

ABSTRACT

This work has been focused on the study of oxidative DNA damage induced with hydrogen peroxide and on the relationship of this damage to cytotoxic effect. The repair of the oxidative DNA damage and the cell survival was followed both in normal Chinese hamster cells and their mutant derivative UV-20. The modified single cell gel electrophoresis (the comet assay,) was used to estimate the DNA damage. The cytotoxicity was measured using the inhibition of colony forming capacity of cells.

Both normal AA8 and mutant UV-20 cells repair the oxidative DNA damage with approximately the same velocity, and they show also the same sensitivity towards the hydrogen peroxide. These results indicate, that the defect in the nucleotide excision DNA repair in UV-20 cells does not play any important role in the response of these cells to the oxidative DNA damage, and therefore this mechanism is not involved in the removal of this damage. This may indicate, that the main mechanism of the repair of oxidative DNA damage is the base excision repair.

Keywords: Oxidative DNA damage, hydrogen peroxide, comet assay, excision repair.