Reactive oxygen species play important roles in multiple conditions concerning skin physiology and homeostasis, for example, skin repair, regeneration, aging, inflammation, and development of skin cancer, as well as in Photodynamic therapy (PDT) and other skin cancer therapies. The human skin is exposed to damaging agents such as chemicals and UV light, which can increase ROS and cause oxidative stress when ROS production goes beyond their clearance. Redox processes mediated by ROS have a strong impact on cellular signaling, differentiation, proliferation, apoptosis and migration. Nevertheless, the exact roles of ROS in skin cancer have not been exhaustively elucidated. Thus, on one hand, antioxidative strategies appear to be promising for certain pathogenic situations. On the other hand, PDT and other therapeutic strategies have shown strong relation to the induction of ROS. In particular, ROS often appeared as the critical step for induction of apoptosis in different types of skin cancer cells. In this Special Issue, we thus aim to dissect the pathogenic and possible therapeutic effects of ROS in the skin.