

Screening and functional evaluation of molecules for anti-UV skin-care by using in vivo imaging of oxidative stress

Takao Iwawaki

Iwawaki Laboratory, Education and Research Support Center Graduate School of Medicine, Gunma University

Oxidative stress has recently gotten a great deal of attention, because it is reported to be responsible for a variety of diseases and health concern and to be associated with fatigue and aging. Although oxidative stress is subject to occur everywhere of the body, skin cells are more exposed with oxidative stress by ultraviolet radiation, especially UV-A. The UV-related oxidative stress causes the protein degradation and accelerates the aging process in the skin cells. Thus, well-controlled oxidative stress needs for anti-aging of the skin cells. We have previously developed the gene constructs and model mice for visualizing oxidative stress in vivo. Here we also introduced the gene constructs into human-derived skin cells, and established experimental tools to easily measure oxidative stress in vitro. By using these tools, we discovered and evaluated the function of crocetin for anti-aging of the skin cells. Crocetin, is a carotenoid found in fruits of gardenia and saffron. We confirmed that crocetin mitigated oxidative stress and damage of the skin cells exposed to UV-A irradiation. These results indicate that crocetin might be potentially useful for protection against skin damage induced by UV-A.