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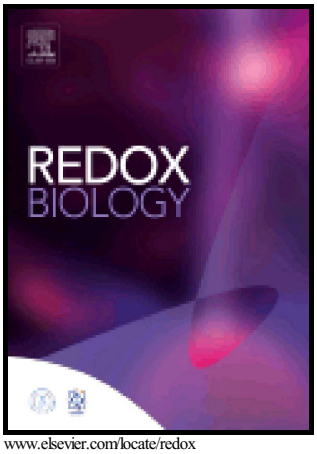

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Carnosine attenuates cyclophosphamide-induced bone marrow suppression by reducing oxidative DNA damage

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Abstract

Oxidative DNA damage in bone marrow cells is the main side effect of chemotherapy drugs including cyclophosphamide (CTX). However, not all antioxidants are effective in inhibiting oxidative DNA damage. In this study, we report the beneficial effect of carnosine (β-alanyl-l-histidine), a special antioxidant with acrolein-sequestering ability, on CTX-induced bone marrow cell suppression. Our results show that carnosine treatment (100 and 200 mg/kg, i.p.) significantly inhibited the generation of reactive oxygen species (ROS) and 8-hydroxy-2'-deoxyguanosine (8-oxo-dG), and decreased chromosomal abnormalities in the bone marrow cells of mice treated with CTX (20 mg/kg, i.v., 24 h). Furthermore,