Ad5.SSTR/TK.RGD

National Cancer Institute

Source

National Cancer Institute. Ad5.SSTR/TK.RGD. NCI Thesaurus. Code C88261.

An RGD-4C-modified, infectivity-enhanced, bicistronic type 5 adenovirus expressing herpes simplex virus thymidine kinase (HSV-tk) gene, a therapeutic suicide gene, and the somatostatin receptor type 2 (SSTR2) gene with potential antineoplastic activity. Modification with the double cyclic peptide RGD-4C allows the virus to bind to cellular integrins, frequently expressed on the surfaces of ovarian cancer cells, instead of the coxsackie and adenovirus (CAR) receptor, which is often nonfunctional in ovarian cancer cells. Upon intratumoral administration, Ad5.SSTR/TK.RGD transfects tumor cells and expresses the HSV-tk gene. After subsequent administration of a synthetic acyclic guanosine analogue prodrug like ganciclovir (GCV), expressed HSV-tk phosphorylates and activates the prodrug, which may result in inhibition of DNA synthesis and apoptosis in HSV-tk-expressing cancer cells. Additionally, as a bystander effect, adjacent non-transfected cells may be killed by the activated antiviral drug. SSTR2 expression allows imaging of gene transfer into tumor cells using a radiolabeled somatostatin analogue.