June, 2018
Shiseido Company, Limited

Press Release

Shiseido Visualized the Protective Effect of Sunscreen Against UV-Induced Oxidative Damage in the Skin

Shiseido Company, Limited (Shiseido) and Tohoku Institute of Technology have jointly succeeded in non-invasively imaging the protective effect of sunscreen against UV-induced oxidative damage* in the human skin by using an ultrasensitive cooled CCD (Charge Coupled Device) camera. Through this joint research, the protective effect of sunscreen has been visualized. Looking ahead, Shiseido will extensively apply this technology to the development of skincare products and sunscreen lines.

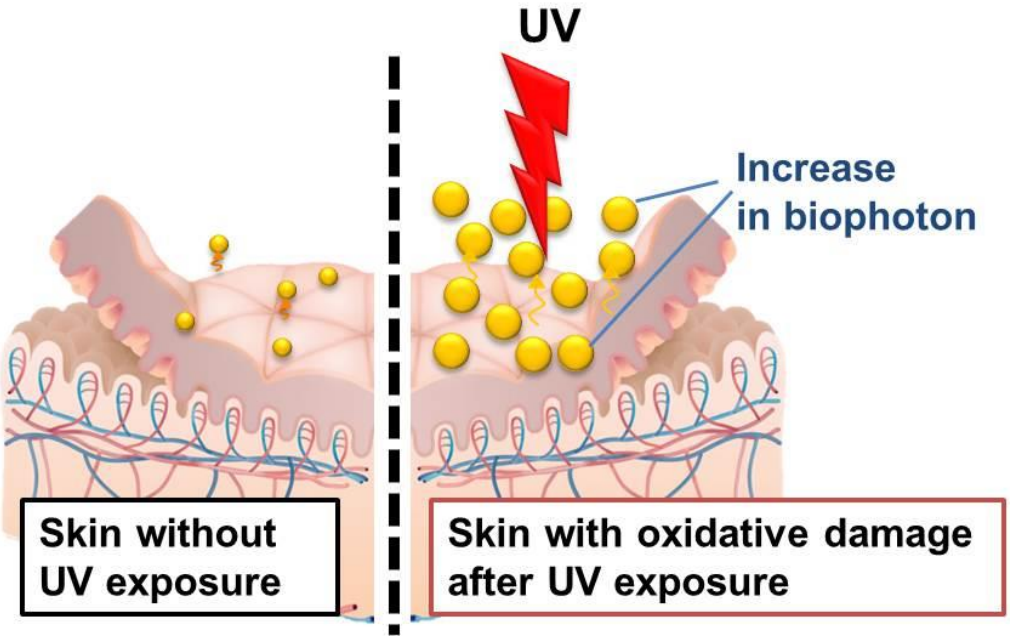
* Oxidative damage deteriorates skin's natural ability to maintain moisture, clearness and resilience etc.

Ultra-weak photon emission (biophoton)

Living organisms emit invisible ultra-weak photon emission called biophoton. Biophoton increases with oxidative damage, but has been hard to get an image because of its extremely weak emission.

Imaging of UV-induced oxidative damage in the skin

Biophoton is also observed in the human skin and increases after UV exposure, which suggests oxidative damage (Picture 1). In previous research, the oxidative damage was evaluated using human stratum corneum samples or cultivated cells etc. However, this time, by using an ultrasensitive cooled CCD camera, the team captured an image of biophoton and precisely visualized the oxidative damage of the human skin (Picture 2).



Picture 1. Biophoton from the human skin

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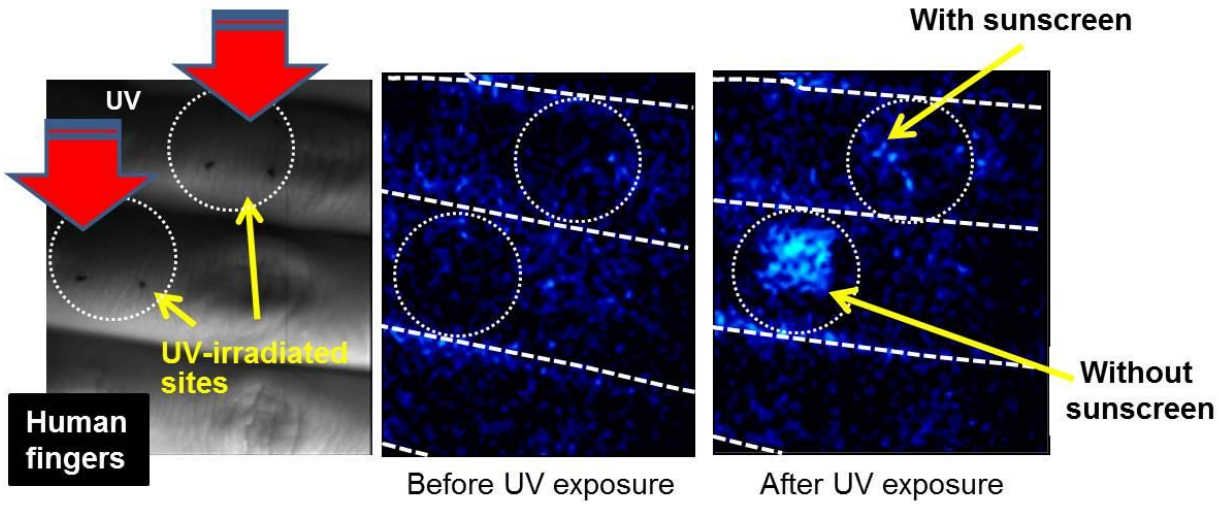
* Consumers who have any inquiries on this press release may contact us via toll-free number: 0120-81-4710.



Picture 2. An Image of UV-induced oxidative damage in human skin
and the protective effect of sunscreen
(In the sunscreen-applied site, biophoton hardly increased after UV irradiation suggesting that sunscreen protected the skin from oxidative damage.)

Imaging the protective effect of sunscreen against UV-induced oxidative damage

The team compared oxidative damage by UV irradiation on the skin with and without sunscreen. As a result, the team visualized sunscreen's ability to protect the skin from UV-induced oxidative damage for the first time (Picture 2).

Thanks to this imaging, Shiseido is now able to explain the importance of applying sunscreen and the need for its re-application to consumers more clearly. Shiseido will apply this technology to the development of skincare products and sunscreen lines, aiming to protect consumers from UV damage.

*These research results were presented at the International Investigative Dermatology 2018 held in May 2018 in Orlando, Florida, U.S.A.