Advances in Chemical Tools for Exploring Oxidative Stress
Guest Editor: Hidehiko Nakagawa

Introduction to serial reviews: Advances in chemical tools for exploring oxidative stress

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It is now widely recognized that oxidative stress is involved in the pathogenesis and progression of many diseases, such as arteriosclerosis, cancer, inflammation and neurodegenerative diseases, and small-molecular chemical reagents or tools have made an enormous contribution to these investigations. However, to achieve further progress in understanding of the mechanisms involved, including associated signaling pathways, it remains important to develop new tools, such as highly specific fluorescence imaging agents, that would be applicable in the fields of cellular biology and medicine. For example, such tools would allow us to clarify the contributions of different reactive oxygen species, or to visualize the distribution and concentration changes of second messengers. This review series will focus on recent advances in chemical tools for the study of oxidative stress signaling. Specifically, selected leading researchers in the field of chemical biology of oxidative stress signaling will be asked to describe their cutting-edge chemical tools, together with their scope and limitations. The aim of these reviews is to improve researchers’ understanding of the chemicals tools available for oxidative stress studies, in the expectation of encouraging new approaches or ideas for investigating oxidative stress signaling.

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