

## Suppressive effects of the algal carotenoid fucoxanthin on skin photoaging

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Fucoxanthin, a major carotenoid in brown algae, has various beneficial effects. In this study, we evaluated the effect of topical fucoxanthin on UVB-induced skin photoaging of hairless mice. The dorsal skins were treated topically with a 0.001% fucoxanthin solution 2 h before each UVB irradiation (5 times a week) for 10 weeks. The formation of wrinkles in UVB-irradiated skin treated with vehicle alone was significantly increased compared with the non-irradiated control. Treatment with fucoxanthin tended to suppress the UVB-induced wrinkle formation but there was no significant difference between wrinkle formation in the control group and in the fucoxanthin treatment group. However, topical treatment with fucoxanthin significantly prevented UVB-induced epidermal hypertrophy, VEGF and MMP-13 expression in the epidermis and thiobarbituric acid reactive substances (TBARS) in the skin. These results indicate that topical treatment with fucoxanthin prevents skin photoaging of UVB-irradiated hairless mice, possibly via its antioxidant and antiangiogenic effects.