

Evaluation of chromosome damage induced by X-rays in human lymphocytes

Evaluación del daño cromosómico inducido por rayos X en linfocitos humanos.

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Aiming to assess the DNA damage induced by low doses of ionizing radiations, control and X-ray irradiated (10 rad) whole blood cultured lymphocytes were treated with the following G2 DNA synthesis and repair inhibitors: caffeine (caff), hydroxyurea (hu), aphidicolin (aphi) and 1-beta-D-arabinofuranocylcytosine (ara C). The effects of each inhibitor or its combinations were assessed counting the number of chromatid breaks, which were considered equivalent to unrepaired lesions. Our results showed that 5 mM caff and 2.5 mM Hu were the inhibitors that separately produced the higher frequency of chromatid breaks. Likewise, the combination of 5 mM caff, aphi 5 micrograms/ml and ara C 1 microM, or 2.5 mM HU and 0.1 microM ara C, allowed to detect the highest number of induced lesions arriving G2 lesions. We therefore propose that the use of these two last inhibitor combinations, can be used as alternative methods to detect DNA damage induced by low levels of ionizing radiation, in lymphocyte