SEIWA KASEI CO., LTD.

Press Release

September 1, 2025

SEIWA confirmed the Rejuvenating Effect of iVC™ HGA on Senescent Cells

SEIWA KASEI has confirmed the rejuvenating effect of iVC™ HGA (INCI name: Hexyl 3-Glyceryl Ascorbate), one of the original iVC™ vitamin C series, in restoring (rejuvenating) senescent fibroblasts to a normal state. This research was also presented by our researcher at the 50th JCSS (Japan Cosmetic Science Society).

Cellular senescence and Autophagy

Autophagy is a mechanism that maintains intracellular homeostasis by taking up, breaking down, and reusing cellular waste. The cellular waste is sequestered within a small membrane, fused with lysosomes, and then broken down by released degrading enzymes (Fig. 1). Recent studies have reported that the function of autophagy declines with aging, which in turn affects intracellular quality control and energy metabolism, making the maintenance of cellular functions more difficult. Insights into these mechanisms are attracting attention as a foundation for understanding aging mechanisms and research on healthy longevity.

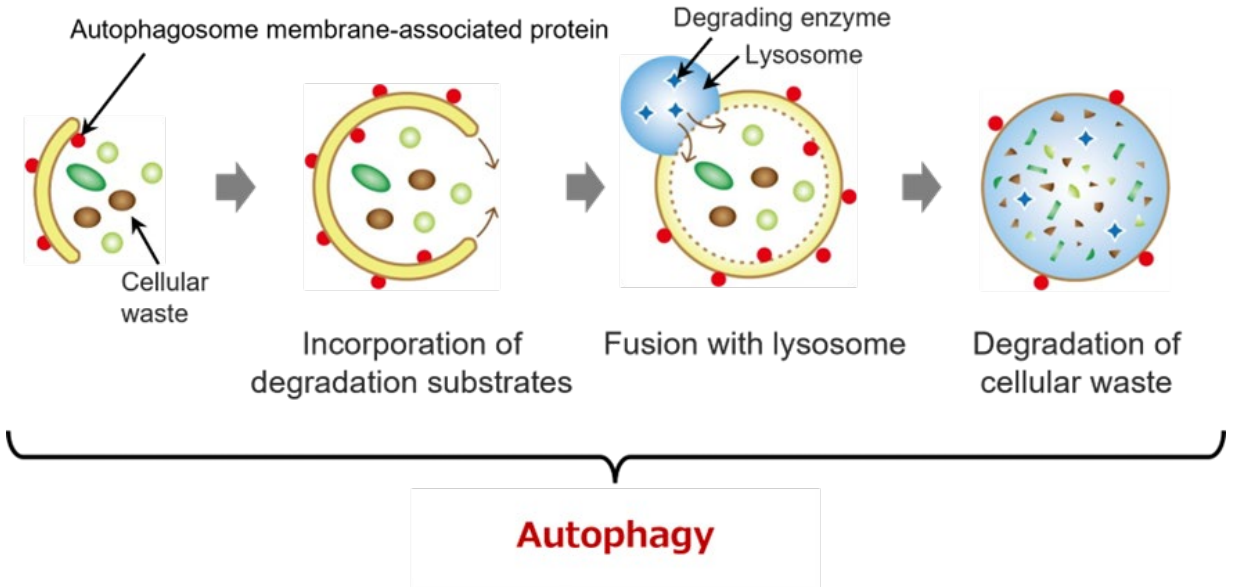
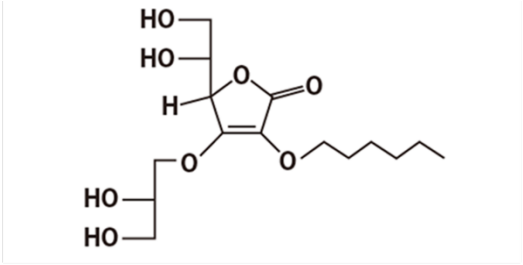


Figure 1. Autophagy

iVC™ HGA

iVC HGA (Hexyl 3-Glyceryl Ascorbate) is SEIWA KASEI's original vitamin C derivative (Fig. 2), a cosmetic ingredient featured by its high brightening effects, such as the improvement of dark spots and dullness. Previous studies have confirmed that iVC HGA has an autophagy activating effect on several skin cell types, including melanocytes.

In this study, we confirmed that iVC HGA, which has autophagy activating effects, restores fibroblasts (cells that produce dermal components such as collagen) that have been aged by repeated exposure to UV light, back to a normal state.



Product name: iVC™ HGA
INCI name : Hexyl 3-Glyceryl Ascorbate

Figure 2. Structure of iVC HGA

Restoration of senescent cells to a normal state

A factor called p21, which arrests the cell cycle, is known as an indicator of cellular senescence. We confirmed that senescent fibroblasts express more p21 than normal fibroblasts, but iVC HGA-treated senescent fibroblasts show reduced p21 gene expression (Fig. 3).

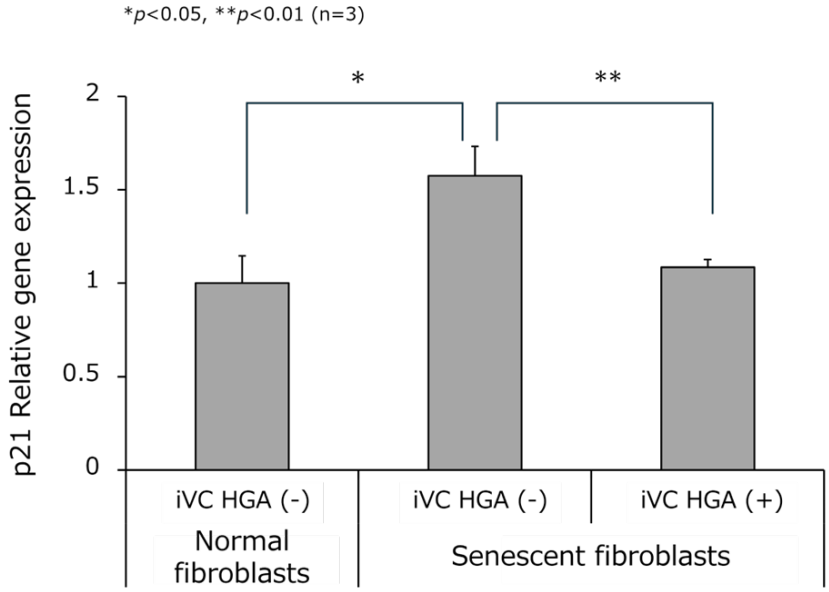


Figure 3. p21 mRNA expression levels

It is also known that senescent cells exhibit cellular hypertrophy compared to normal cells. In senescent cells, impaired autophagy causes cellular waste to accumulate without being degraded. This accumulation is thought to contribute to the enlargement of the cells. As shown in Fig. 4, when cells were stained with BG dye, an increase in cell area was observed in senescent fibroblasts compared to normal fibroblasts. On the other hand, the cell area decreased in iVC HGA-treated senescent fibroblasts, indicating that cell hypertrophy was suppressed.

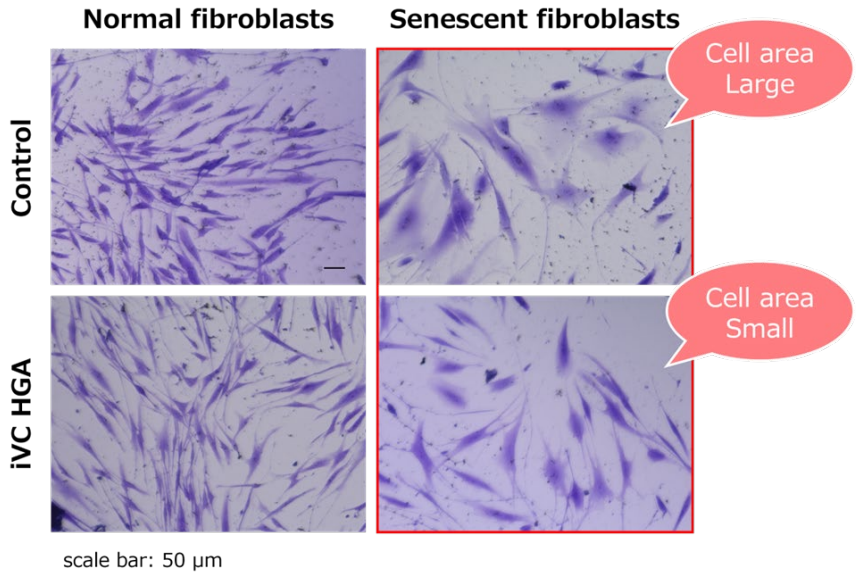


Figure 4. BG staining

Improvement of impaired collagen fiber formation in senescent cells

We have confirmed that iVC HGA improves senescence of fibroblasts that produce collagen. In fact, as we verified collagen fiber formation in senescent cells, we observed thick and short collagen fibers in senescent fibroblasts, indicating impaired collagen formation. However, by treating the cells with iVC HGA, there is an increase in fine fibers and a restoration of collagen fibers (Fig. 5).

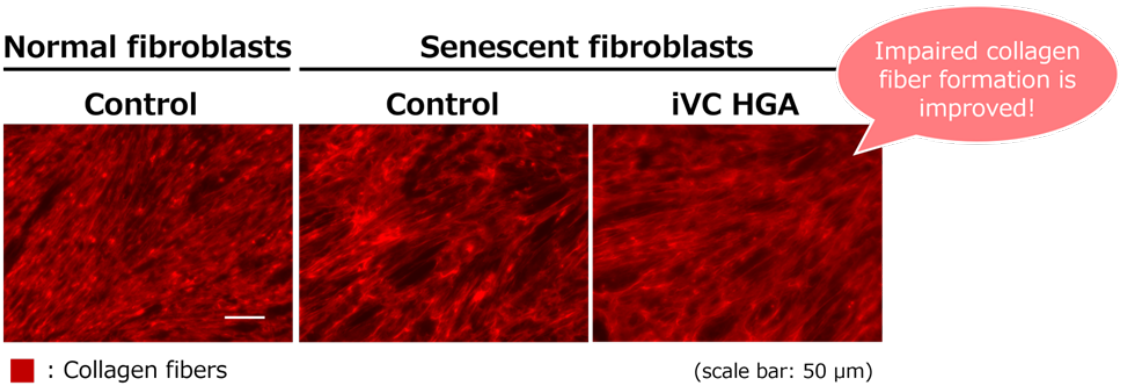


Figure 5. Immunostaining of collagen fibers

Future prospects

This time, we presented the rejuvenating effect of iVC HGA on senescent cells. In addition to the previously reported brightening effect on spots and dullness, the cell rejuvenation effect reported here is also expected to have effects on sagging skin and wrinkles.

We will continue working on elucidating the effects of iVC HGA on various skin problems and their mechanisms through the activation of autophagy.

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Product information

Product name：iVC™ HGA

INCI name：Hexyl 3-Glyceryl Ascorbate, Glycerin, Water

Recommended dosage: 5%-

Key words: Vitamin C derivative, Autophagy, Longevity, Preservative-free

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