

〈一般論文〉

## アスタキサンチンの血管新生抑制活性

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### **Anti-angiogenesis Activity of Astaxanthin**

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#### **Abstract**

Reactive oxygen species and following structural alteration in dermal tissue are known to be cause of wrinkle formation in photoaging. Changes in vascular system, especially angiogenesis plays important role in the process of structural alteration of skin. Therefore, angiogenesis suppression is expected to inhibit wrinkle formation by photoaging. Astaxanthin is a lipid-soluble red pigment contained in marine animals and microorganisms. In recent years, astaxanthin attracted much attention since it possesses variety of biological activities as well as potent antioxidant activity. Herein we examined anti-angiogenesis activity of astaxanthin. Angiogenesis consists of three following steps; degradation of extracellular matrix by Matrix Metalloprotease (MMP), proliferation and migration of endothelial cells, and tube formation. Thus we examined the effect of astaxanthin toward 1. MMP activity, 2. Human Umbilical Vein Endothelial Cell (HUVEC) proliferation, and 3. tube formation. Astaxanthin showed inhibition activity in all examinations. From these results, astaxanthin was disclosed to possess anti-angiogenesis activity.

**Key words:** astaxanthin, anti-angiogenesis, MMP, vascular endothelial cell, tube formation.