

Nickel(II) Affects Poly(ADP-ribose) Polymerase-Mediated DNA Repair in Normal and Cancer Cells

Katarzyna Wozniak*, Agnieszka Czechowska, and Janusz Blasiak

Department of Molecular Genetics, University of Lodz, Banacha 12/16, 90-237 Lodz, Poland.
Fax: +48-426354484. E-mail: wozniak@biol.uni.lodz.pl

* Author for correspondence and reprint requests

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Nickel(II) can be genotoxic, but the mechanism of its genotoxicity is not fully understood and the process of DNA repair may be considered as its potential target. We studied the effect of nickel chloride on the poly(ADP-ribose) polymerase (PARP)-mediated repair of DNA damaged by γ -radiation and idarubicin with the alkaline comet assay in normal and cancer cells. Our results indicate that nickel chloride at very low, non-cytotoxic concentration of $1\ \mu\text{M}$ can affect PARP-mediated DNA repair of lesions evoked by idarubicin and γ -radiation. We also suggest that in the quiescent lymphocytes treated with γ -radiation, nickel(II) could interfere with DNA repair process independent of PARP.

Key words: DNA Repair, Nickel, Poly(ADP-ribose) Polymerase