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RESVERATROL APPEARS TO AFFECT IN A DIFFERENT WAY PRIMARY VS. FIXED DNA DAMAGE INDUCED BY H_2O_2 IN MAMMALIAN CELLS *IN VITRO*

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Resveratrol (3,5,4'-trihydroxystilbene) is a naturally occuring molecule, synthesized by several plants in response to different stresses. Recently many studies performed in human and mammalian cells demonstrated the involment of resveratrol in the modulation of several biological processes (inhibition of lipidic peroxidation, platelet aggregation, estrogenic activity). It has also been found to possess scavenging and antioxidant properties (1). In 1998 Jang et al. (2) showed that resveratrol is able to modulate carcinogenesis stages. We studied resveratrol activity on H_2O_2-induced oxidative damage in CHO cells, analysing the intracellular oxidatition (DCFH test), primary DNA-damage (Comet assay), and chromosome- damage (Chromosomal Aberrations and SCEs). Obtained results show that the agent alone does not modify control values both as chromosomal damage and Comet parameters; cell cycle appears to be lowered in a dose-related way. In cells challenged simultaneously with resveratrol and H_2O_2, a reduction both in chromosomal aberrations and cellular oxidation is found. On the contrary with the same experimental protocol, primary DNA damage is not affected. Surprisingly when cell cultures are treated with resveratrol for 30 minutes and, after washing, with H_2O_2, a significant increase in both chromosomal aberrations and cellular oxidation is found. These results suggest that resveratrol has a "scavenging" action together with an unclear effect on the oxidative metabolism and on DNA damage repair. The significant lowering in cell cycle progression induced by the molecule

must be taken into account to explain apparent contradictory results considering the effect on primary damage (Comet assay) in comparison to fixed damage (chromosomal aberrations and SCEs).

1) Jean Philippe Blasy et al., *Life Sciences*, 66, 9, 769-777 (2000)

2) Meishiang Jang and John M. Pezzuto, *Cancer Letters,* 134, 81-89 (1998)