Ad5-yCD/mutTK(SR39)rep-ADP

National Cancer Institute

Source

National Cancer Institute. Ad5-yCD/mutTK(SR39)rep-ADP. NCI Thesaurus. Code C88330.

A second generation, replication-competent adenovirus type 5 containing a yeast cytosine deaminase(yCD)/mutant sr39 herpes simplex virus thymidine kinase fusion (yCD/mutTKsr39) gene and the 11.6 kDa adenovirus death protein (ADP) gene with potential oncolytic activity. Upon intratumoral administration and transduction of Ad5-yCD/mutTK(SR39)rep-ADP into tumor cells and subsequent expression of cytosine deaminase and viral thymidine kinase, administered prodrugs 5-fluorocytosine (5-FC) and ganciclovir are converted into their respective metabolites 5-fluorouracil (5-FU) and ganciclovir-5-monophosphate (ganciclovir-MP); 5-FU is subsequently metabolized to cytotoxic active metabolites 5-fluoroxyuridine monophosphate (F-UMP) and 5-5-fluoro-2'-deoxyuridine-5'-O-monophosphate (F-dUMP); ganciclovir-TP subsequently is converted by mammalian thymidine kinase to cytotoxic ganciclovir-triphosphate (ganciclovir -TP). Tumor cells adjacent to tumor cells transduced with this agent may be killed through a 'bystander effect'. ADP may enhance spread and oncolytic activity of replication-competent adenoviruses. In addition to its oncolytic activity, Ad5-yCD/mutTK(SR39)rep-ADP may exhibit radiosensitizing activity.