C water bath while stirring until uniform.
- At 75-80°C, add phase B to phase A and homogenize for 1-3 minutes. Then add phase C and homogenize at high speed for 3-5 minutes, stirring for 15-30 minutes until uniform.
- Add phases D and D1 sequentially at 50°C.
- Discharge at 45°C and allow to stand for 24 hours.

Phase	Ingredient	INCI Name	ω/%	Supplier
A	Deionized water	Water	To 100	—
	Titanium Dioxide	Titanium Dioxide	0.20	—
	Glycerin	Glycerin	10.00	—
	Butylene Glycol	Butylene Glycol	3.00	—
	940	Carbomer	0.35	—
	2NA	Disodium Edta	0.02	—
	HA	Sodium Hyaluronate	0.05	ZLEY
	Betaine	Betaine	1.00	—
	AFSK	Potassium Cetyl Phosphate	0.20	—
	ZLEY®BIOCARE-CPH	Chlorphenesin	0.15	—
	Allantoin	Allantoin	0.20	—
A1	TEA	Triethanolamine	0.35	—
B	M68	Cetearyl Alcohol; Cetearyl Glucoside	1.50	—
	2EHP	Ethylhexyl Palmitate	8.00	—
	Butyrospermum Parkii (Shea)Butter	Butyrospermum Parkii (Shea)Butter	3.00	—
	DC200/350cst	Dimethicone	2.00	—
	VE	Tocopheryl Acetate	0.30	—
C	305	Polyacrylamide、C13-14 Isoparaffin、Laureth-7	1.10	—
D	ZLEY®BIOCARE-ZHD	1,2-Hexanediol	0.60	ZLEY
	ZLEY®PE203-KAENDA	Piper Methysticum Root Extract; Hydroxypropyl Cyclodextrin; Butylene Glycol; Water	2.00	ZLEY
	ZLEY®PE401-PHEACNE	Stephania Tetrandra Extract; Butylene Glycol; Water	1.00	ZLEY
	ZLEY®IRONSTANT	Zanthoxylum Bungeanum Fruit Extract; Caprylic/Capric Triglyceride; C12-13 Pareth-9; Pentylene Glycol	4.00	ZLEY
	ZLEY®HPR-10	Hydroxypinacolone Retinoate; Dimethyl Isosorbide	1.00	ZLEY

「Formulation Guidance」

- Instant

► 「Formula Name」: Wrinkle-Reducing Essence Eye Cream
- 「Formula Number」: L-25102902
- Anti-wrinkle, firming, and smoothing skin

► 「Product Efficacy」:
- Yellow, delicate cream

► 「Product Appearance」:
- 「pH Value (10% Sol.)」: 6.53
- 4#6 61934mpa.s

► 「μ/mPa·s(25℃)」:
- 「Process Parameters」:

Mix phase A, stir and heat to 85℃, homogenize for 5 min, add phase A1 for neutralization, add dissolved phase B, homogenize for 3 min;

After emulsification, add phase C and homogenize until uniform;

Add phase C at 50℃ and stir until uniform;

Discharge at 45℃.

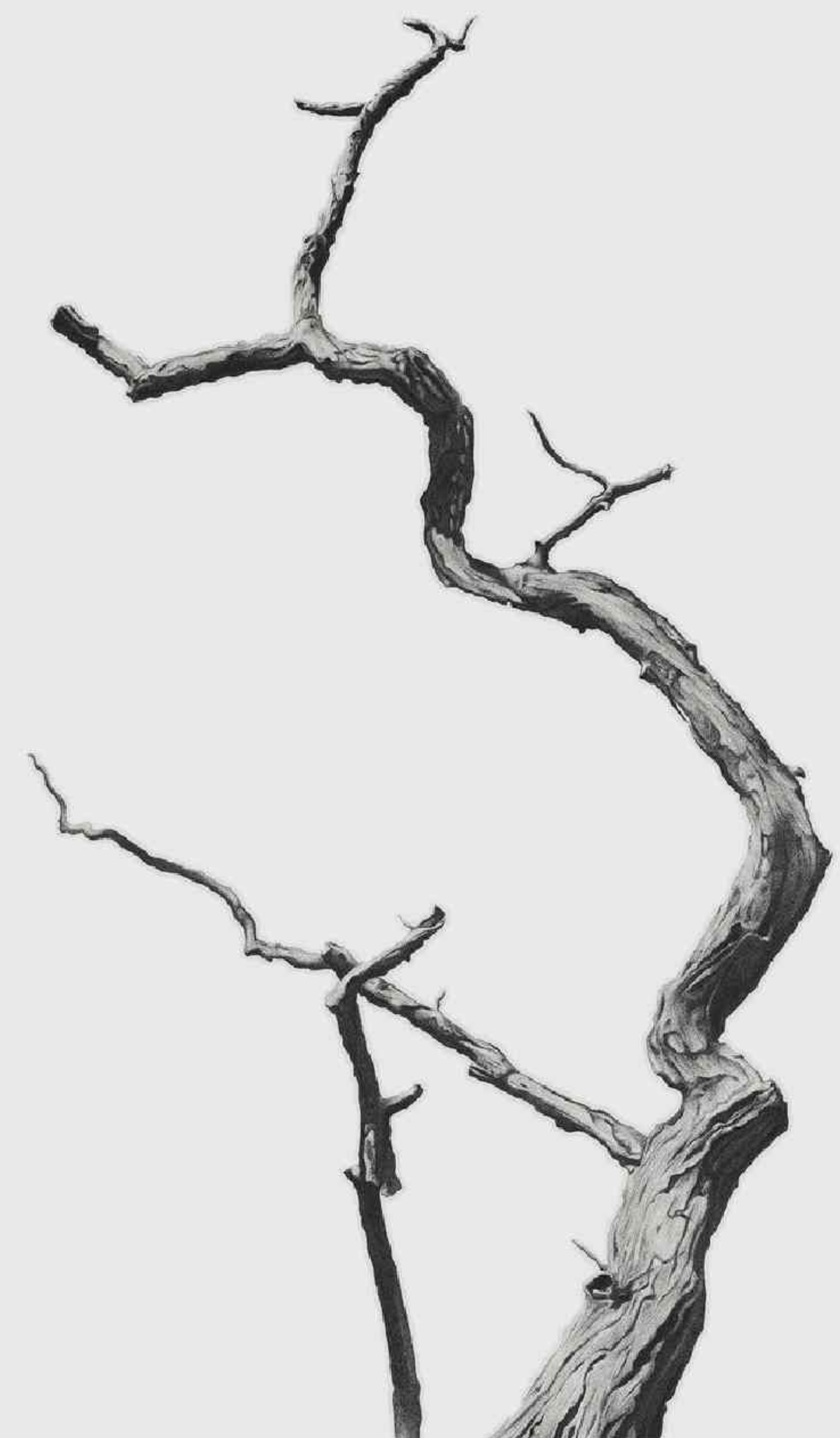
Phase	Ingredient	INCI 名称	添加量 /%	供应商
A	ININ	Isononyl Isononanoate	To 100	—
	Simmondsia Chinensis (Jojoba) Seed Oil	Simmondsia Chinensis (Jojoba) Seed Oil	3.00	—
	ZLEY®FA	Ferulic Acid	0.20	ZLEY
	ZLEY®HPR	Hydroxypinacolone Retinoate	0.20	ZLEY
B	ZLEY®BRC	4-Butylresorcinol	1.50	ZLEY
	ZLEY®GS	Glycol Salicylate	1.00	ZLEY
	ST Liquid	Diethylhexyl Syringylidenemalonate	0.10	—
C	VE	Tocopherol	0.50	—
	ZLEY®DMI	Dimethyl Isosorbide	0.50	ZLEY
	ZLEY®PE402-PHEACNE-OIL	Stephania Tetrandra Extract; Caprylic/Capric Triglyceride	1.00	ZLEY

「Formulation Guidance」

- ▶ 「Formula Name」: Whitening and Spot-Fading Essence Oil
- ▶ 「Formula Number」: L-231502
- ▶ 「Product Efficacy」: Spot removal and whitening
- ▶ 「Product Appearance」: Transparent essence oil
- ▶ 「Process Parameters」
 - Mix phase A, heat and stir until dissolved, then cool while stirring;
 - Cool down to approximately 55°C, then add phase B and stir until well combined;
 - Cool down to 40°C, then add phase C and stir until well combined, then discharge.

Part . 06

「BRAND CASES」



BRAND CASE

INNOVATIVE ELEMENTS TO AMELIORATE LIFE

HBN Multi-Retinol
Firming Revitalizing Night Cream



[Key Benefits]: Anti-wrinkle, Firming
[Active Ingredients (INCI)]: Hydroxypinacolone Retinoate;
Retinyl Palmitate; Retinyl Propionate; Ferulic Acid;
Dimethylmethoxy Chromanol; Ceramide

Elizabeth Arden Retinol Ceramide
Capsules Line Erasing Night Serum



[Key Benefits]: Anti-wrinkle, Firming
[Active Ingredients (INCI)]: Hydroxypinacolone Retinoate;
Retinol; Ceramide NP; Phytosphingosine; Palmitoyl
Tripeptide-1; Palmitoyl Tetrapeptide-7; Bisabolol; Tocoph-
eryl Acetate

PROYA Firming &
Anti-Wrinkle Essence



[Key Benefits]: Anti-wrinkle, Firming
[Active Ingredients (INCI)]: Hydroxypinacolone Retinoate;
Cyclopeptide-161; Retinol; Silybin; Linum Usitatissimum
(Linseed) Extract; Palmitoyl Tripeptide-5; 4-tert-Butylcy-
clohexanol; Niacinamide

JUYOU Radiance Multi-Effect Brightening Serum



[Key Benefits]: Spot-correcting, Brightening
[Active Ingredients (INCI)]:Hydroxypinacolone Retinoate; Potassium Methoxysalicylate; Superoxide Dismutase; Niacinamide; Mytilus Edulis Extract; Cynanchum Atratum Extract; Diglucosyl Gallic Acid; Ectoin

HUKO Moisturizing Brightening Essence Lotion



[Key Benefits]: Spot-correcting, Brightening
[Active Ingredients (INCI)]:Hydroxypinacolone Retinoate; Tranexamic Acid; Niacinamide; Phenylethyl Resorcinol; Ethyl Ascorbyl Ether; Resveratrol; Carnosine; Hydroxypropyl Tetrahydropyrantriol; Lactobionic Acid

RUYI Multi-Effect Brightening Essence Oil



[Key Benefits]: Spot-correcting, Brightening
[Active Ingredients (INCI)]: Hydroxypinacolone Retinoate; Ascorbyl Tetraisopalmitate (VC-IP); Phenylethyl Resorcinol; Hydroxydecyl Ubiquinone; Tocopherol; Tocopheryl Acetate; Rosa Damascena Flower Oil; Bisabolol

Koreef Pore Refining Serum

双酸双C¹
焕肤更温和 肌肤细腻透亮
毛孔精华水²

CORRECTORS
NEW
重磅新品

2小时焕亮
+25.28%³

4小时控油
-30.62%³

7天黑头粉刺
-76.32%⁴



[Key Benefits]: Acne control, Firming, Oil control
[Active Ingredients (INCI)]: Hydroxypinacolone Retinoate; Succinyl Glycosaminoglycan; Lactobionic Acid; Glycolic Acid; Ethyl Ascorbic Acid; Tetrahexyldecyl Ascorbate; Retinol; Sodium Heparin

Fuerjia Lactobionic Acid Oil-Control & Skin-Refining Serum

敷尔佳乳糖酸 磨皮次抛⁽¹⁾
1支硬控 油·暗·糙
5min 嫩肤抛光⁽²⁾ 12H 控油续航⁽³⁾

NEW
重磅新品

油皮专研
敏肌适用

第三代果酸-
乳糖酸
更温和



[Key Benefits]: Acne control, Firming, Oil control, Exfoliation
[Active Ingredients (INCI)]: Hydroxypinacolone Retinoate; Lactobionic Acid; Gluconolactone; Medicinal Aspergillus Extract; Silybum Marianum Seed Extract; Zinc PCA; Bisabolol; Scutellaria Baicalensis Root Extract

Skin Research Vitamin A Collagen Serum

维A胶原精华2.0
改善毛孔粗大老化肌

专为中国肌肤研制

维A胶原精华



[Key Benefits]: Acne control, Anti-wrinkle, Firming
[Active Ingredients (INCI)]: Hydroxypinacolone Retinoate; Retinol; Retinyl Palmitate; Hydrolyzed Collagen; Niacinamide; Succinic Acid; Bisabolol; Acetyl Hexapeptide-8; Carnosine

ZLEY GROUP

[INNOVATIVE ELEMENTS TO AMELIORATE LIFE]

IF YOU'RE INTERESTED, PLEASE SCAN THE QR CODE TO
FOLLOW US OR CONTACT OUR TEAM.

400-092-8866

EMAIL: SERVICES@ZLEYGROUP.COM



[ZLEY GROUP]



[LINKEDIN]