A new therapeutic option for human hepatocyte cancer

September 23 2008

p53-impaired tumors may be particularly suitable to parvovirus H-1-induced therapy. Although the p53 deficiency in tumors may induce resistance to chemotherapeutic agents, this will not affect the tumor cell susceptibility to H-1 PV-induced oncolytic infections. The parvovirus H-1 may also overcome other tumor resistance mechanisms developed in these tumor entities. So H-1 PV is a suitable agent to circumvent the resistance of p53-negative human hepatocellular carcinoma (HCC) cells to genotoxic agents, and enhances the apoptotic process which is dependent on functional PML. Thus, H-1 PV may be considered as therapeutic options for HCC, especially for p53-negative tumors.

The research team led by Prof. Markus Moehler from First Department of Internal Medicine of Johannes Gutenberg University of Mainz evaluated the synergistic targeting and killing of human HCC cells lacking p53 by the oncolytic autonomous PV H-1 with chemotherapeutic agents. This was published on 28 June 2008, in the *World Journal of Gastroenterology*.

Their result shows that parvovirus H-1 PV triggers an apoptotic type of death in human HCC cells, and that p53 is dispensable for this process. In contrast, PML, which is induced by H-1 PV infection, helps the parvovirus to kill the carcinoma cells, irrespective of their p53 status. Given the known dependence of apoptosis induction by radio-chemotherapeutic agents on the p53 status of target cells, parvoviruses appear to be suitable adjuvants to eliminate tumor cell populations with resistance against these agents by means of combined treatments.

Parvovirus H-1 will be a new option for patients with human HCC and clinical phase I-II trials with these oncolytic gene therapy vectors should be done in the near future.

Many viruses are known to be pathogenic and increase carcinogenesis. In the contrary, the autonomous parvoviruses destroy tumors, activate the immune system and may thus even be good for the health of men.

Source: World Journal of Gastroenterology