

Dermatology

The recent increase of ultraviolet (UV) rays on Earth due to the increasing size of the ozone hole is suggested to be harmful to life and to accelerate premature photoaging of the skin. The detrimental effects of UV radiation on the skin are associated with the generation of reactive oxygen species (ROS) such as superoxide anion radical, hydrogen peroxide, hydroxyl radical and singlet oxygen. However, direct proof of such ROS produced in the skin under UV irradiation has been elusive. Now Dr. Sakurai and his team, Department of Analytical and Bioinorganic Chemistry, Pharmaceutical University, Kyoto, Japan, report first in vivo detection and imaging of the generated ROS in the skin of live mice following UVA irradiation, in which both a sensitive and specific chemiluminescence probe (CLA) and NightOWL from BERTHOLD TECHNOLOGIES were used. In addition, they found that O_2 is formed spontaneously and singlet oxygen is generated in the UVA-irradiated skin. This method should be useful not only for noninvasive investigation of the spatial distribution and quantitative determination of ROS in the skin of live animals, but also for in vivo evaluation of the protective ability of free radical scavengers and antioxidants.

