Growth Inhibition of Adenoviral Wild-Type p53 Expression Vector in an Human Gall Bladder Cancer Cell Line

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Background Mutations in the p53 gene, the most frequent genetic abnormality found in human tumors, are reported in 50–90% of gall bladder and bile duct cancers. A number of studies have confirmed the potential of p53 as an agent for cancer gene therapy in various cancer cell lines, such as those of the colon, breast, and lung by the introduction of a wild-type p53 gene via a recombinant adenovirus.

We investigated whether adenoviral p53 transfecion could enhance growth inhibition in a p53 mutant human gall bladder cancer cell line (GBCE).

Methods GBCE cells were transfected with either Ad/p53 or Ad/E1.

Gene expression was confirmed by western blotting. Nude mice were injected subcutaneously with GBCE cells, bilaterally. After tumor formation, intratumoral gene transfection was done, reduction of tumor size was compared in two weeks.

Results There was a dose-dependent inhibition of tumor growth with Ad/p53 transfection. Adenovirus p53 significantly decreased tumor colony formation of GBCE. Tumor size was reduced by p53 transfection relative to mock infection.

Conclusion These treatment modalities could be beneficial in the treatment of p53 mutant human gallbladder cancers.