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## Chemical and heavy ion irradiation induction of HPRT mutations in V79 cells

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Induction of mutations has been observed in the HPRT locus of the Chinese hamster cells (line V79) after irradiation with accelerated heavy ions and also after the action of chemical agent. The mutant fractions were measured after exposure to two types of accelerated ions:  $^{18}\text{O}$  and  $^{20}\text{Ne}$ , under three different irradiation conditions. The linear energy transfer (LET) values ranged from 115 to 153 keV/ $\mu\text{m}$ . As a chemical agent, the ethanol was used. The dependence of the mutant fraction on expression time (the incubation period of the cells from termination of the irradiation until reseeded on a selective medium containing 6-thioguanine for the isolation of HPRT mutants) was measured for the doses of 0.5, 1, and 2 Gy; and for 1.65 M (10 vol. %) ethanol. The dependence was non-linear for all irradiation conditions. The mutant fraction increased with expression time, reached a maximum, and fell back to the starting level. It was found that after approximately 40–45 days (80–90 cell generations), mutant fraction returned to the levels typical for spontaneous mutants. The maximum of the mutant fraction on expression time relation was reached in different expression times under various irradiation conditions. The position of this peak was moving with the LET value of the used radiation. The observations were compared to the mutagenic actions of ethanol, which is a potent scavenger of hydroxyl radicals and it will be used in the upcoming research simultaneously with irradiation to observe its protective (or synergistic) effects.

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