EFFECT OF SINGLET OXYGEN ON DNA DAMAGE AND MORPHOLOGY OF MELANOMA CELLS

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Ultraviolet radiation (UV) can lead to human skin damage and melanin may act in photoprotection. Considering that UVA radiation (320-400 nm) promotes the formation of singlet oxygen ($^1O_2$), our main interest was to investigate the specific role of $^1O_2$ in DNA damage and cell morphology of d melanoma cells (B16-F10 and SK-MEL). The $^1O_2$ was generated by thermolysis of naphthalene endoperoxide ($DHPNO_2$). The melanogenesis was stimulated by L-tyrosine. Evaluation of DNA damage showed that B16-F10 cells, which had melanogenesis stimulated and were treated with $DHPNO_2$ (1 mmol/L), exhibited higher levels of 8-oxodG (100% to the control and 55% to non-stimulated cells). Scanning electron microscopy analysis showed morphological changes for melanoma cells treated with $DHPNO_2$ (1 and 5 mmol/L). Small cells, loss of microspikes and some secretion vesicles were observed when compared to the control. However, compared to the cells supplemented with L-tyrosine and treated with $^1O_2$, the latter were more adherent, flattened and spread out. In conclusion, $^1O_2$ promoted higher DNA damage in melanoma cells with stimulated melanogenesis, however melanin seems to protect cells to higher amounts of $^1O_2$. These results may contribute to a better understanding of the cell mechanisms related to UVA radiation exposure and phototherapy. Supported by CAPES, CNPq and Milênio Redoxoma - CNPq.