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Sommario/riassunto	ROS were long considered one of the key players in tissue injury. Indeed, overproduction of ROS results in oxidative stress, a process leading to the development of many pathological conditions. For the treatment of these conditions, the use of antioxidants was proposed. Over time, it was shown that ROS at low concentrations act as signaling molecules, leading to the regulation of physiological functions. Moreover, several interventions that increase ROS generation activate stress-adaptive responses that extend the lifespan. It was also shown that excessive use of antioxidants can counter the beneficial effects of ROS. Currently, much progress has been made in understanding the role of ROS in human diseases and aging, as well as in the regulation of physiological functions, and in identifying the signaling pathways involved in ROS. However, much remains to be understood about the mutual interactions among signaling pathways underlying organisms' adaptive responses, their modifications (which occur during aging), and some disease states. The aim of this Special Issue is to underline the effects of ROS production and antioxidant treatment in living organisms, focusing on their impact on health, disease, and aging.