



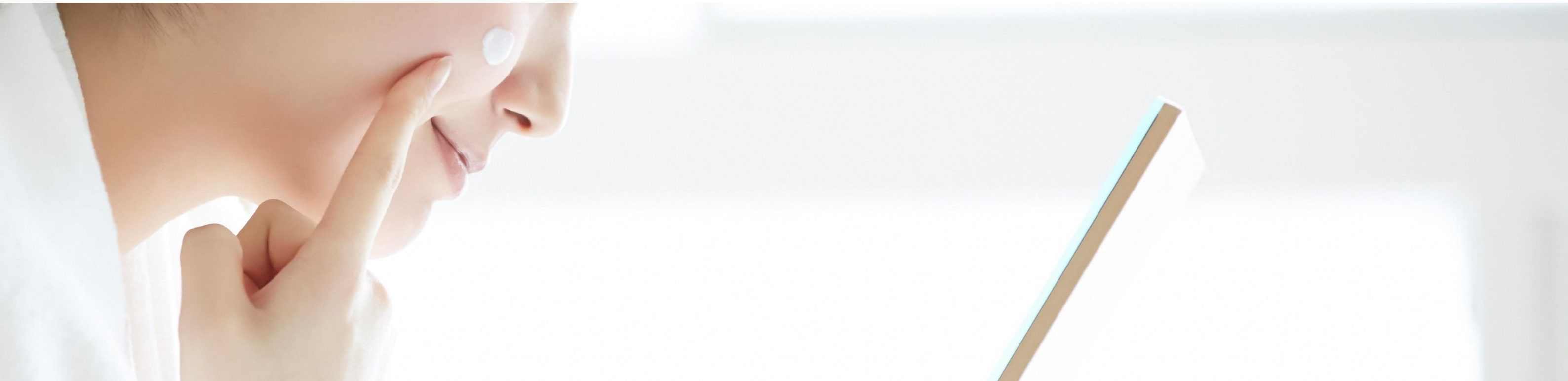
HealthyLife Innovation

Designing the Future of Food and Health

【 Introduction of Nutrition and Cosmetics Division 】

Introduction of **Cosmetics Division**

We manufacture and sell fullerenes and other cosmetic ingredients. Additionally, we distribute UV scattering agent manufactured by Tayca and other cosmetic ingredients to overseas.



Introduction of **Cosmetics Division**

Our products



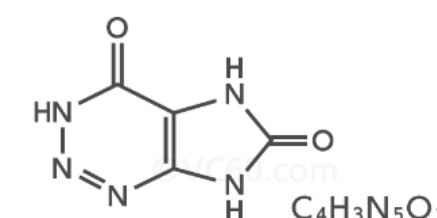
Natural FullereneTM

- Strong, long-lasting and stable antioxidant
- The world's first and only plant-based fullerene
- Multiple benefits with clinically proven



RepistaTM

- World's only cosmetic ingredient with Aza-Oxohypoxanthine (AOH)
- Growth factor in edible plants
- Skin barrier recovery, LASER treatment



2-aza-8-oxohypoxanthine

Molecular weight: 153

Introduction of **Cosmetics Division**

Fervere™

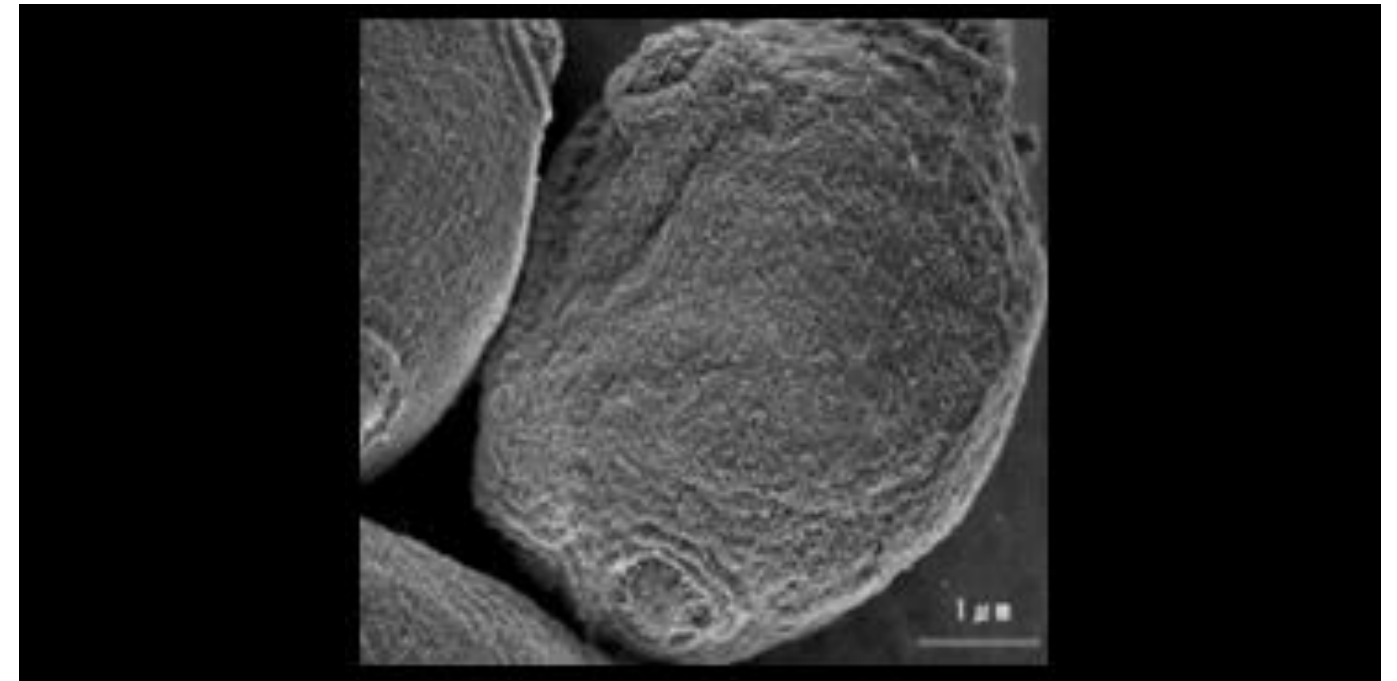
Fervere™ is a series of new fermentation cosmetic raw materials developed utilizing the fermentation technology cultivated by Mitsubishi Corporation Life Sciences Limited over many years.



Glucamoist

Gluca Moist™

- Functional raw material derived from the cell wall of Torula yeast
- Hydrates the skin and “KIME” improvement effects
- Hair smoothening



Yeast Veil Electron microgram

Yeast Veil™

- Functional raw material using beer yeast cell walls
- Hydrates the skin and Wrinkle reduction
- Velvety skin feel like a silk

Plant-based Fullerene



- Carbon allotrope with 60 carbons
- Discovered in 1985 from a research on interstellar molecules.
- Discoverers received the Nobel Prize in chemistry in 1996.

Perfect Anti-oxidant ability

Strong
250times
more effective
than VitaminC

Long-Lasting
More than
20 hours

Stable
Stable against
UV rays



Radical Sponge



Radical SpongeN / Water-soluble fullerene



Halal Certified non-GMO, Cruelty free, Vegan suitable

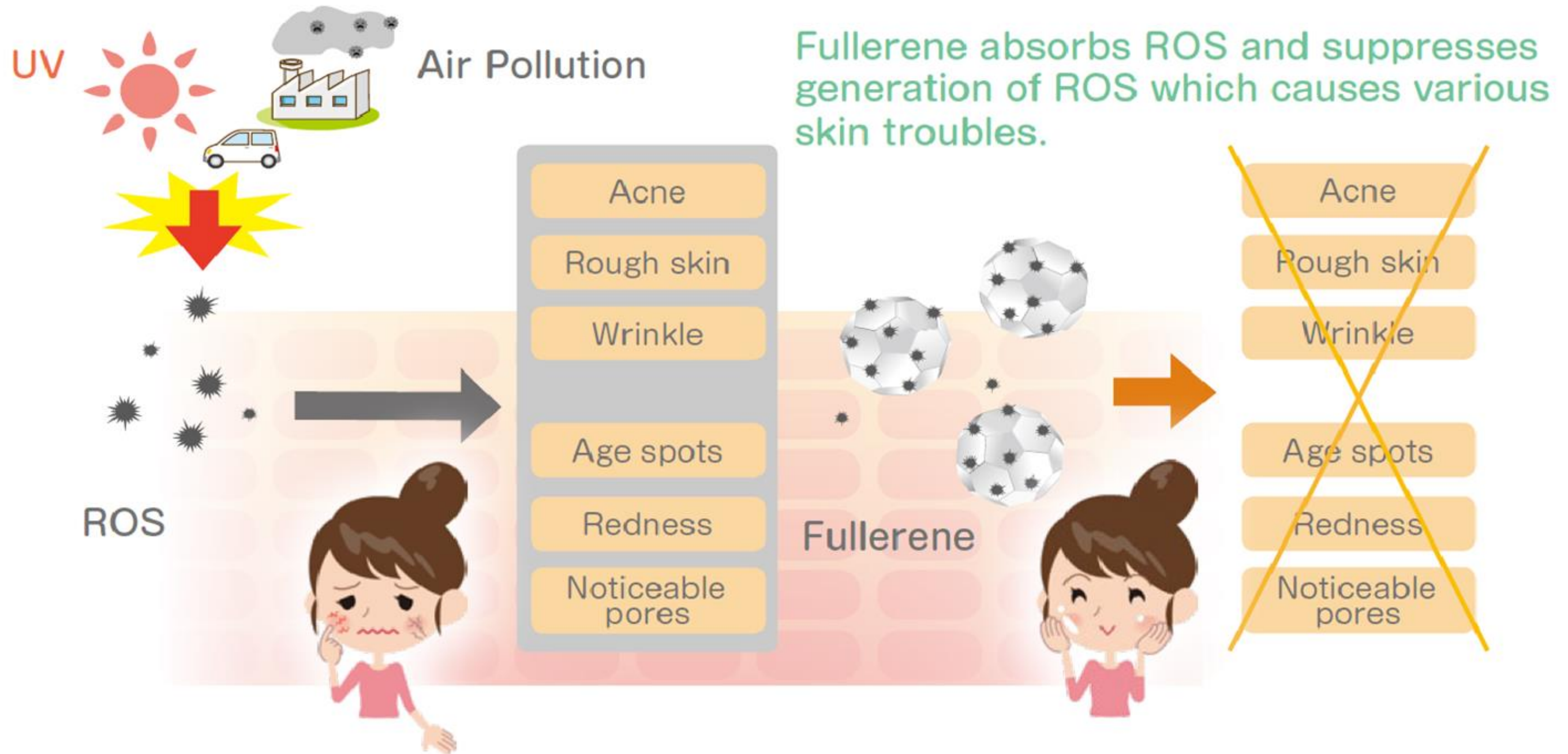
Natural and High-Efficacy

Strong Anti-Oxidant

Easy to Formulate

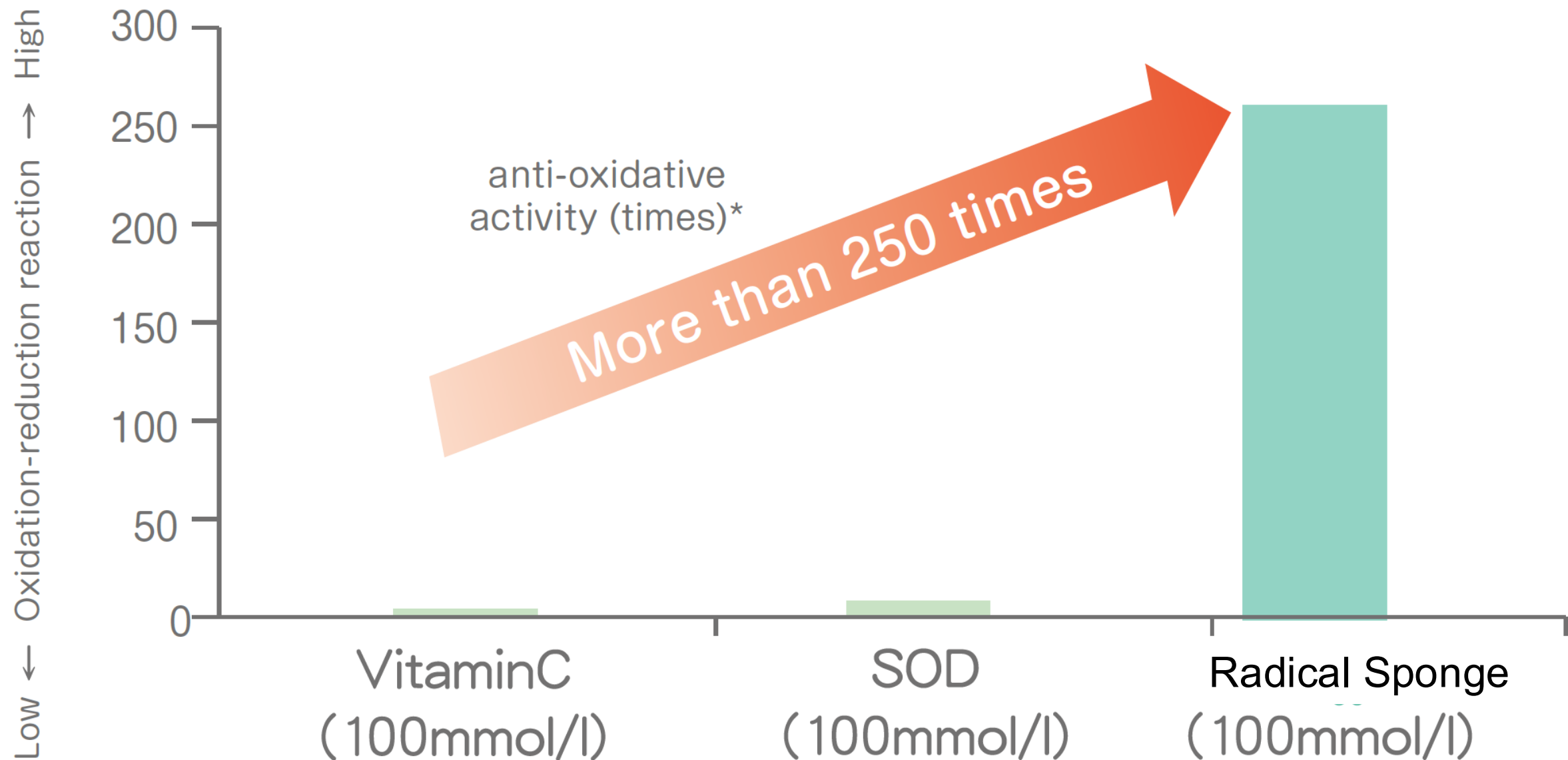
Feature	Cosmetic ingredient obtained by water-solubilizing fullerene using the water-soluble polymer PVP
Ingredient name	Fullerene, Polyvinylpyrrolidone, 1,3-Butylene glycol, Water
INCI	FULLERENES, PVP, BUTYLENE GLYCOL, WATER
CHINA INCI	富勒烯、聚乙烯吡咯烷酮、1,3-丁二醇、水
Package	1kg、100g
Characteristics	A dark brown viscous liquid with slight peculiar odor
Recommended concentration	0.1% ~

Radical Sponge makes skin beautiful



Powerful Antioxidant

Radical Sponge is 250 times more effective than Ascorbic acid.

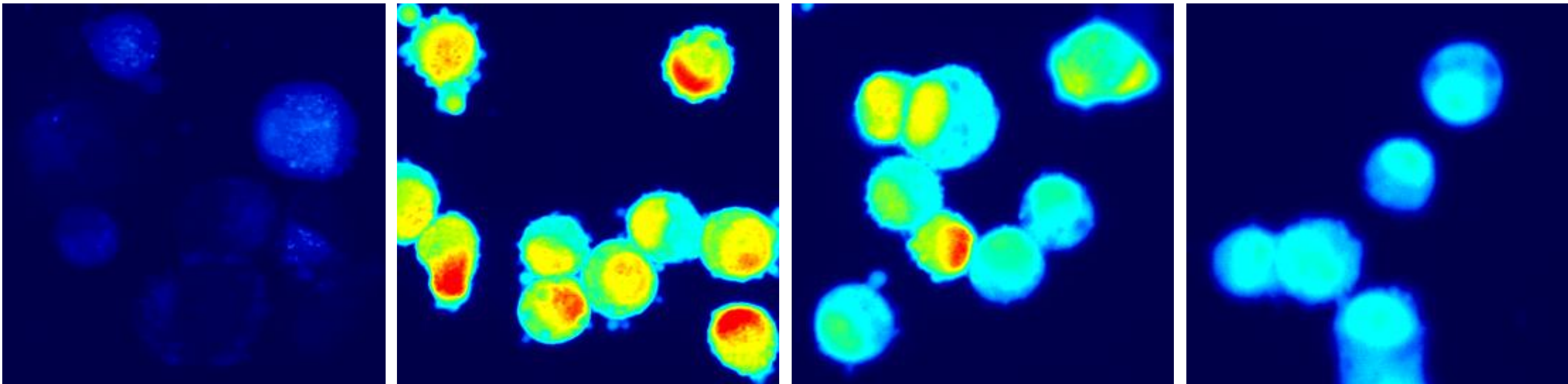


Copper Ion Reduction Method

When the Cu^{++} reagent is mixed with an antioxidant, Cu^{+} is produced by the reducing action of the antioxidant. Cu^{+} forms a complex with a chromogenic reagent (Bathocuproine) and shows absorption at 480-490 nm. This reaction is used to evaluate antioxidant activity (reduction capacity) by color intensity.

Powerful Antioxidant

The amount of ROS obviously decreased by adding fullerene.

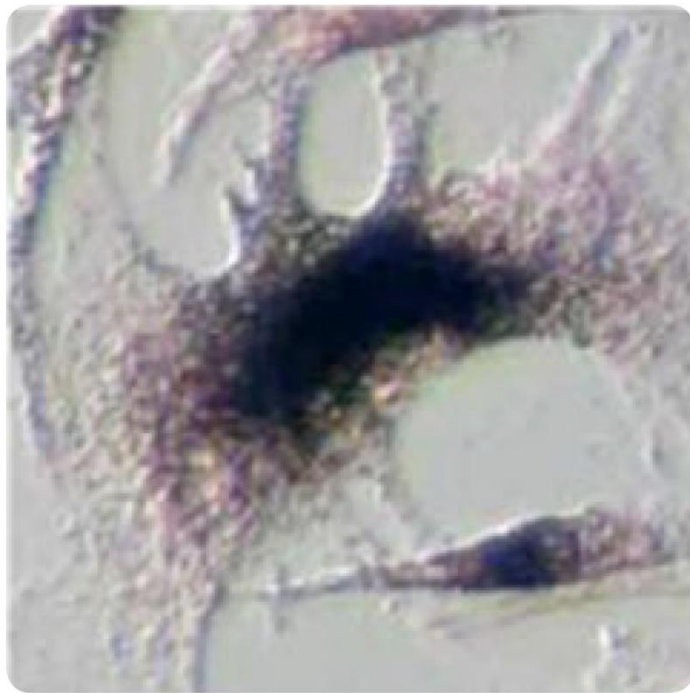


UVA(-)	UVA 60 J/cm ²		
Radical Sponge(-)	Radical Sponge(+)		
-	-	1.5%	3%

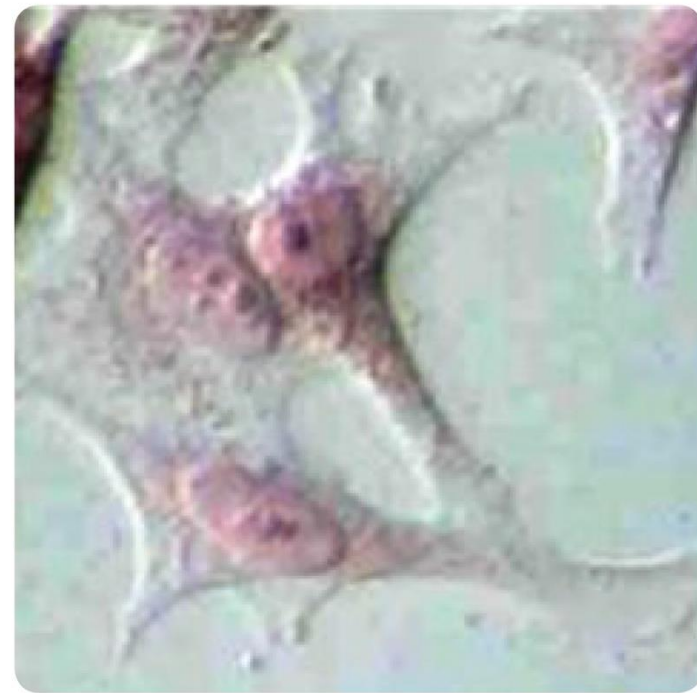
Procedure
HMF-II cells (2×10^5) were seed in 24 well plate: 24-hr incubation
RS administration: 3-hr incubation
UVA irradiation: The cells were washed twice by PR-free DMEM and incubated with or without PR-free DMEM containing $7.4 \mu\text{M}$ CDCFH-DA for 30 min, then irradiated with fluorescent lamps (YAMASHITA DENSO HYPERCURE 200) at different doses by $300 \mu\text{l}$ PR-free DMEM. The fluorescence intensity was immediately observed by a fluorescence microscopy NIKON ECLIPSE E600 with x 200 time ocular lens.
The excitation and emission wavelengths is 485 nm and 530 nm.

Suppression of Melanin Production

The amount of melanin was obviously reduced by the addition of Radical Sponge. Extension of dendrites was also suppressed.

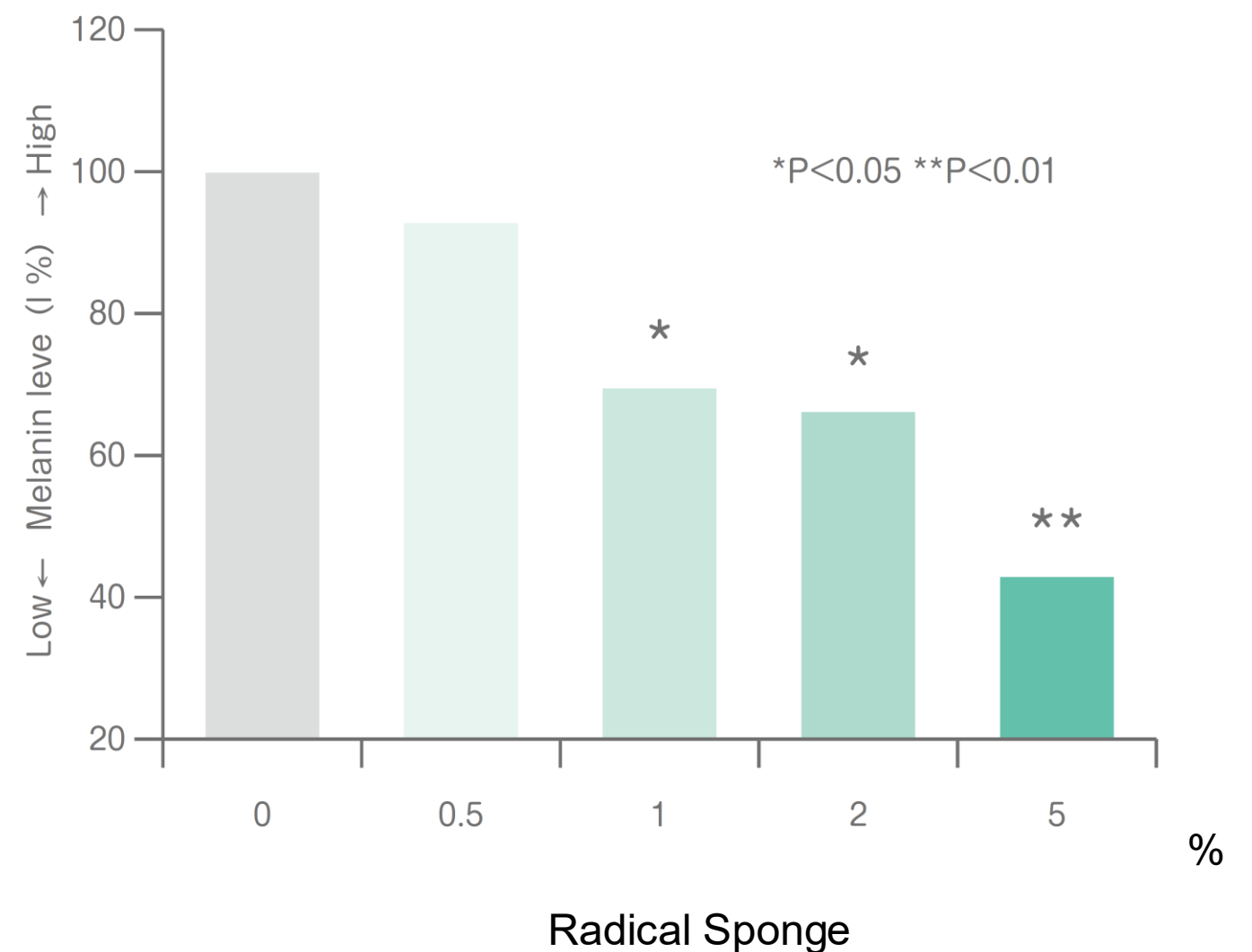


without Radical Sponge



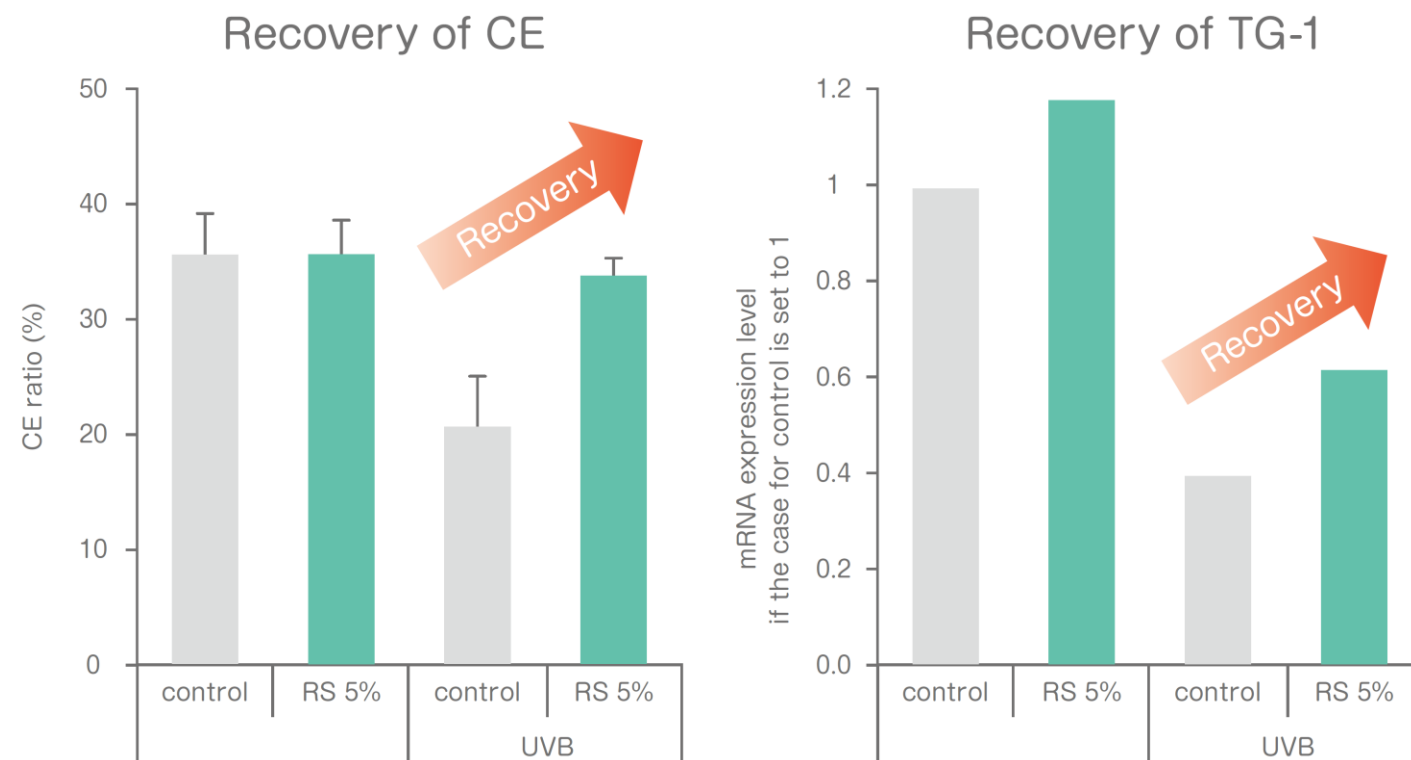
with Radical Sponge 1%

Radical Sponge was applied to human melanoma cells, and UVA ($2\text{J}/\text{cm}^2$) was irradiated to the cells. Then the cells were cultivated for 1 day. Melanin were visualized by Fontana-Masson staining.



Increase CE, TG-1 and ceramide

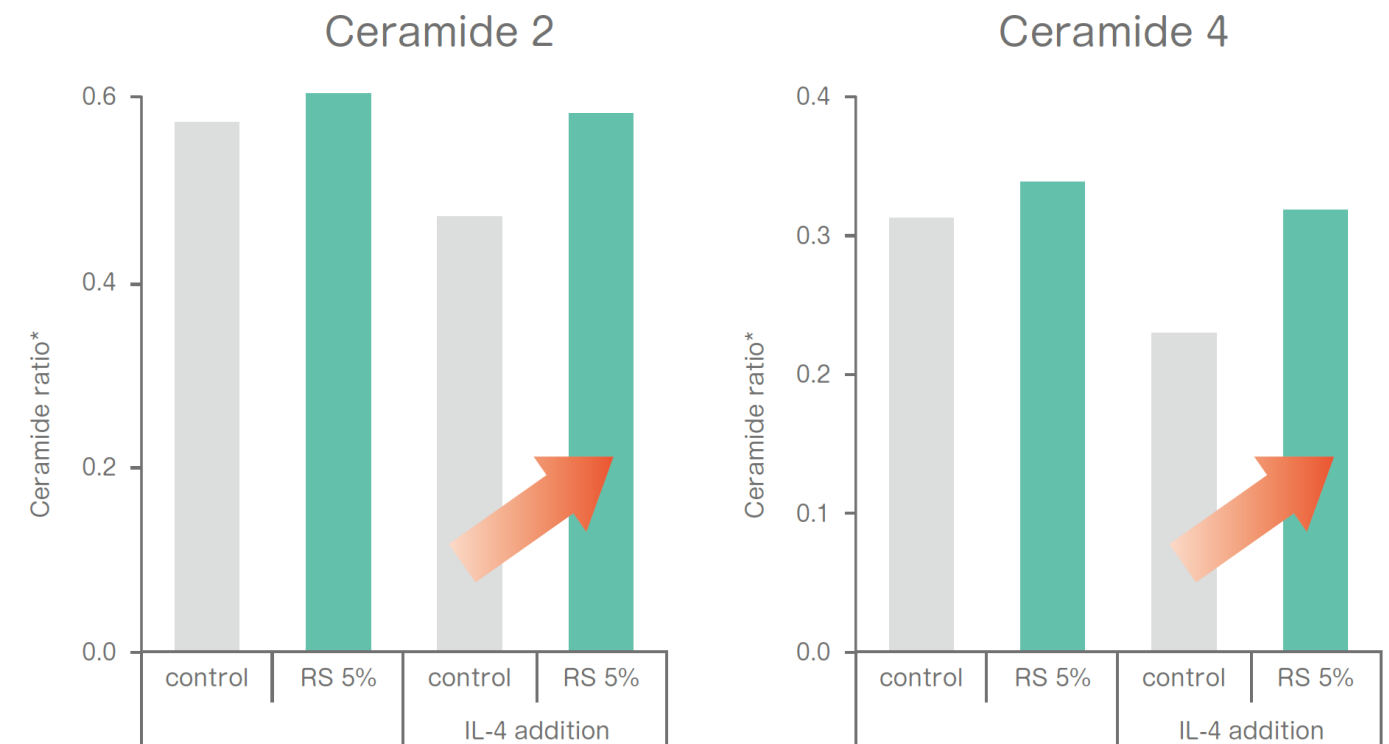
CE amount that was decreased by UVB irradiation recovered significantly. mRNA expression level of TG-1 increased significantly.



Procedure

RS was added to human epidermal keratinocytes. Cells irradiated with UVB and those not irradiated were each cultured for 3 days.

Ceramide 2 and ceramide 4 that had been reduced by IL-4 recovered significantly. This result is led to that mRNA of ceramide synthetase increased by adding RS.

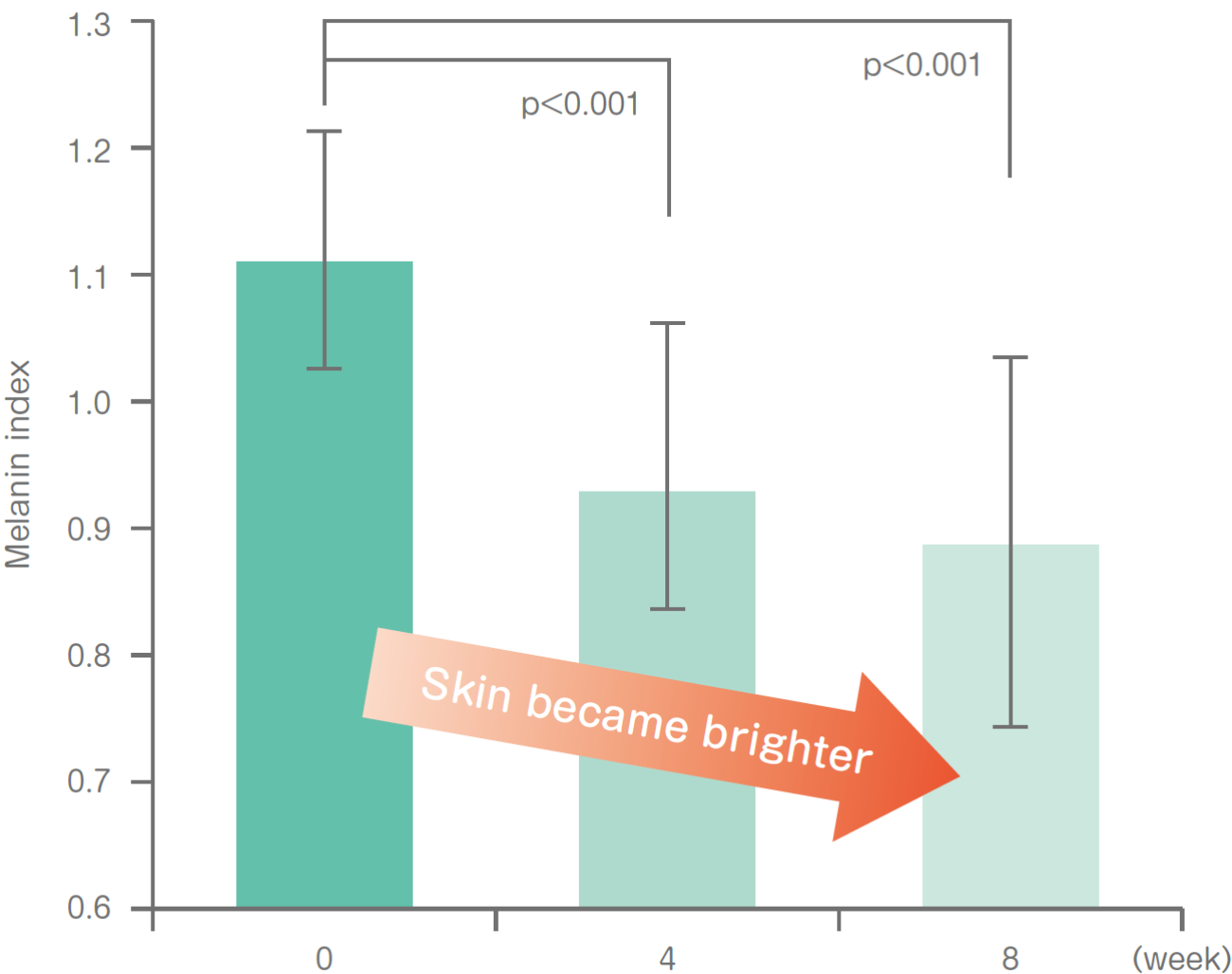


Procedure

1. After adding RS to a 3D-Human skin Tissue and culturing it for 1 day, the culture medium was replaced with a medium containing IL-4, and it was cultured for 3 more days.
2. Lipids were extracted from the three-dimensional cultured skin, and separated by thin layer chromatography.
3. Lipids were detected in copper sulfate phosphoric acid solution.
4. Protein concentrations of the samples from the resulting spot, adjusted by the protein concentration and amount of cholesterol from the sample from the spot, was used as the amount of ceramides.

Clinical trial –brightening1

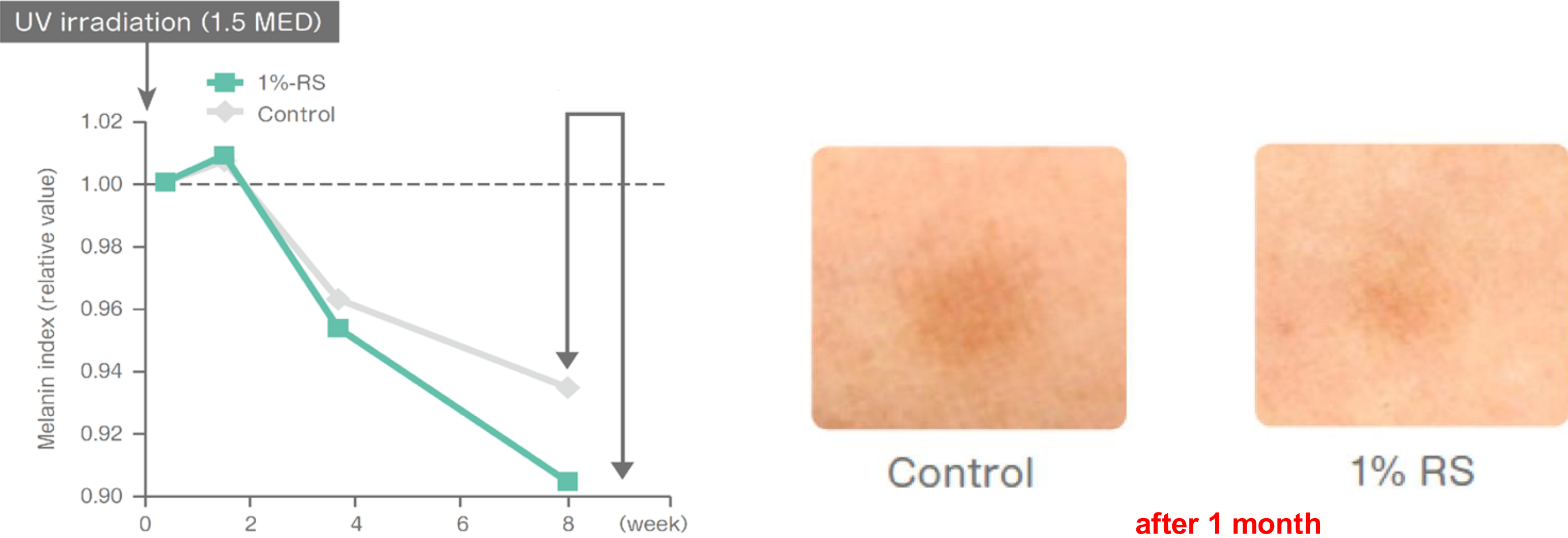
Melanin index reduced significantly in 8 weeks.



test item	1% Radical Sponge gel (Water, Butylene Glycol, Fullerene, Arginine, Carbomer, Methylparaben, Phenoxyethanol, Sodium citrate, Xanthan gum, Sodium metaphosphate, Citric acid, Cyclohexasiloxane, Glycerin, Squalane, Pentylene glycol, PPG-4 cetes-20, Ethanol, Sodium stearyl glutamate, PVP)
subject	18 female subjects, Age 34 to 49 (he average age: 42.2 ± 5.7)
method	Melanin index measurement with a spectral colorimeter

Clinical trial –brightening 2

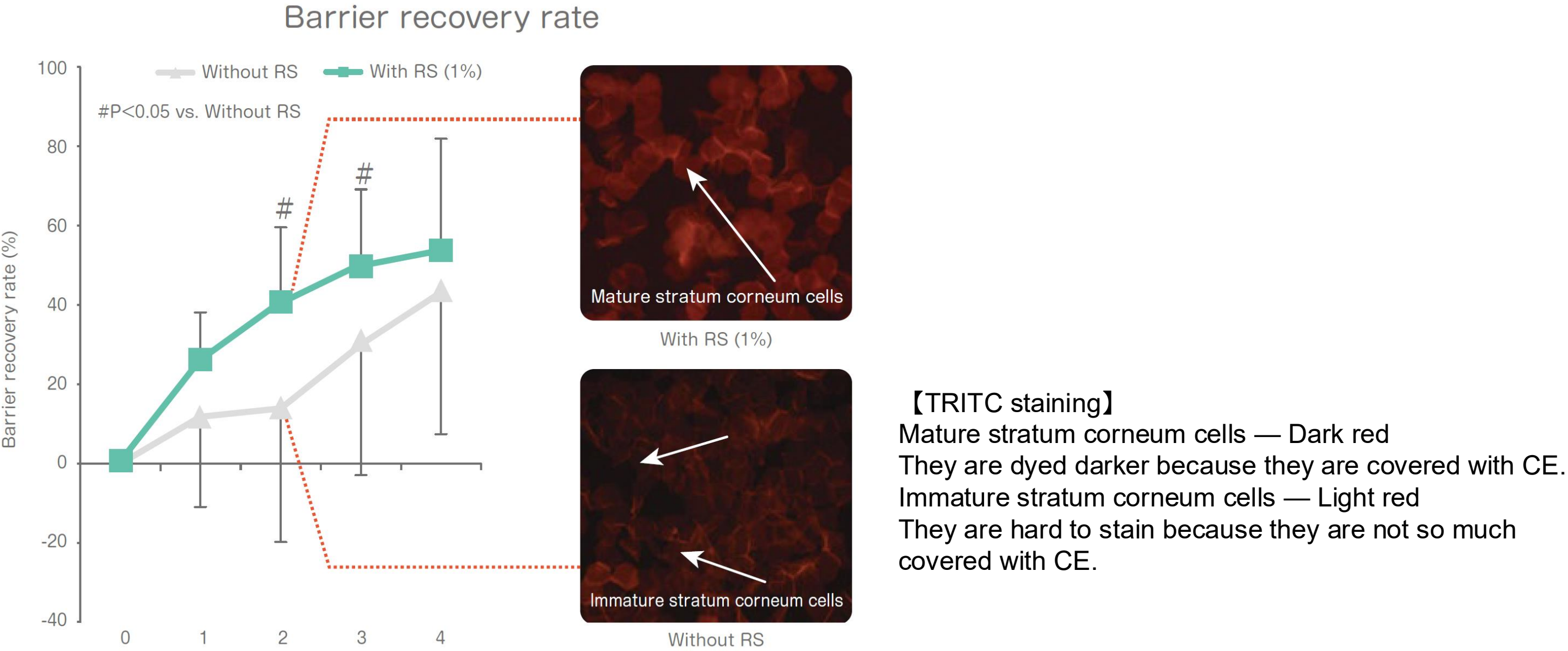
The application of the RS-blended cream significantly reduced the melanin index, compared to the case for the control.



test item	with or without 1% Radical Sponge cream (Water, Butylene Glycol, Fullerene, Glycerin, Mineral oil, Glyceryl stearate, SorbitolBehenyl alcohol, Isopropyl palmitate, Cetes-15, Sorbitan stearate, Paraffin, Cetes-20, Dimethicone, PVP, Stearic acid, Stearamide, Methylparaben, Butylparaben, Propylparaben, Cetes-10)
subject	18 female subjects, Age 34 to 49 (he average age: 42.2 ± 5.7)
method	the skin condition was measured with a spectrophotometer. The application of the creams had started one week before the irradiation. The graph shows the average value of 18 subjects. The value at the 1st week after the irradiation when the skin color became darker was set to 1.00.

Clinical trial –skin barrier recovery

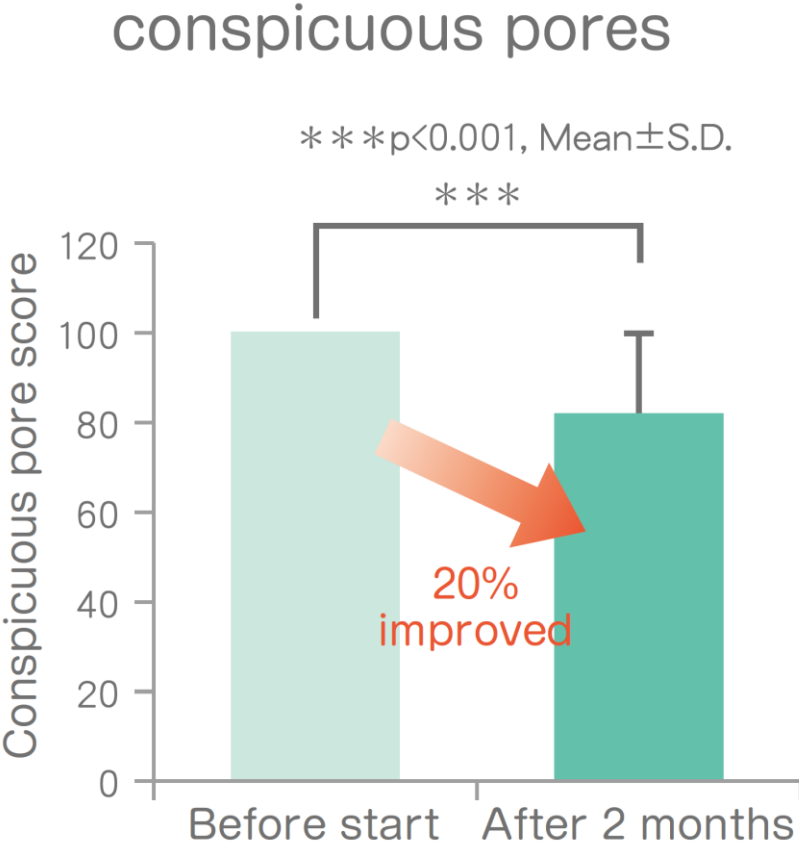
Radical Sponge significantly recover the reduced barrier function of the stratum corneum on the second and third days after the stratum corneum removal.



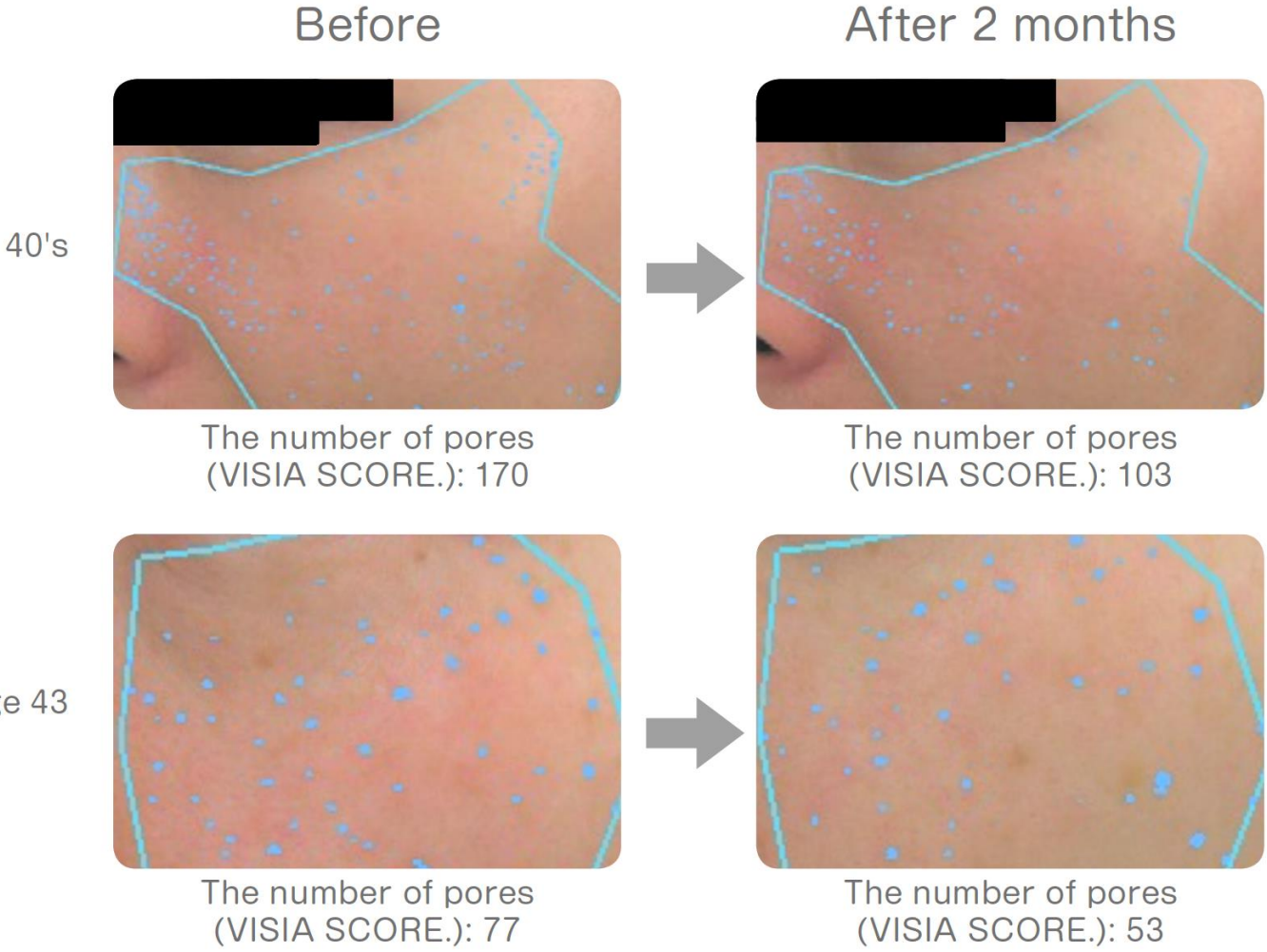
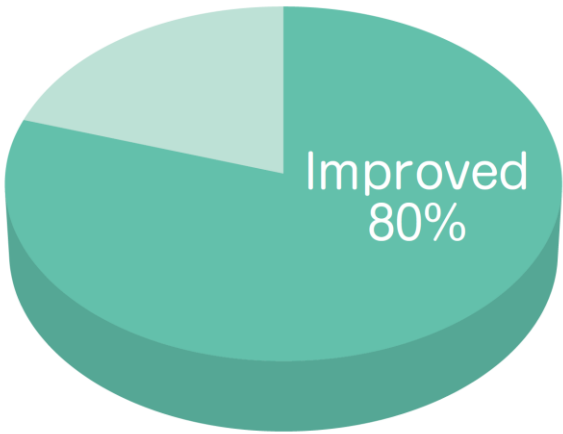
test item	1% Radical Sponge and water
subject	10 healthy subjects (male: 5, female: 5), the average age: 40.2
method	Shield test, tape strip method. Evaluated with Transepidermal water loss (TEWL)

Clinical trial –recover enlarged pore

Pores became less visible in 2 months.



The percentage of subjects whose conspicuous pores were improved



test item	Radical Sponge 1.0%, Phenoxyethanol 0.5%, Glycerine 5.0%, Butylene Glycol5.0%, water q.s. to 100%
subject	10 female subjects (the average age: 46)
method	apply test item daily for 2 months. Evaluated with VISIA.

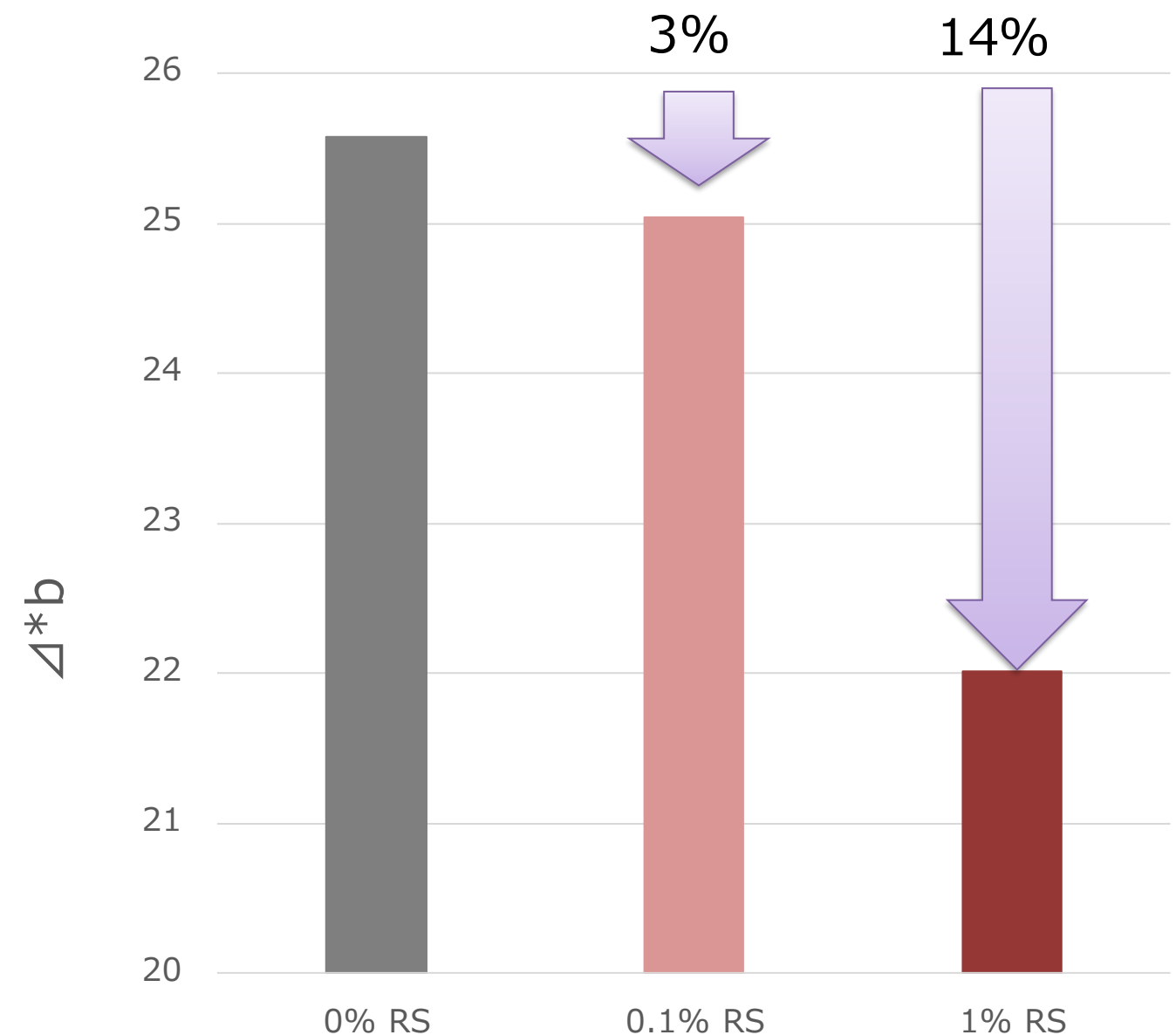
Inhibition of browning of ascorbic acid (AsA) aqueous solution

Methods

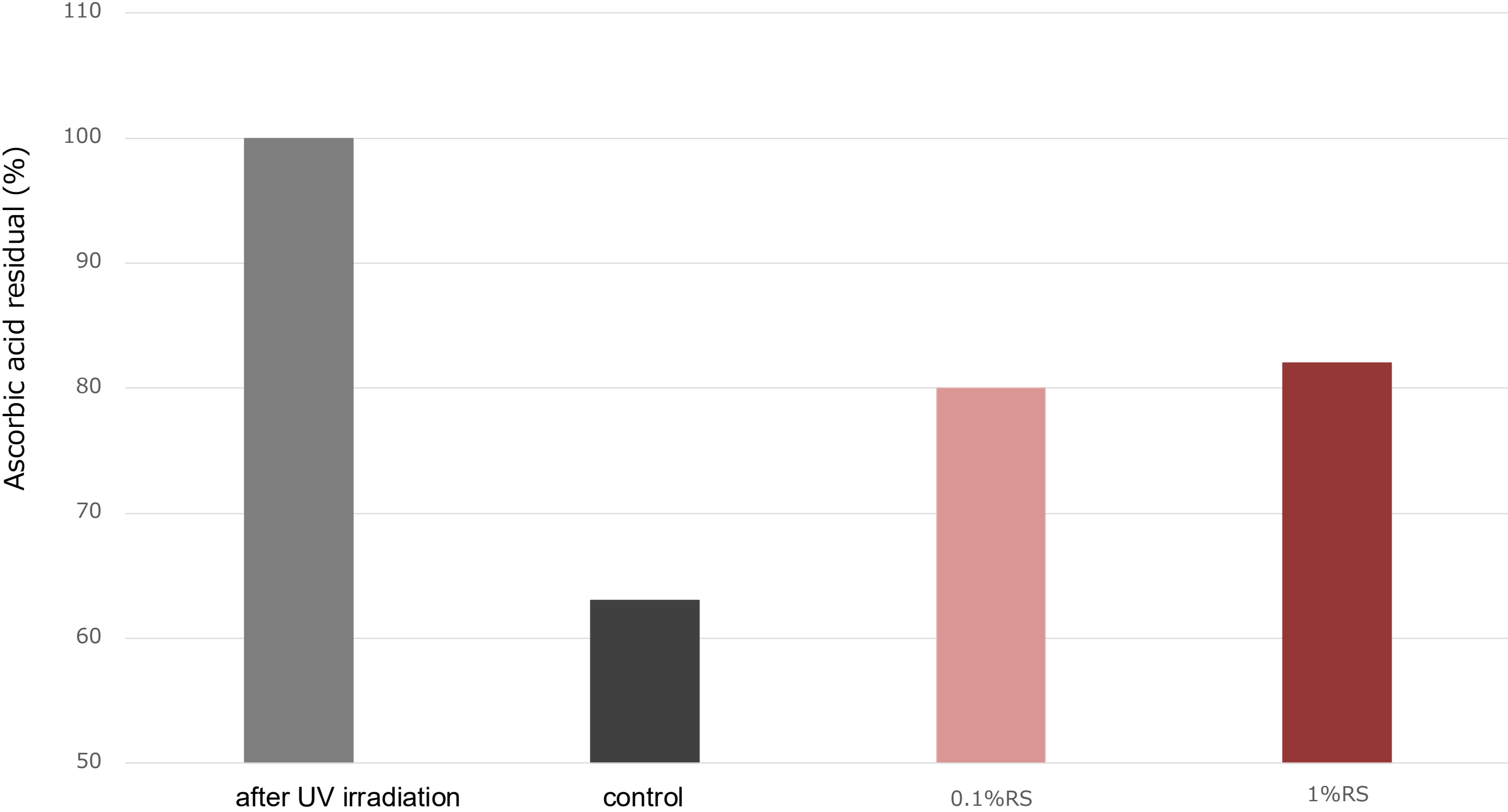
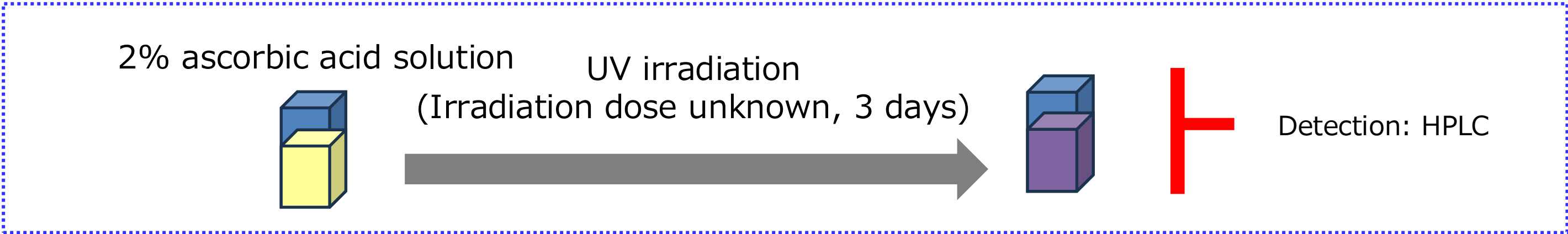
1. 5% AsA in 30 mM Na-P Buf. (pH 7.0) was prepared
2. Add 0.1% Radical Sponge (RS) or 1% RS
3. Store at 4°C or 40°C
4. After 1 week, *b values are measured using a colorimeter
5. $\Delta^*b = ^*b_{40^\circ\text{C}} - ^*b_{4^\circ\text{C}}$ graphically

Result

1% RS formulation suppresses AsA browning **by about 15**



Inhibition of ascorbic acid photodegradation



Market Products with Radical Sponge



@EC



@Aesthetic salon



K-beauty



Dr. CiLABO

@Pharmacy /
Specialty store



Dermo brand

Market Products with Radical Sponge



JMEC



M & M



Dr. Products



<https://www.mcls-ltd.com/en/>