【Abstract of 2008 Grant – in – Aid for Scientific Research on Innovative Areas
(Research in a proposed research area)】

Title of project	Signaling functions of reactive oxygen species
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Abstract of Research Project **Term of Project: 2008-2012**	Reactive oxygen species (ROS) have been considered as toxic substances that induce non-specific damages for biological molecules. However, it has been recognized recently that ROS play important roles in regulation of well-organized cellular signal transductions. The aim of this research area is to clarify the ROS signaling functions and their mechanisms in diverse physiological and pathophysiological phenomena in view of *Chemical Biology*, an emerging scientific discipline spanning the fields of chemistry and biology. Comprehensive understanding of the molecular mechanisms, by which ROS convey cellular signals through receptors to effector molecules and regulate signaling in molecular, cellular, and individual organism levels, will contribute to innovative development of preventive measures and treatment strategies of various diseases including metabolic syndrome, infectious/inflammatory diseases, ageing and cancer. This research area on 'ROS signal' can greatly promote the progress in various life science fields including agricultural and medical sciences.