

〈教育セミナー〉

シワのサイエンス～成因から改善アプローチまで～

## 化粧品機能評価法ガイドラインに則ったシワ改善剤の開発

八谷 輝

### Development of the Anti-Wrinkle Agent According to the Guideline for the Evaluation of Anti-Wrinkle Products Authorized by the Japanese Cosmetic Science Society

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#### Abstract

Wrinkles associated with aged and/or chronic sun-damaged skin are considered to be a significant cause of psychological distress. Apart from the aggravation of the structural integrity of the extracellular matrix, including the increased disintegration and/or reduction of elastins and collagens, which results in the loss of skin elasticity, it has been recently proposed that decreased flexibility or elasticity of the stratum corneum (SC) is also correlated with wrinkle formation. Especially in the wrinkle incidence correlated with sun damage, the aberrant expression of keratins 6 and 16 have been reported to deteriorate epidermal elasticity. In accordance with the finding that the elasticity of the SC is regulated, at least in part, by the amounts and types of amino acids, an amino acid-derivative (1-carbamimidoyl-L-proline; CLP), was newly developed which recovered their abnormal expressions and the elastic properties of the SC *ex vivo*, and a clinical test was performed with 126 Japanese female subjects aged 32–50 years who had crow's feet lines on the right side of their faces. According to authorized grades by the Japanese Cosmetic Science Society, three eligible dermatologists evaluated the subjects as much improved or improved in 29.7% and 57.8% of all CLP-treated subjects at 4 and 8 weeks, respectively. In contrast, only 1.5% and 8.1% of subjects were evaluated as improved with the placebo lotion at 4 and 8 weeks, respectively. In parallel with the dermatologists' assessments, skin surface roughness in the CLP-treated group was significantly reduced after treatment with CLP for 4 and 8 weeks compared to the placebo-treated group. The sum of these data suggests that CLP is a promising and useful ingredient for the improvement of wrinkles through its ability to enhance the elasticity of the SC.

**Key words:** skin aging, amino acids, 1-carbamimidoyl-L-proline, stratum corneum, wrinkles.