

The study of effects on ultraviolet-induced skin aging by *Spirulina platensis*

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Reactive oxygen species produced in response to UV radiation are important in skin tumor development. We have previously reported that deficiency of the *Ogg1* gene, encoding the repair enzyme for 8-oxo-7,8-dihydroguanine (8-oxoG), increases skin tumor incidence in mice upon repetitive UVB exposure and modulation of UVB-induced inflammatory response. *Spirulina platensis* (*S. platensis*) is used as a human food supplement because it contains abundant nutritional and antioxidant components. Therefore, we investigated the inhibitory effects of *S. platensis* on UVB-induced skin tumor development in *Ogg1* knockout-(KO) mice and the wild-type (WT) counterpart. Dietary *S. platensis* suppressed tumor induction and development in both genotypes compared to our previous data without *S. platensis*. Induction of erythema and ear swelling, one of the hallmarks of UVB-induced inflammatory responses, were suppressed in the skin of *Ogg1*-KO mice and albino hairless mice fed with dietary *S. platensis*. Compared with untreated mice, *S. platensis*-administered mice showed significantly reduced 8-oxoG formation in the skin after UVB exposure. Moreover, we found that *S. platensis* effectively down-regulated the signal proteins p38 MAPK, SAPK/JNK, and ERK after UVB exposure especially in *Ogg1*-KO mice. Our results suggest that *S. platensis* exerts anti-tumor effects against UVB irradiation in the skin through its anti-inflammatory and antioxidant effects. Now we are currently working on other factors, that is, aging related genes by *S. platensis*.