



# Rhamnose

**Next-Level Anti-Aging**

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**Glow Naturally, Age Sweetly**

V1.0

[www.layncorp.com](http://www.layncorp.com)

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# **Company Overview**



## ABOUT LAYN

Founded in 2000 and headquartered in Guilin, Guangxi, Layn Natural Ingredients is a leading high-tech innovator in natural health products. The company specializes in the production, research, and development of premium botanical ingredients, providing innovative solutions for the food & beverages, dietary supplement, personal care, animal feed, and pet nutrition industries worldwide.

### High-Tech Industry Leader in Natural Botanical Extraction



- Nearly **30 years** of expertise in botanical extraction
- **Over 300** core technologies for natural ingredient extraction
- **Drafting Organization** for the international business standard of Centella Asiatica extract

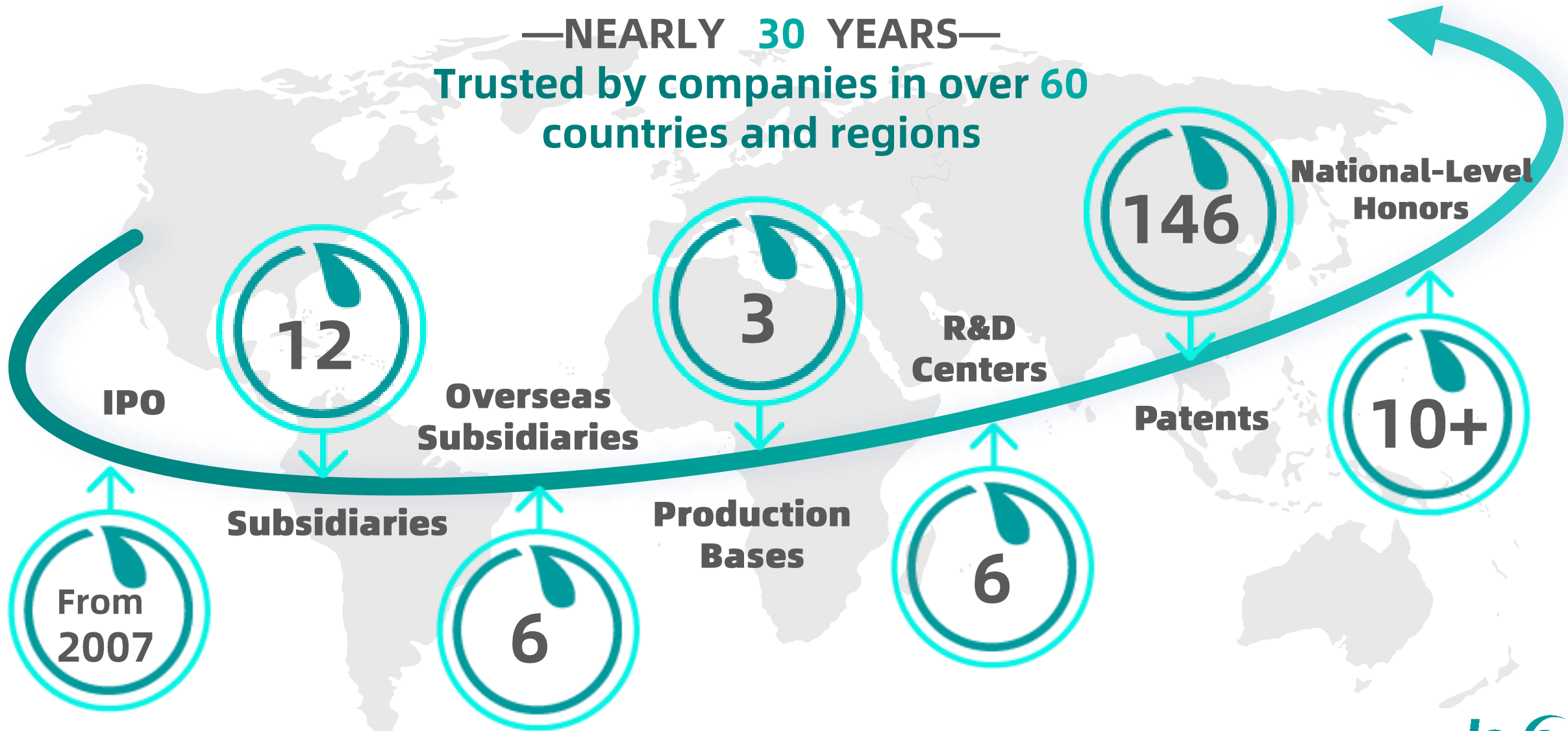
### Key Recognitions:

- Designated a **“National Green Factory”** in 2019

# GLOBAL BOTANICAL INNOVATION

—NEARLY 30 YEARS—

Trusted by companies in over 60 countries and regions



# Four Core Advantages



## 01 Advantage in Raw Materials

- The sustainable use of plant resources
- Standardized planting
- Non-GMO standards

## 02 Advantage in R&D

- Post-Doctoral Research Center
- Guangxi Academician Workstation
- National Tropical Fruit Research Center
- Undertakes national key scientific research program

## 03 Advantage in Testing

- ISO/IEC 17025:2017 accredited
- Management system has been established according to ISO17025

## 04 Advantage in Capacity

**-INTELLIGENT MANUFACTURING**

- Intelligent botanical extraction factory
- Annual raw material processing capacity exceeds 100,000 tons

# Quality Certification

Monk Fruit Extract and Stevia Extract have obtained FDA GRAS certification in the United States.

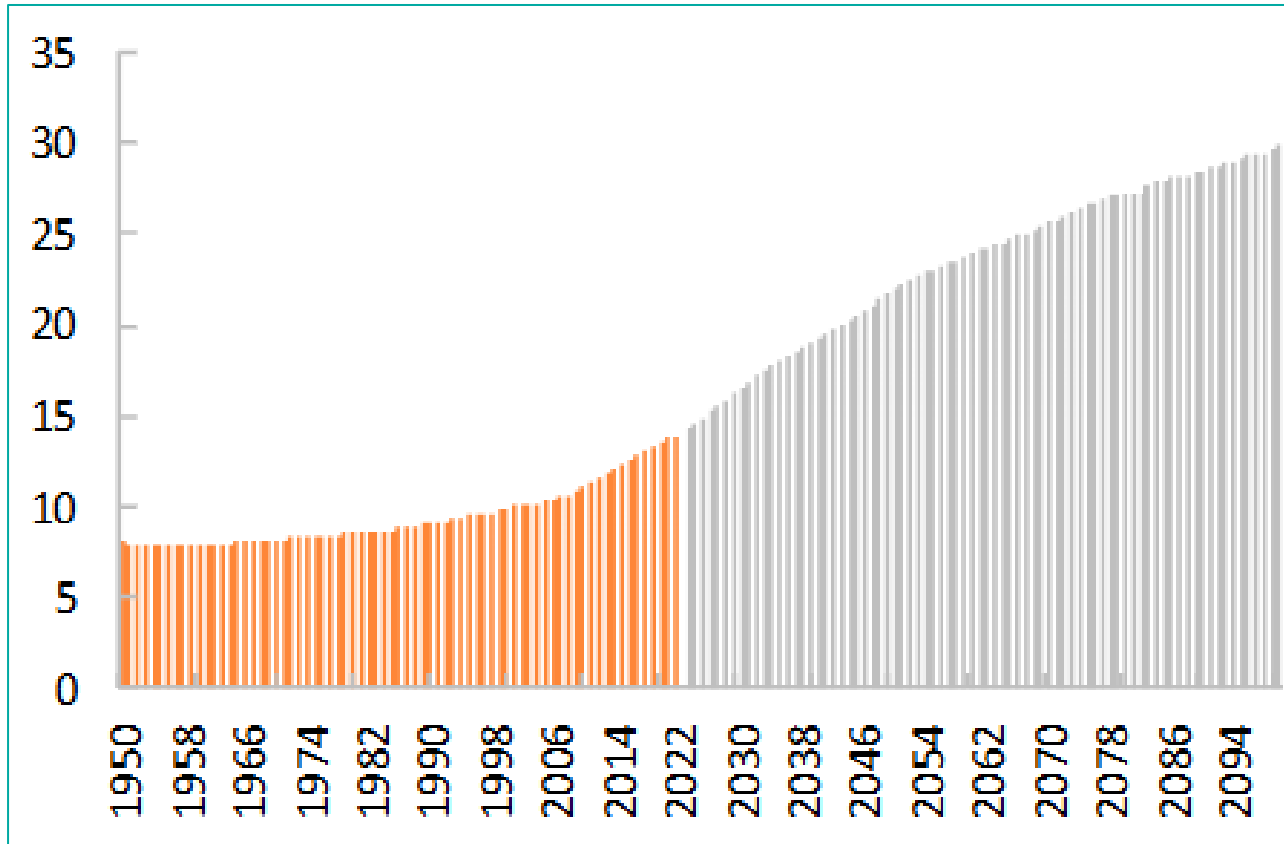




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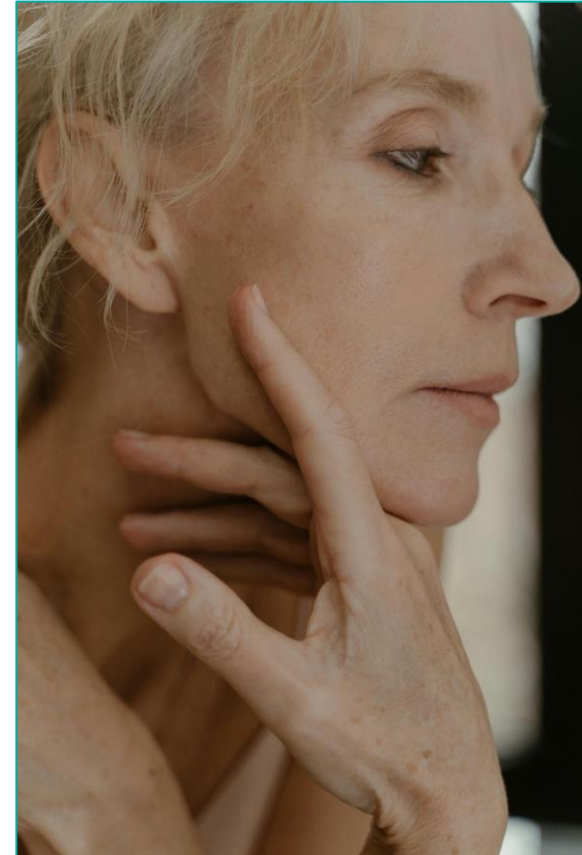
# **Development Background**

# The Degree of Global Aging is Continuously Intensifying!

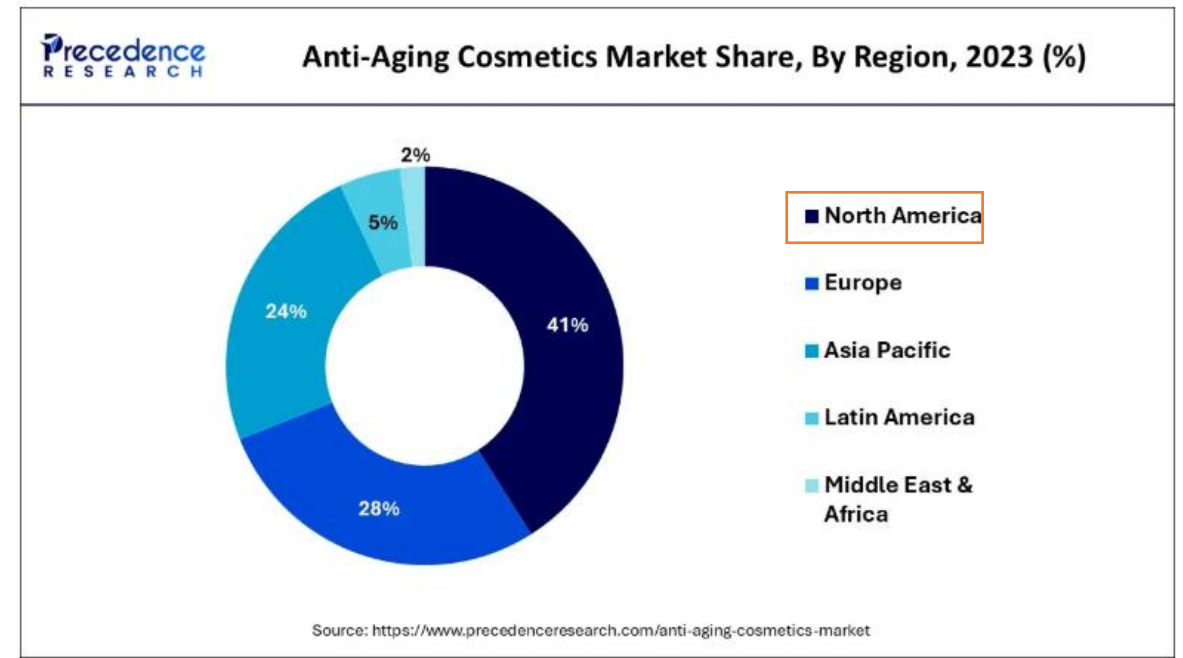
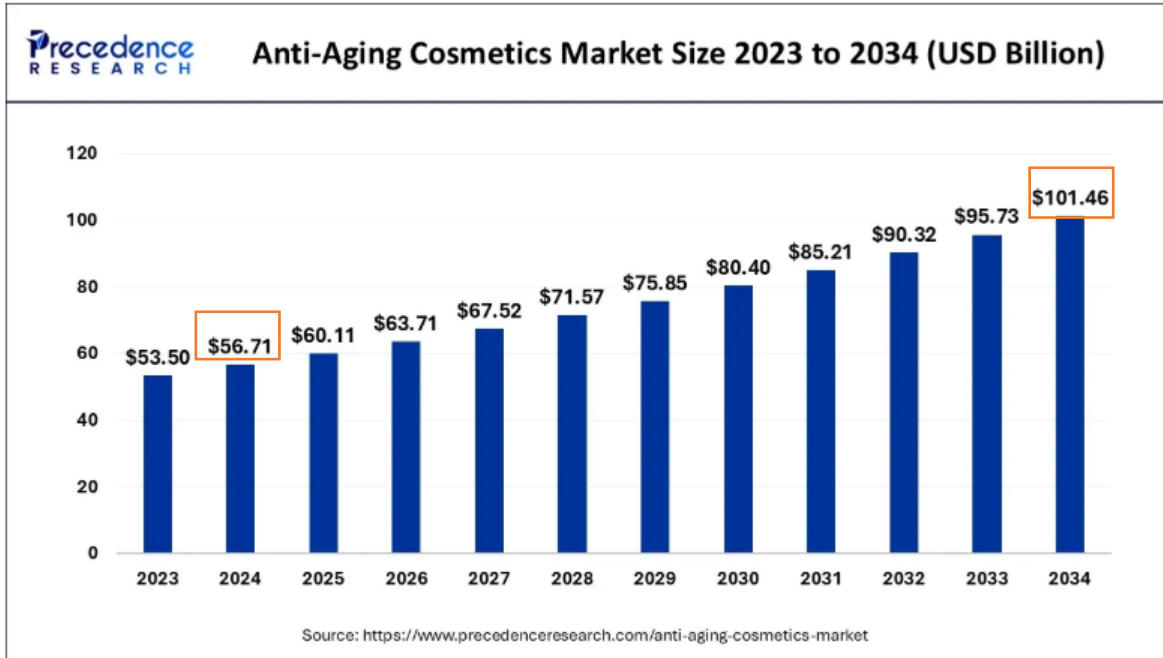


Proportion of Global population over 60 years old (%)

- In **2001**, the global population aged 60 and above reached **10%** ; mankind officially entered the aging society.
- In **2022**, **13.9%** of the world's population will be aged 60 and above.
- By **2044**, the number is expected to **exceed 20%** estimated by WHO.

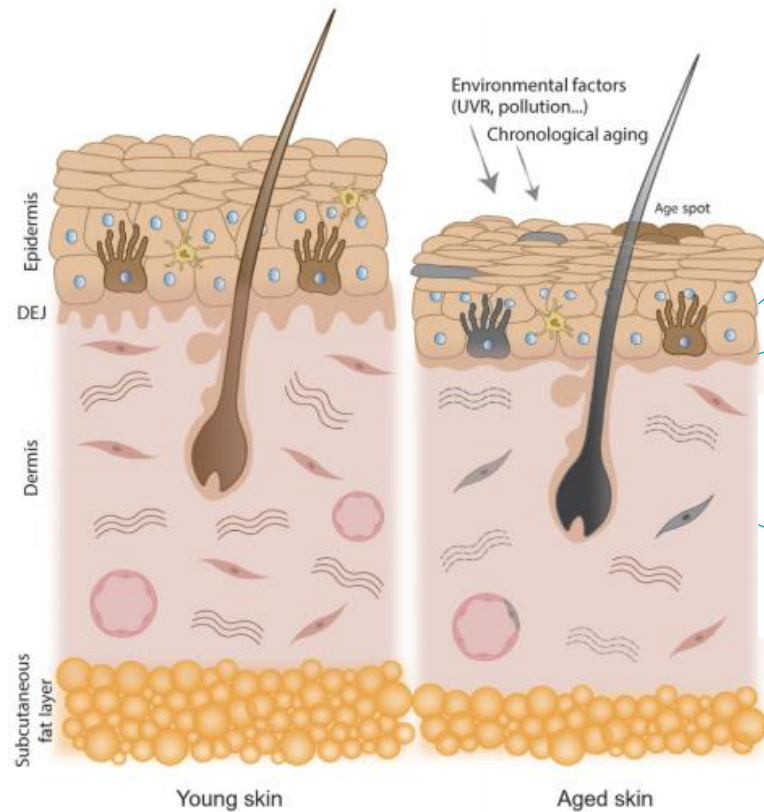


# The Global Anti-Aging Cosmetics Market Size



- The global anti-aging cosmetics market size is expected to be valued at **USD 56.71 billion** in **2024**.
- Anticipated to reach around **USD 101.46 billion** by **2034**, expanding at a CAGR of **5.99%**.
- Largest Market: **North American**
- Fastest Growing Market: **Europe, Asia Pacific**

# Signs of Skin Aging



## Epidermis:

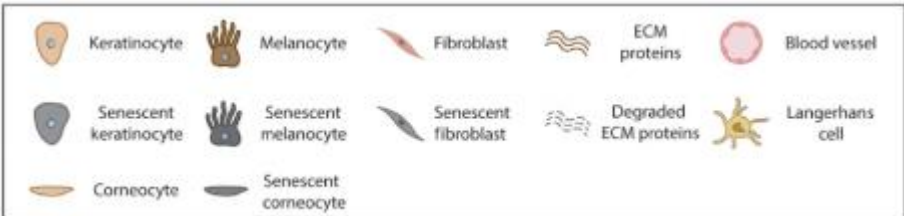
- **Thinning**
- **Barrier damage, dehydration of the stratum corneum, increased sensitivity, and pigmentation.**

## Epidermal-Dermal Junction (DEJ):

- **Thinning and Flattening - A Key Factor in Wrinkle Formation**
- **Reduced contact area & nutrient transfer between epidermis and dermis, decreased cohesion & connectivity.**
- **Loss of collagen proteins (e.g., Type IV collagen).**
- **Leads to lower skin resistance, increased skin laxity, and wrinkle formation.**

## Dermis:

- **Shrinking**
- **Decreased fibroblast count.**
- **Reduced extracellular matrix.**
- **Accelerated loss of elastic and collagen proteins (e.g., Type I collagen).**
- **Results in lower dermal density, rough texture, loss of elasticity, and wrinkle formation.**



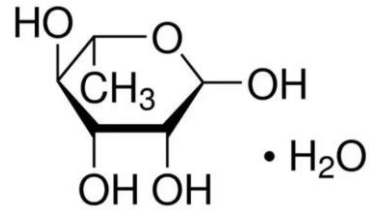


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# **Product Introduction**

# Introduction of Product

- **INCI:** Rhamnose



- **Appearance:** White Crystalline Powder

**Sweet**

- **Properties:** High purity (98%)

Preservative-free

Good Water-solubility

Suitable for High-Concentration formulations

- **Efficacy:** Anti-aging, Soothing, Moisturizing

**Source: Golden Sophora Japonica Flower bud**

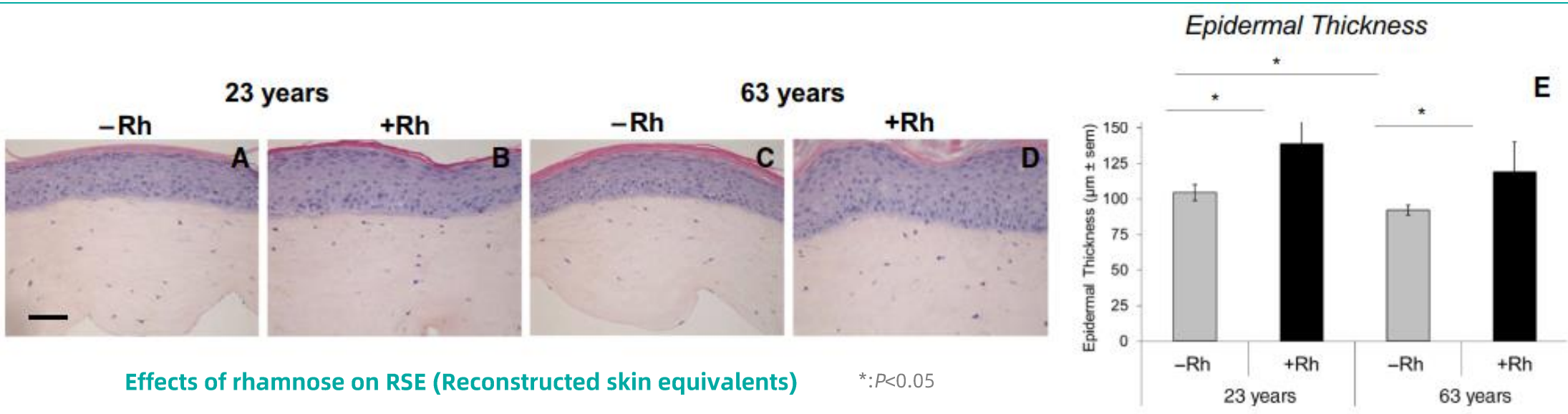




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**Efficacy Verification**  
**Anti-Aging**

# Epidermis: Increased Epidermal Thickness (in vitro)



RSE: Prepared using papillary fibroblasts from 23-year-old and 63-year-old volunteer donors (designated as RSE23 and RSE63, respectively).

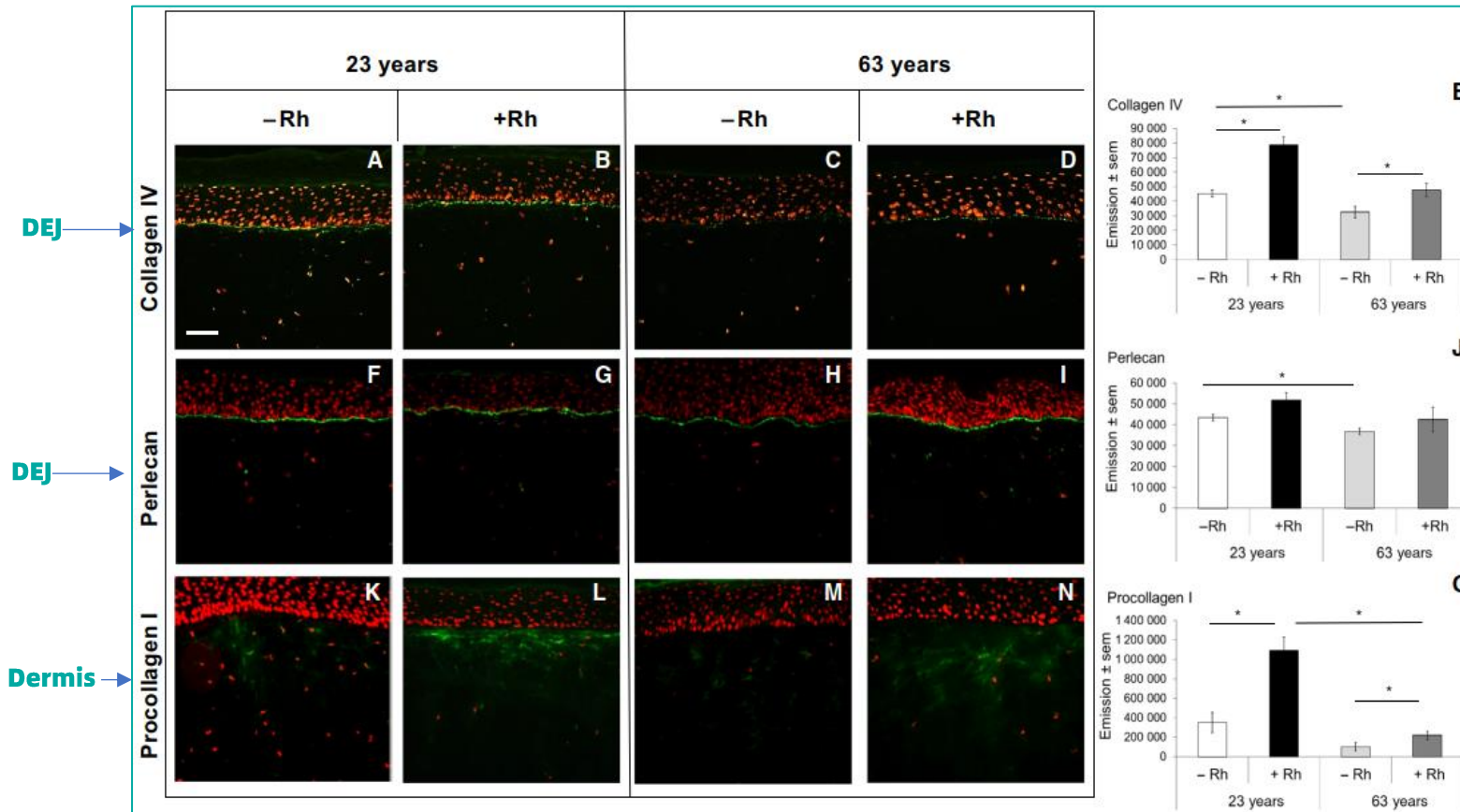
A, C: Control

B, D: Treated with 5 mM Rhamnose

## Conclusion

- Rhamnose was observed to support epidermal thickness, with increases of **34%** in RSE23 (23-year-old donor) and **29%** in RSE63 (63-year-old donor).
- This suggests a potential role in maintaining skin structure and reducing the appearance of wrinkles.

# (DEJ) & Dermis: Promoted Synthesis of Collagen IV and Procollagen I (in vitro)



## Conclusion

- Rhamnose significantly promoted the synthesis of type collagen IV and procollagen I, providing a firming and anti-wrinkle effect.
- Type collagen IV increased significantly by 73% (RSE23) and 46% (RSE63), respectively.
- Procollagen I increased significantly by 211% (RSE23) and 119% (RSE63), respectively.
- Perlecan increased significantly by 19% (RSE23).

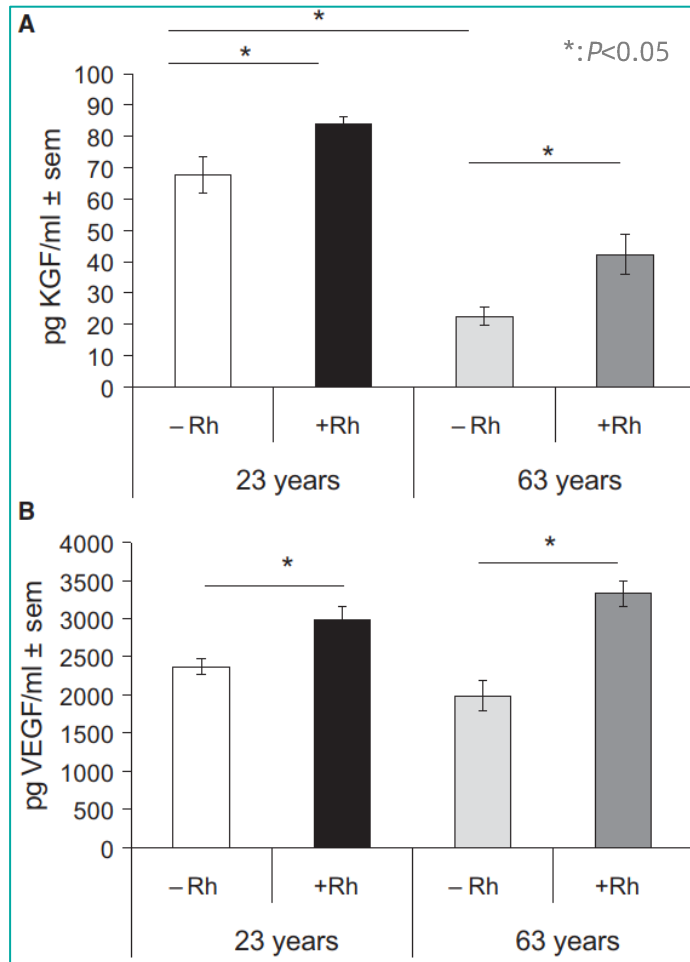
Effects of rhamnose on collagen IV, procollagen I and Perlecan

\*:  $P < 0.05$

A, F, K, C, H, M: Untreated

B, G, L, D, I, N: 5mM rhamnose treatment

# Promotion of KGF and VEGF Proliferation (in vitro)



## Conclusion

- Rhamnose significantly increased the production of **KGF and VEGF**, effectively increasing epidermal thickness and dermal elasticity.
- KGF significantly increased by **24%** (RSE23) and **88%** (RSE63), respectively.
- VEGF significantly increased by **26%** (RSE23) and **40%** (RSE63), respectively.

## Effects of rhamnose on KGF and VEGF

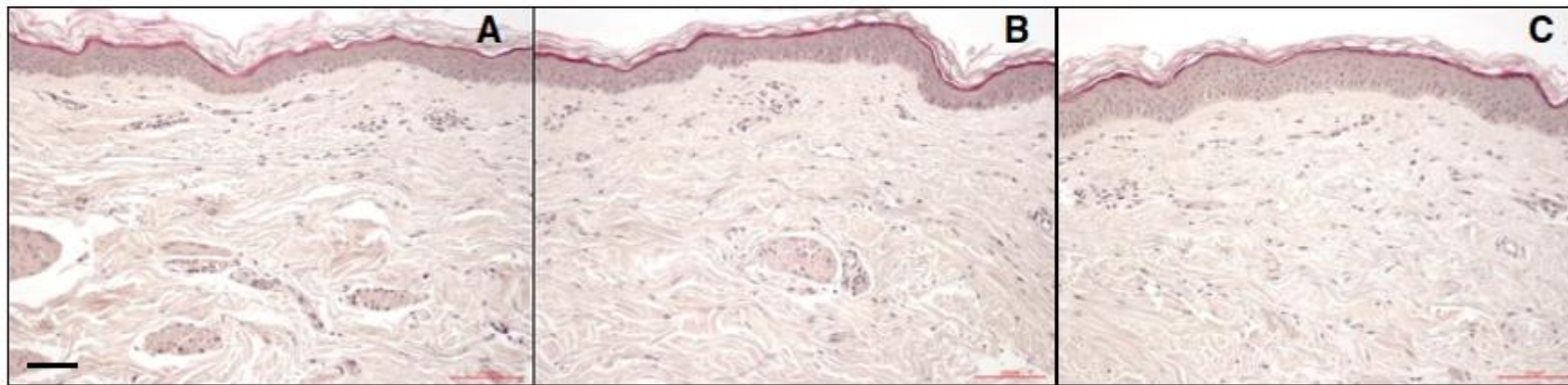
**KGF:** Keratinocyte growth factor. Promoting keratinocyte growth and proliferation; increasing epidermal thickness; Helping to enhance skin elasticity.

**VEGF:** Vascular Endothelial Growth Factor

# Epidermis: Increased Epidermal Thickness (in vivo)

## Method

A total of 20 healthy women aged 50-68 years (average:  $57.7 \pm 5.3$ ) were recruited. They applied a **5%** rhamnose lotion twice daily to the inner forearm for 8 weeks. A control experiment was also designed to study the effect of rhamnose on epidermal thickness, Type IV collagen, and Procollagen I.

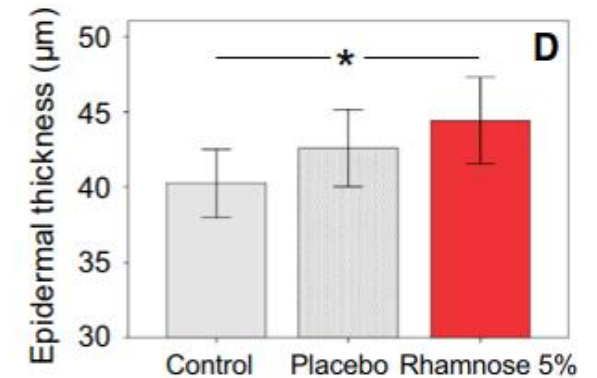


A: Untreated control

B: Placebo-treated

C: 5% Rhamnose-treated samples

Effect of rhamnose on the increase of epidermal thickness

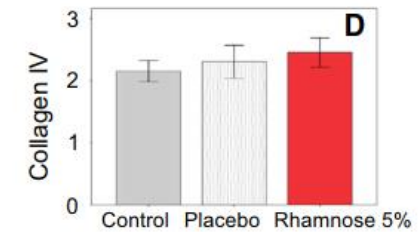
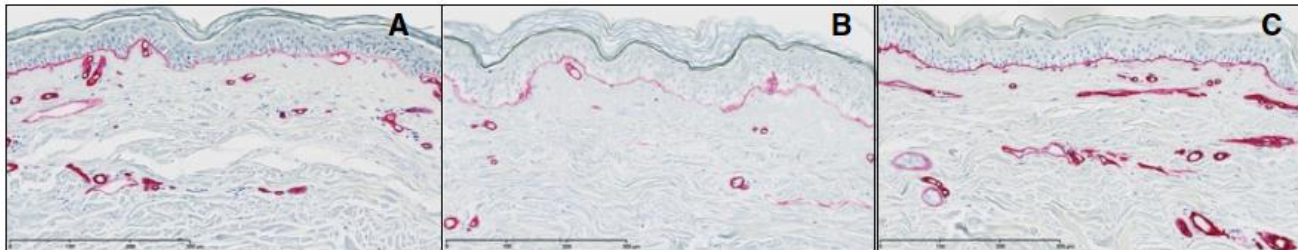


## Conclusion

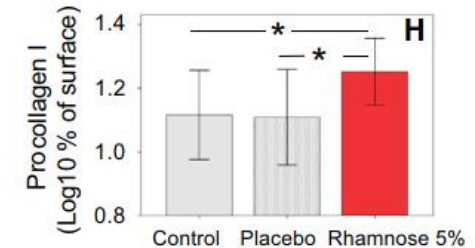
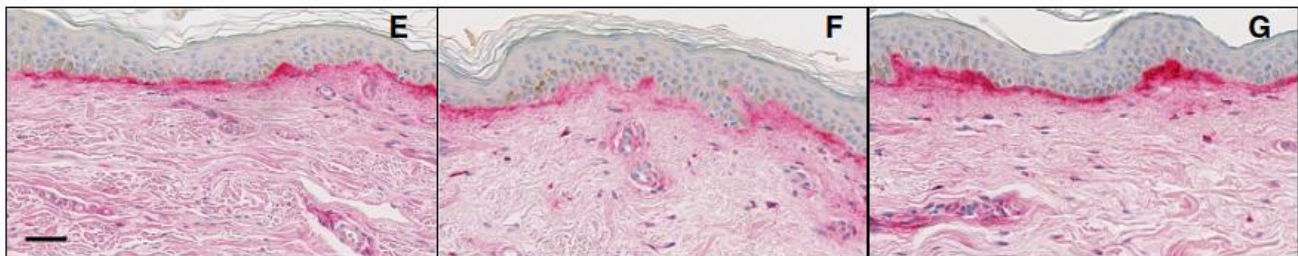
- **5% rhamnose significantly increased the epidermal thickness by 12%.**

# (DEJ) & Dermis: Promoted Synthesis of Collagen IV and Procollagen I (in vivo)

Collagen IV



Procollagen I



Effects of rhamnose on collagen IV and procollagen I in human skin

A, E: Untreated control    B, F: Placebo-treated    C, G: 5% Rhamnose-treated samples

\*:  $P < 0.05$

## Conclusion

- Rhamnose obviously promoted the synthesis of type collagen IV and procollagen I (+35%) .



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# **Applications And Summary**

# Applications



# GIORGIO ARMANI



Rhamnose  
Fights skin- Sagging & Wrinkles



「肌龄改写」  
黑科技升级硬核重塑年轻肌态

1 灵魂成分 高浓进阶  
+25%\* $\alpha$ 雪绒花精萃  
源源焕活 新生饱满年轻肌

2 高浓度鼠李糖  
淡化干纹细纹  
紧塑肌肤轮廓

3 小分子玻尿酸  
肌底充盈润泽  
肌肤饱满弹润

**High Concentration of Rhamnose**

- Reduces fine lines & wrinkles
- Reshapes facial contours

**YSL** YSL玻色因精华



10%高浓度玻色因<sup>x</sup>  
+5%鼠李糖  
促生胶原蛋白  
淡纹充盈

香根鸢尾精萃<sup>xi</sup>  
减缓胶原流失  
加持抗老<sup>xii</sup>



鼠李糖+玻尿酸<sup>v</sup>  
柔润保湿 强韧肌肤 盈润嘭弹

v指透明质酸钠

- 5% Rhamnose**
- Promoting collagen
  - Moisturizing

## 油敏肌救星 长效清爽不刺激

NEW  
全新升级

敏感肌  
可用

10大  
0添加<sup>(4)</sup>



## 修护加乘 呵护屏障

稳定强韧皮肤状态

直播讲解

### 角鲨烷

形成皮肤保护膜  
修护皮肤屏障



### 鼠李糖

修护皮肤屏障  
增强屏障功能

## Rhamnose

- Repairing skin barrier
- Enhancing barrier function

- 透  
净透肌底
- 亮  
均匀提亮
- 滑  
柔嫩细滑



Vitalizing Mask  
熬夜唤醒面膜

93/4

含量:27mlx5片

芍药根提取物

舒缓红肿  
增加肌肤免疫力

鼠李糖

舒缓保湿

二羟丙基精  
氨酸盐酸盐

提高肌肤水润度



Rhamnose  
Soothing and Moisturizing

# Summary



## Highlights

- Natural
- High Purity
- Sweet Anti-Aging
- 2D Soothing
- 3D Anti-aging!



## Multi-Effect

- Anti-aging
- Moisturizing
- Soothing
- Enhancing skin barrier



## 2D Soothing

- Inhibiting the release of inflammatory factors, such as TNF- $\alpha$ , IL-6
- Promoting the release of the pleasure molecule  $\beta$ -Endorphin



## 3D Anti-Aging

- **Epidermis:** Promotes proliferation of KGF and VEGF, increases epidermal thickness
- **DEJ :** Promotes Type IV collagen synthesis
- **Dermis:** Promotes the synthesis of type I procollagen

- **Application:** Water soluble, Preservative-free, High concentration, Easy to use!
- **Dosage:** 0.2%-5.0%



**THANK YOU!**

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