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SUMMIT COSMETICS

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Product for anti-aging

RiFerm®

Fermented rice water for skin firming and hydration

the garden of naturalsolution

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Product Story

Rice water, leftover milky white water after washing rice, is also called Mi-gam (米泔), Mi-gamsu (米泔水), and Baeksu (白水). It has been known to contain vitamin B1, B2, and starch. Traditionally, rice water has been used for washing face for skin care by Asian women as it was believed to improve skin complexion and to make healthier skin. Since rice is one of the main staples in Asia, rice water was the easiest natural cosmetic for most of women. Although the efficacies of rice water for skin care have not been scientifically proved, it is still believed as an effective beauty remedy.

Traditional Use of Rice Water

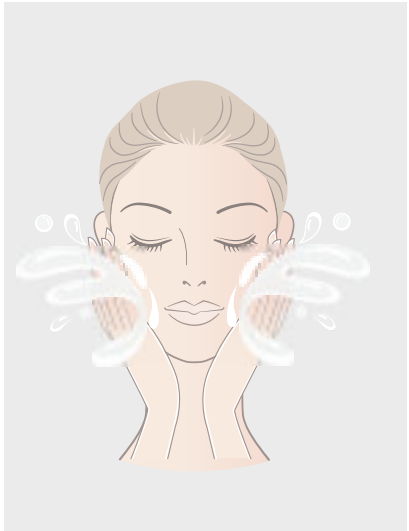
Step 1

Rinse rice at least twice using a fine sieve to remove pesticide or any dirt

Step 2

Cleanse face with warm water before using rice water

Step 3



Gently rinse or massage face with rice water, and rinse again with cold water to close pores on skin

Step 4

Remove remained water on the face then applying skin care products

Fermented Rice Water Shampoo in China

▲ A woman washes her hair with fermented rice water

▲ Women in Huangluo Yao village showing long hair

There is a special village called Huangluo Yao village in China. The women living in this village, they have longest hair in the world. They believe long hair brings them wealth, longevity, and good fortune.

To keep their hair healthy and black, they washes their hair with fermented rice water. This fermented rice water should be from clean rice and used second rice water after getting rid of dirt. Because of this, most of women don't have grey hair until 80 years old.

Yu-Su-Ru, Natural Hair Treatment in Japan

Yu-Su-Ru is an old traditional hair treatment using rice water in Japan since 800 AD. In Japanese history, they also used rice water for hair care. It is an effective natural hair treatment to keep healthy and shiny hair.

According to the scientific study, Yu-Su-Ru extract showed reduction in surface friction and increase in hair elasticity.

Organic Rice

Rice used in RiFerm® is an organic rice (*Oryza sativa*), harvested in abundant amount of sunshine with clean environment. Rice is cultivated in eco-friendly way without any chemical pesticides. Ducks walk around in rice field and they naturally eat harmful insects while they step on weeds.

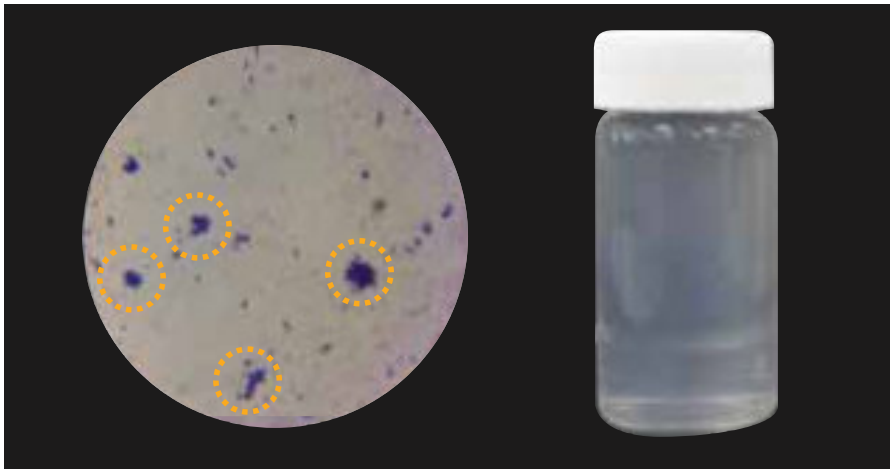
Yeasts

When yeasts are cultured in culture broth, they produce and release beneficial metabolites into the broth as the result of fermentation. As a natural enzyme, yeasts have been used mainly in food industry, such as bread production, beer fermentation, wine fermentation, and nutritional supplement.

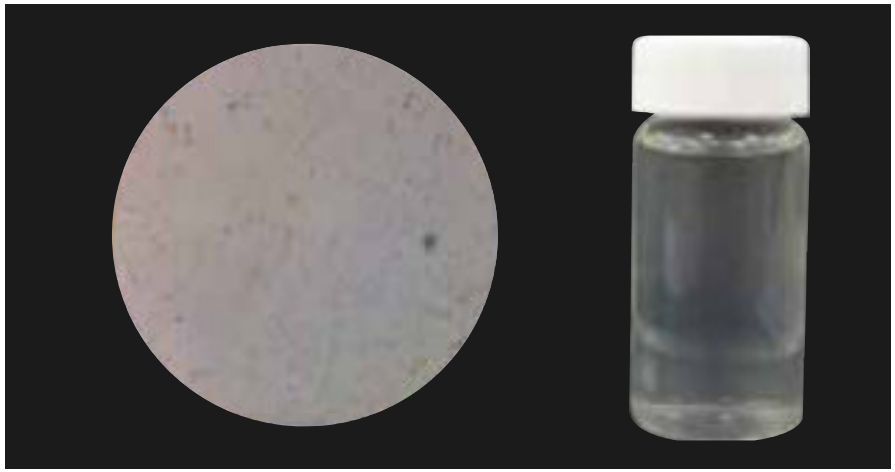
Changes by Fermentation Process

Rice Starch Degradation during Fermentation

Before Fermentation



After Fermentation



in vitro Efficacy Evaluation

Anti-oxidant Effect

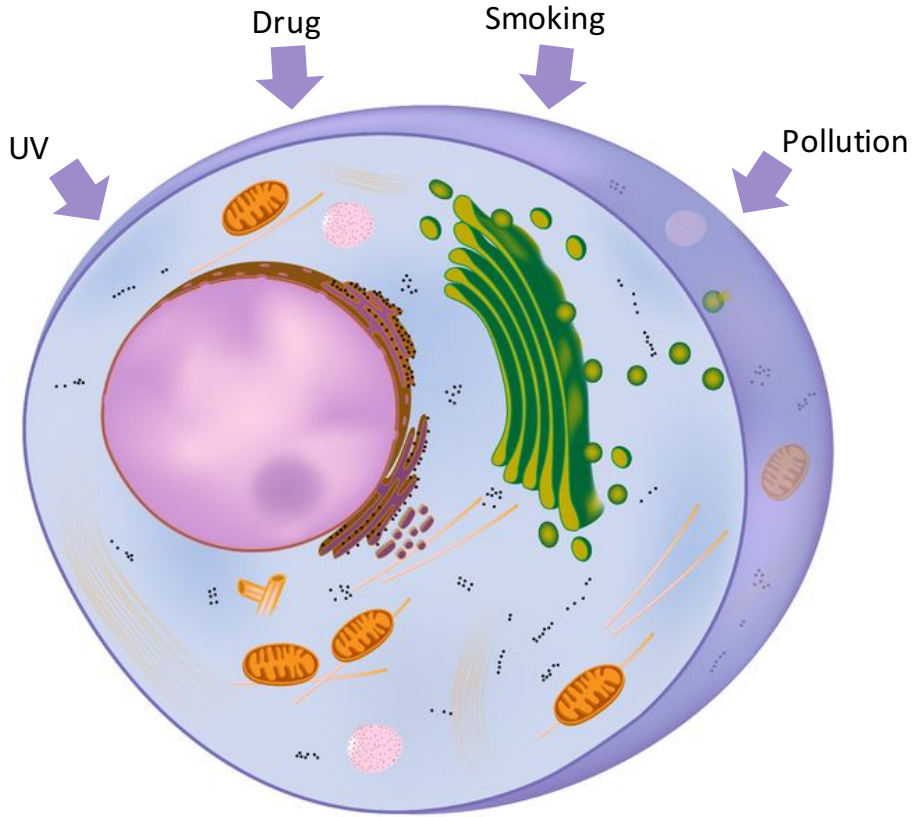
- ROS Generation Inhibition Activity

Anti-wrinkle Effect

- Collagen Synthesis Activity:
  Comparison of Before and After Fermentation

Oxidative Stress

Reactive Oxygen Species (ROS) can be increased by



Intracellular ROS may induce

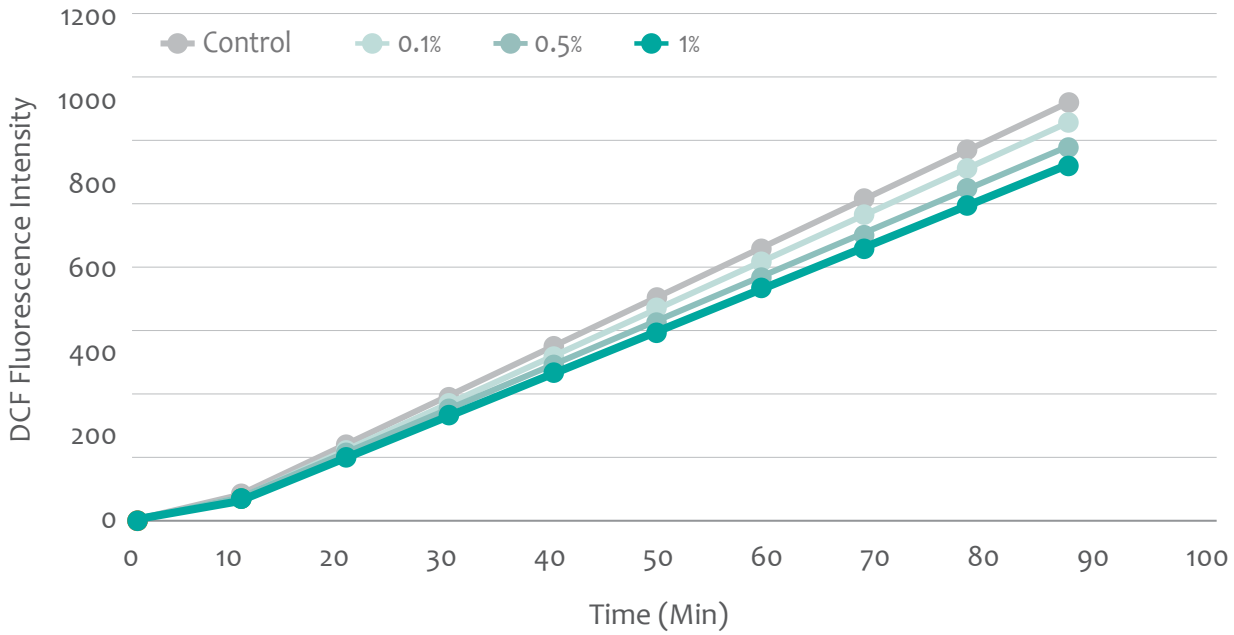
- DNA damage
- Lipid peroxidation
- Amino acid oxidation: protein damage
- Oxidation of co-factors: enzyme inactivation
- Chronic inflammation

ROS → **Skin Aging**

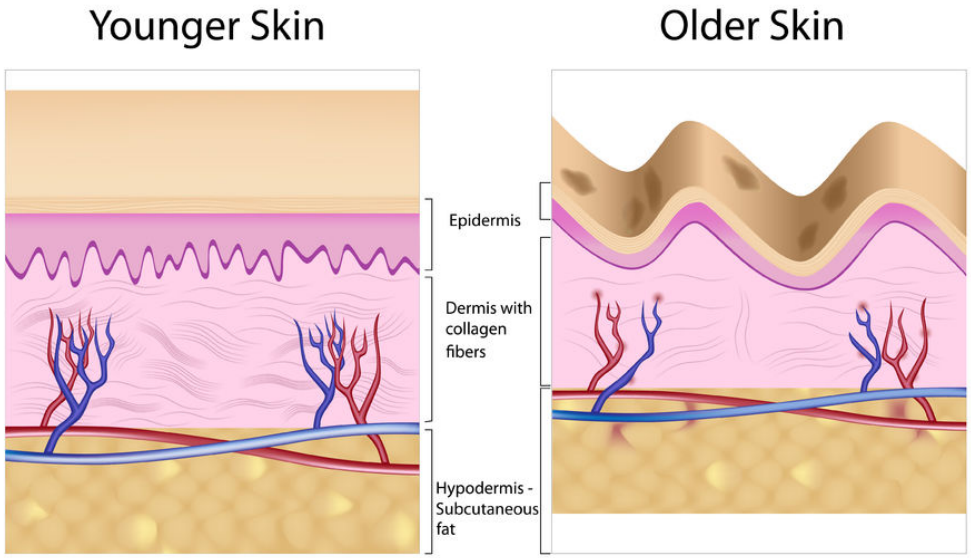
Inflammation

in vitro Efficacy Evaluation: Anti-oxidant Effect

ROS Generation Inhibition Activity



Skin Aging and Wrinkle Formation

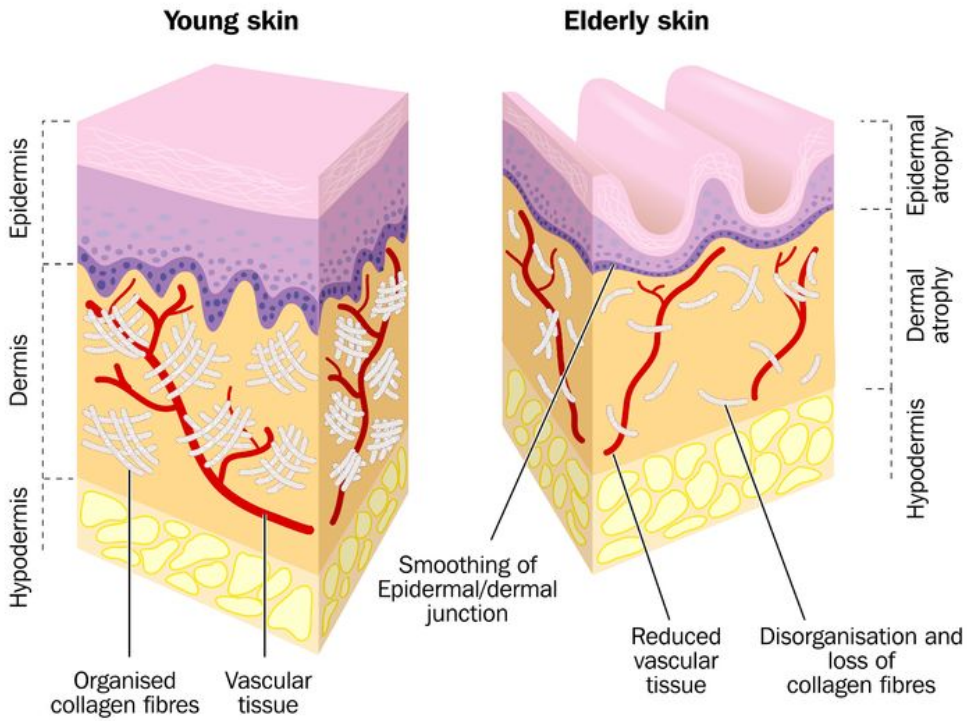


Skin aging is noted by

- a decrease of elasticity
- formation of wrinkles and fine lines
- degradation of collagen
- thinner and weaker skin
- damaged connective tissues

Skin changes with increasing age due to both intrinsic and extrinsic factors. Intrinsic skin aging is determined by genetic factors, hormonal status and metabolic reactions such as oxidative stress. One of the most important extrinsic skin aging is induced by UV radiation by sun exposure, referred to as *photoaging*. Smoking cigarettes and environmental pollution are also important factors in premature skin aging and wrinkle formation

Anti-wrinkle Mechanism



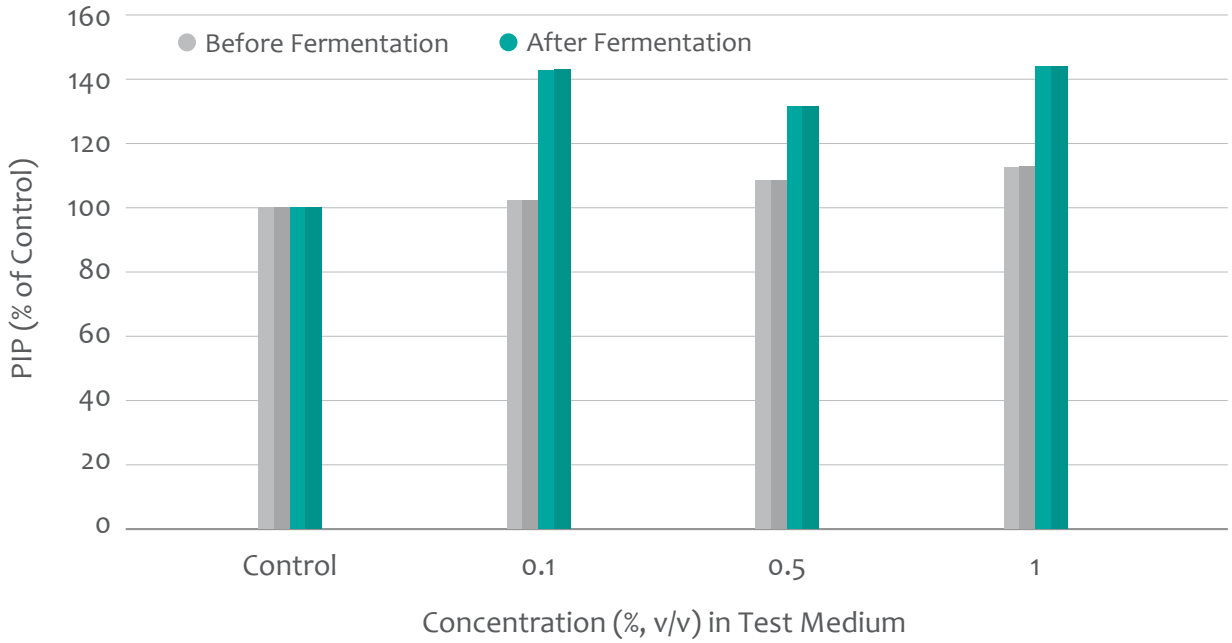
- Stimulation of collagen synthesis
- Inhibition of collagen degradation
- Inhibition of elastin degradation
- Stimulation of fibroblast proliferation

↓

- **Prevention of wrinkle formation**
- **Increase in skin elasticity**
- **Wrinkle improvement**

in vitro Efficacy Evaluation: Anti-wrinkle Effect

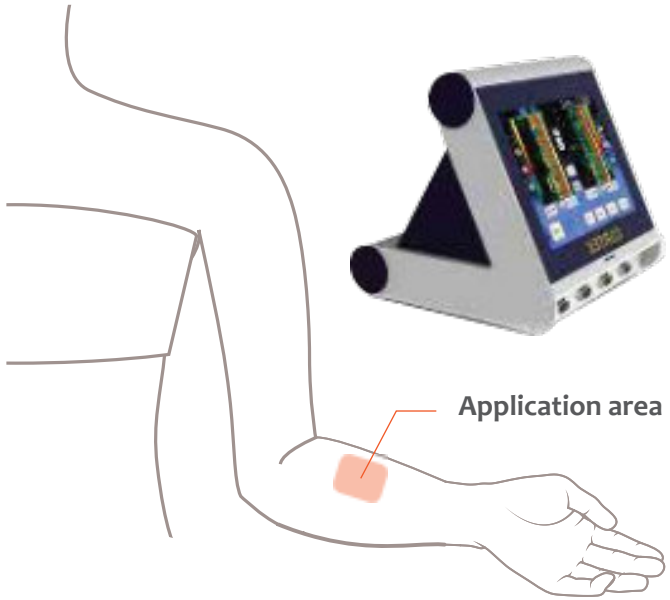
Collagen Synthesis Activity: Comparison of Before and After Fermentation



in vivo Efficacy Evaluation

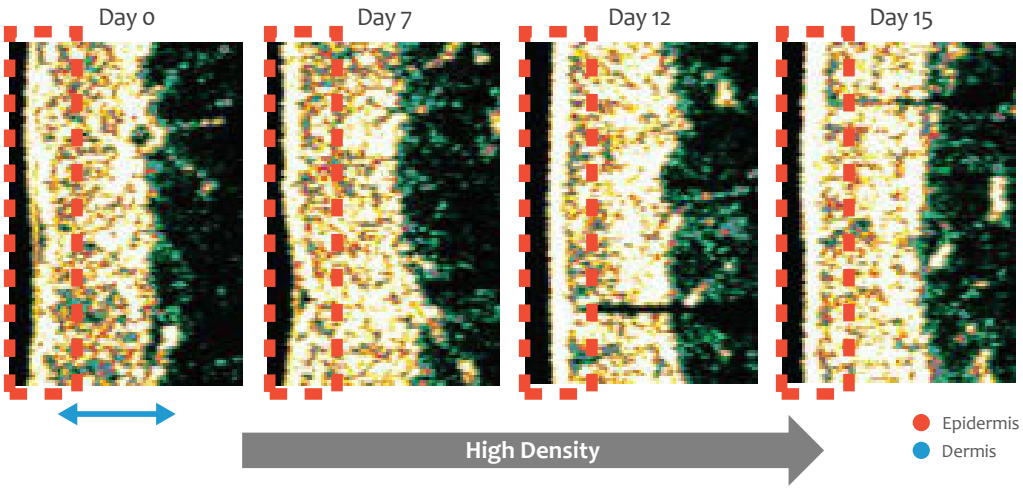
- **Skin Density**
- **Skin Hydration**
- **Skin TEWL**
- **Skin Smoothness**
- **Skin Firming**
  - Crow's Feet
  - Nasolabial Folds

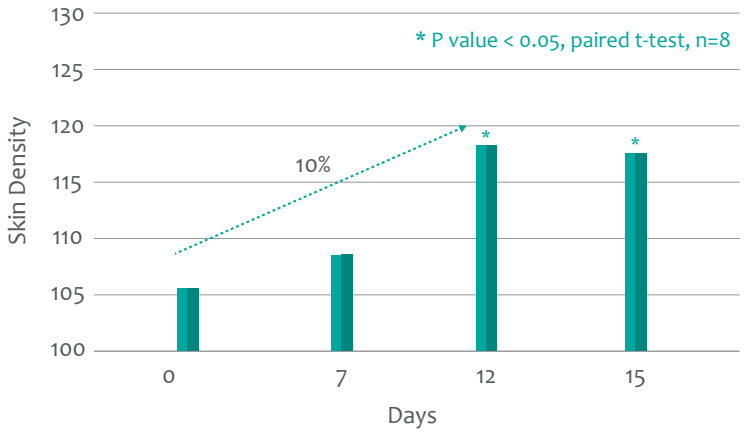
in vivo Evaluation: Skin Density



- **Target Site:** Forearm
- **Subjects:** 9 volunteers, aged between 28 to 41 years old
- **Test Item**: 100% RiFerm®
  Placebo (mixture of 5% butylene glycol and 95% water)
- **Application:** 200 mg of 100% RiFerm® and placebo
  Twice per day
- **Application Area:** 4 cm^2/site (2 cm * 2 cm)
- **Measurements:** 0, 4, 7, 12, 15 days after application
- **Test Instrument:** DermaLab® Combo
  (20 MHz, Resol. 60 x 260, DermaScan, Denmark)

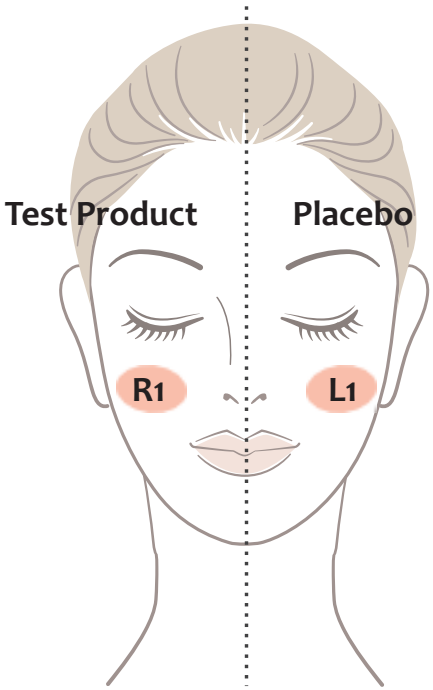
in vivo Evaluation: Skin Density





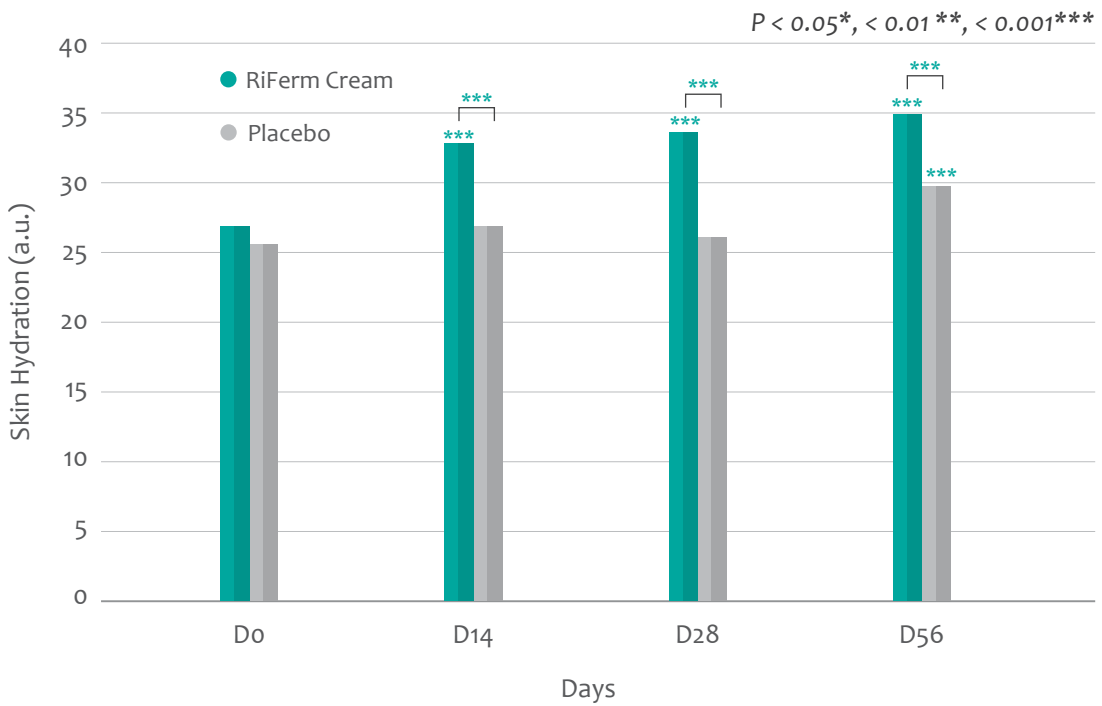
A loss of skin density is one of the general processes of skin aging. It causes wrinkles, thin skin and less resilient of skin. As time goes by, skin density of both epidermis and dermis increased after applying 100% RiFerm®.

in vivo Evaluation: Skin Hydration

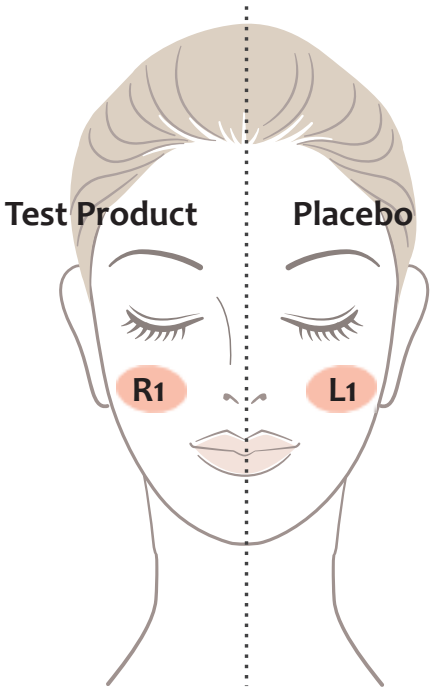


- **Target Site:** Face (R1 and L1)
- **Subjects:** 30 volunteers, aged between 35 to 60 years old
- **Test Item**: Cream with 94% RiFerm-HD
- **Application:** Twice a day for 8 weeks
- **Measurements:** 0, 14, 28, 56 days
- **Environmental Condition:** 22±1°C Temperature, 50±3% Relative Humidity
- **Test Instrument:** Corneometer (C+K, Germany)

in vivo Evaluation: Skin Hydration



in vivo Evaluation: Skin TEWL



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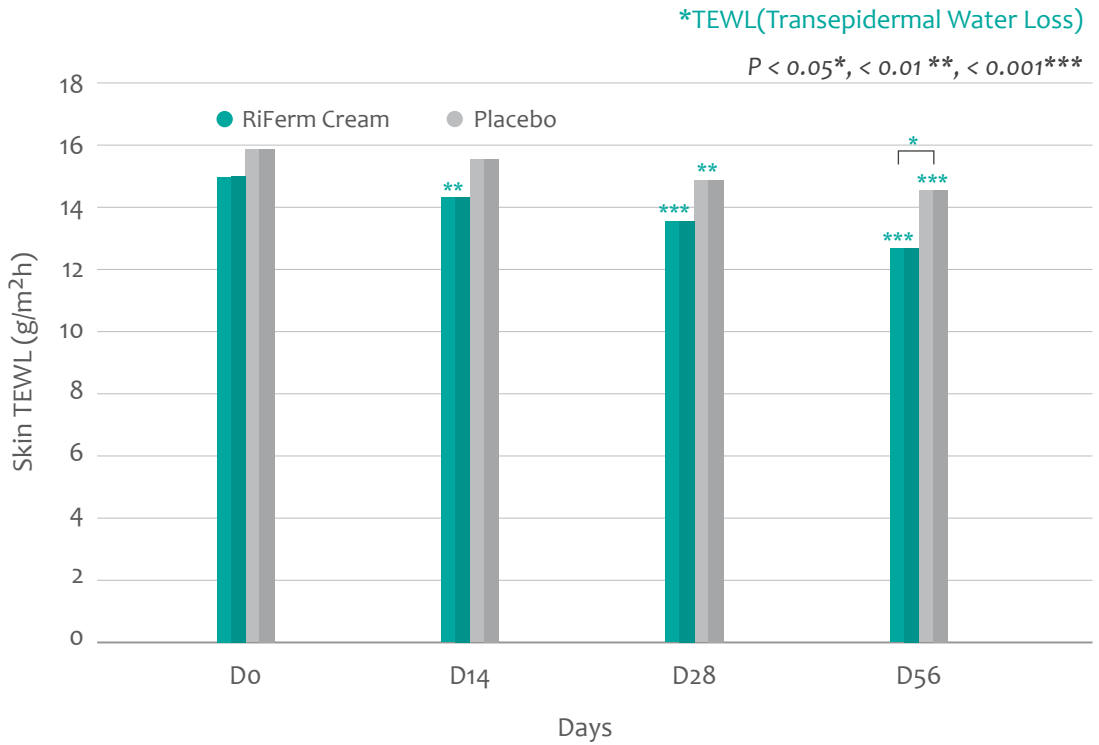
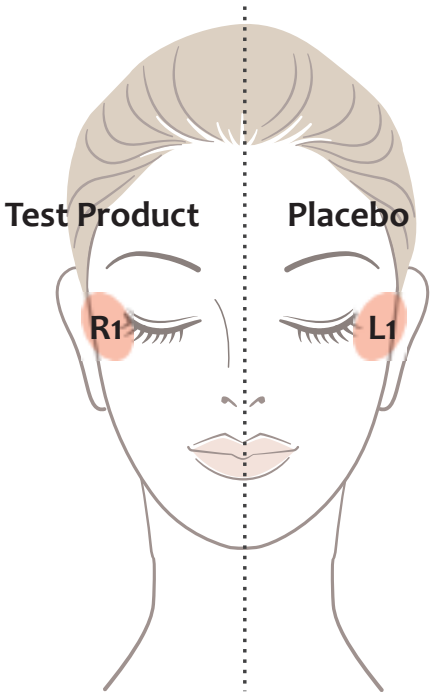
in vivo Evaluation: Skin TEWL



in vivo Evaluation: Skin Smoothness

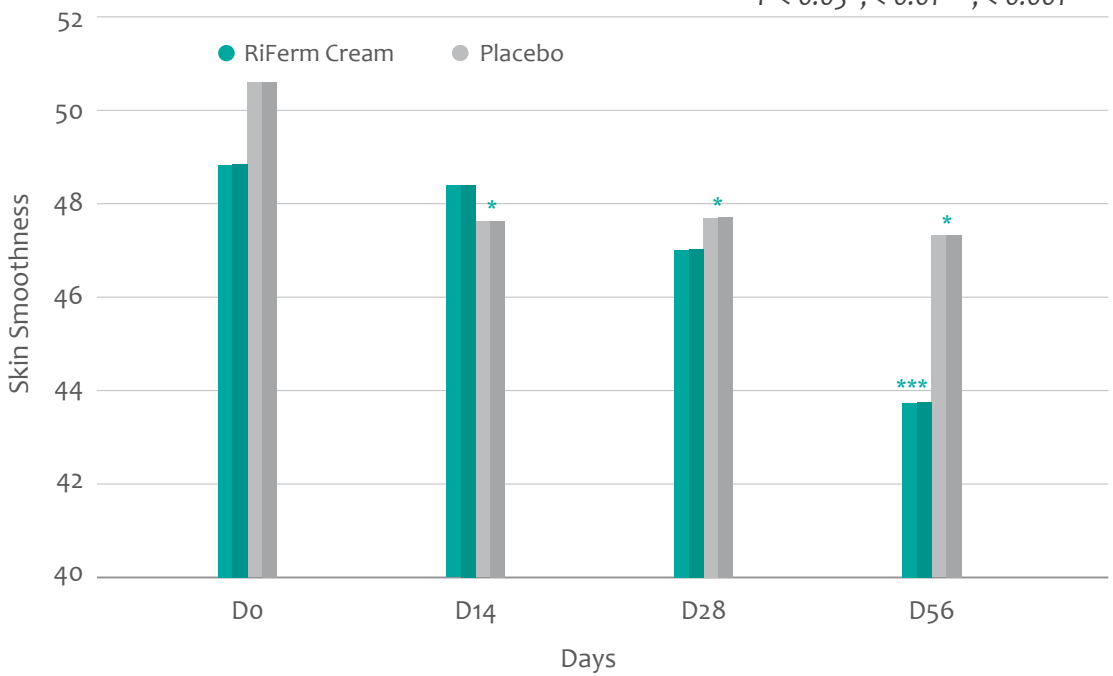


- **Target Site:** Face (R1 and L1)
- **Subjects:** 30 volunteers, aged between 35 to 60 years old
- **Test Item**: Cream with 94% RiFerm-HD
- **Application:** Twice a day for 8 weeks
- **Measurements:** 0, 14, 28, 56 days
- **Environmental Condition:** 22±1°C Temperature, 50±3% Relative Humidity
- **Test Instrument:** VD300

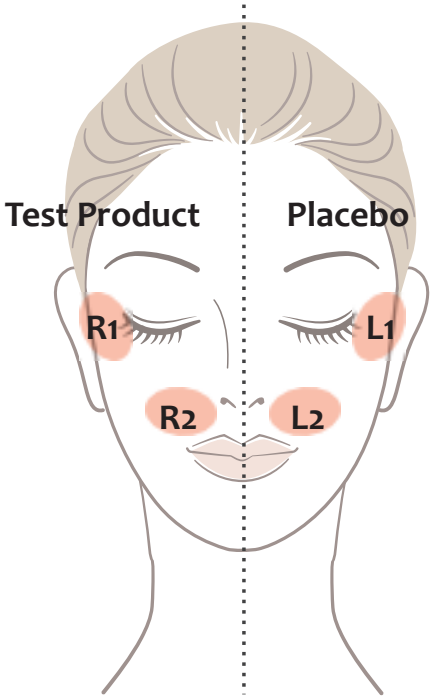
in vivo Evaluation: Skin Smoothness

*The lower skin smoothness level, the better activity is showed

P < 0.05, < 0.01 **, < 0.001****

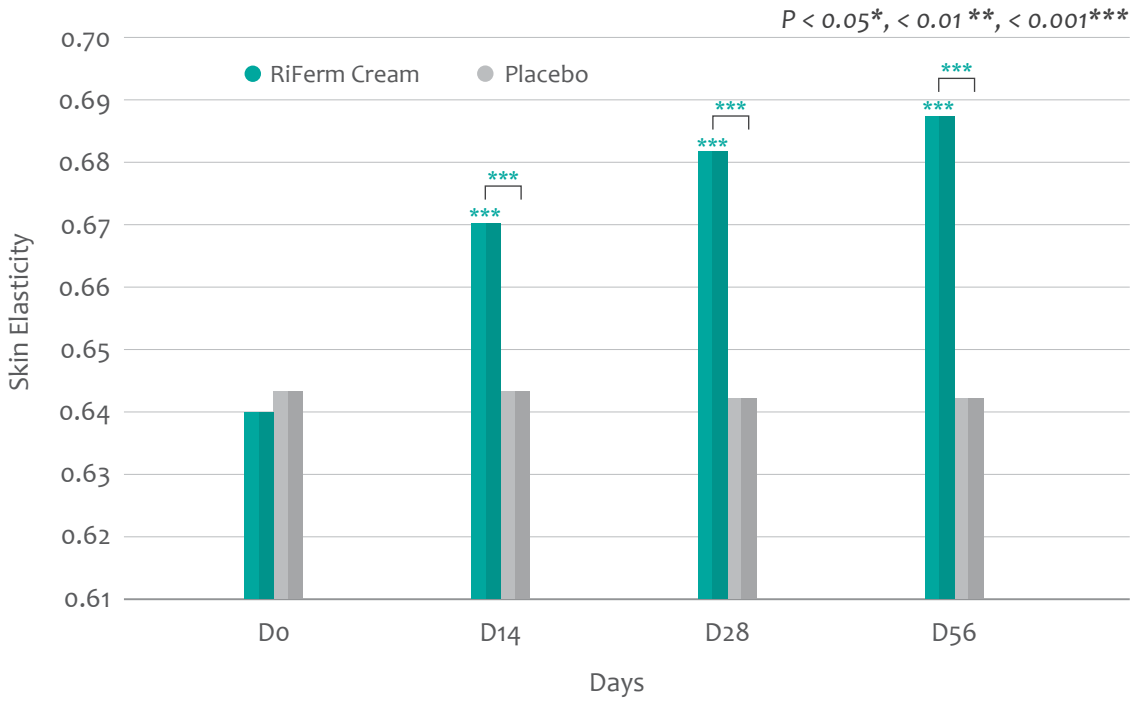


in vivo Evaluation: Skin Firming

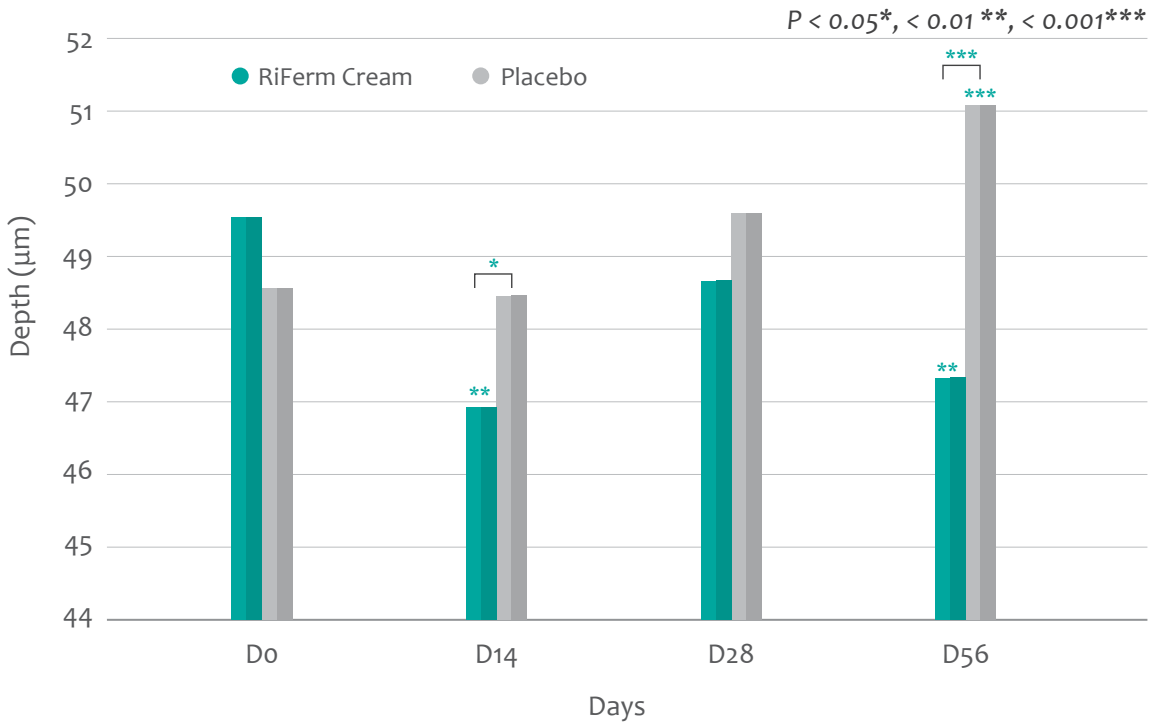


- **Target Site:** Face
  - R1, L1 - Crow's feet elasticity
  - R2, L2 - Nasolabial fold elasticity
- **Subjects:** 30 volunteers, aged between 35 to 60 years old
- **Test Item**: Cream with 94% RiFerm-HD
- **Application:** Twice a day for 8 weeks
- **Measurements:** 0, 14, 28, 56 days
- **Environmental Condition:** 22±1°C Temperature, 50±3% Relative Humidity
- **Test Instrument:** MPA 580 (C+K, Germany)

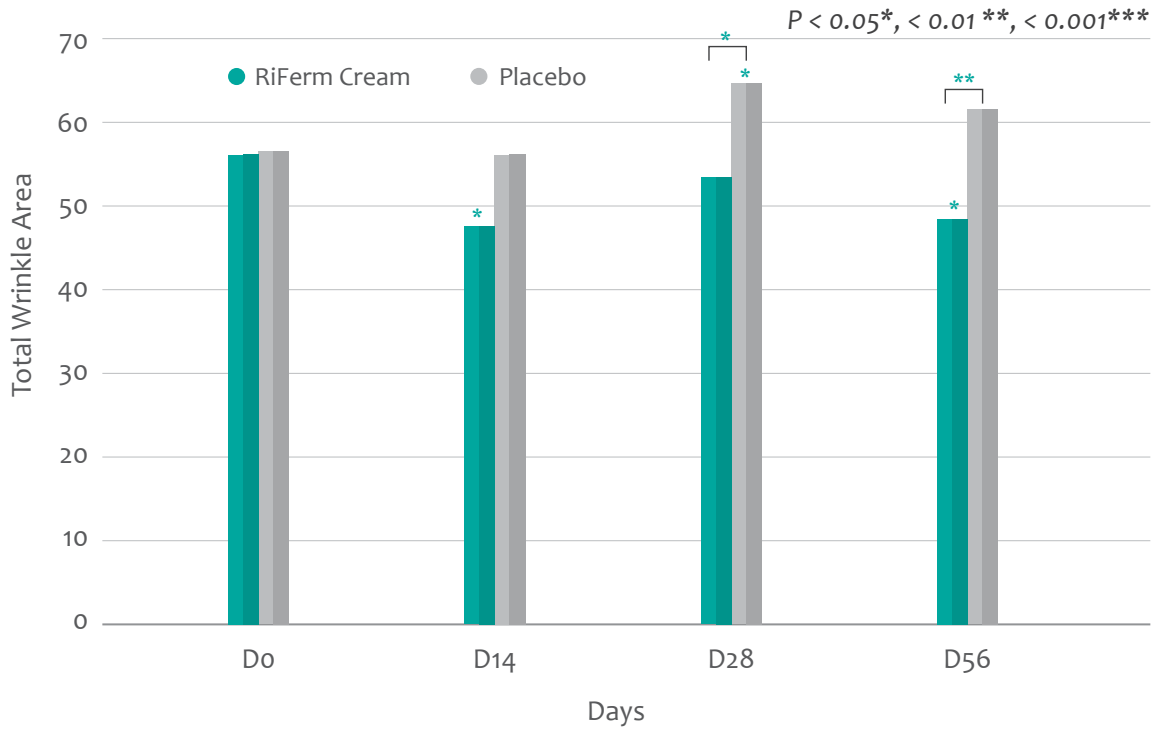
in vivo Evaluation: Crow's Feet Elasticity



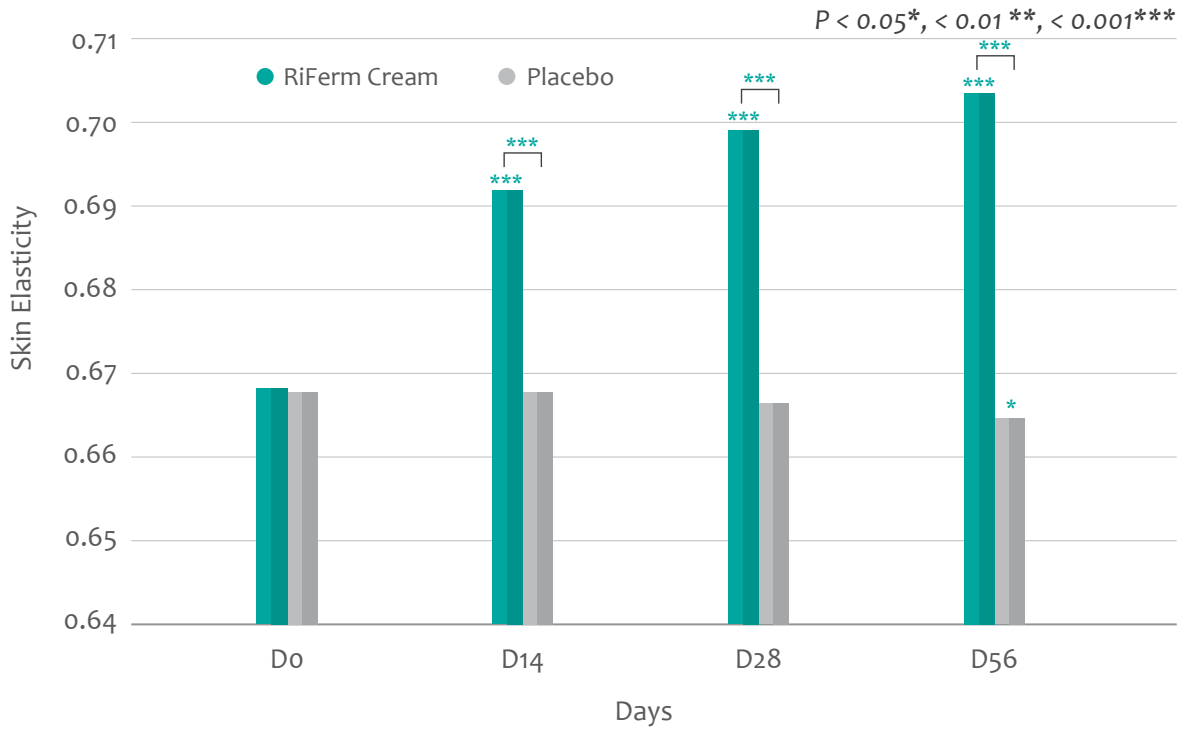
in vivo Evaluation: Crow's Feet Wrinkle Depth



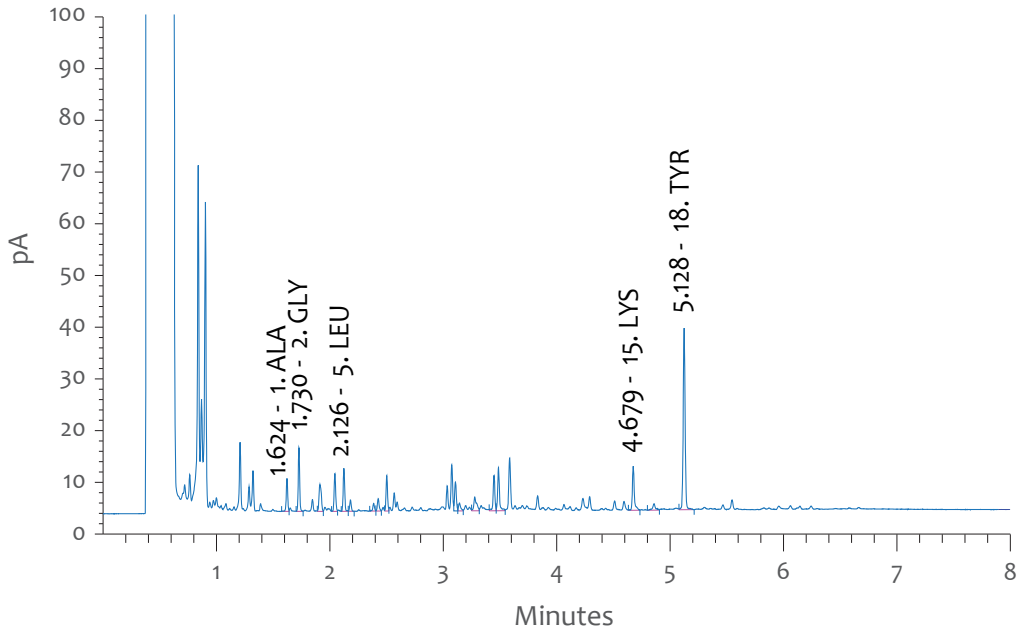
in vivo Evaluation: Crow's Feet Wrinkle Area



in vivo Evaluation: Nasolabial Folds Elasticity



Total Amino Acid Analysis



Test method: GC-FID

Tyrosine is mostly detected in RiFerm.

Product Information

- **Product Name:** **RiFerm-HD, RiFerm-BS**
  RiFerm-NPG
- **INCI Name:** **Saccharomyces/Rice Ferment Filtrate**
- **Dosage:** RiFerm-HD (10-100%), RiFerm-BS (10-100%)
  RiFerm-NPG (10-30%)
- **Formulation:** Add to the formulation
  when the temperature is lower than 55°C.
  Recommended to add after the cooling process.
- **Storage:** Avoid direct light or UV.
  Keep it in a cool and dry area.

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