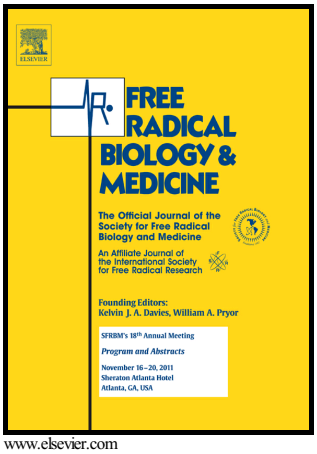

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Hormetic Shifting of Redox Environment by Pro-Oxidative Resveratrol Protects Cells Against Stress

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ABSTRACT:

Resveratrol has gained tremendous interest owing to multiple reported health-beneficial effects. However, the underlying key mechanism of action of resveratrol remained largely controversial. Here, we demonstrate that under physiologically relevant conditions major biological effects of resveratrol can be attributed to the generation of oxidation products such as reactive oxygen species (ROS). At low hormetic concentrations (< 50 µM), treatment with resveratrol increased cell viability in a set of representative cell models, whereas application of quenchers of ROS completely truncated these beneficial effects. Notably, application of resveratrol led to mild, Nrf2-specific cellular gene expression reprogramming. For example, in