Abstract

Nowadays, despite the constant progress of modern medicine and therapeutic methods, one of the most widespread and most serious problems is cancer. The number of patients with cancer increases every year, and in spite of advances made in recent years in this field of medicine, it is still very difficult to find cure to these diseases.

This thesis deals with the induction and detection of senescence on two different human cell lines, one cancer derived and one normal cell line, the human neuroblastoma cell line UKF-NB-4 and the human fibroblast line HDFn. Senescence was induced by different concentrations of hydrogen peroxide solution or by long-term cultivation. Senescent cells were detected by histochemical staining of X-Gal as well as evaluation based on morfological changes of the cells. In the HDFn cell line, senescent cells were detected using X-Gal kit. The number of senescent cells increased proportionaly with the concentration of hydrogen peroxide. In the neuroblastoma line, senescence was not detectable by X-Gal kit, although the cells treated withh hydrogen peroxide exhibited morphological features associated with senescence.

Key word: senescence, hydrogen peroxide, fibroblasts, neuroblasts, SA-β-Gal