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Ad5-SGE-REIC/Dkk-3

National Cancer Institute

Source

National Cancer Institute. *Ad5-SGE-REIC/Dkk-3*. NCI Thesaurus. Code C94205.

A replication incompetent adenoviral vector type 5 (Ad5) encoding the tumor suppressor gene dickkopf-3 (DKK3; Reduced Expression in Immortalized Cells; REIC; Dickkopf WNT signaling pathway inhibitor 3), and containing the super gene expression (SGE) system, composed of the triple tandem enhancer sequences of human telomerase reverse transcriptase (hTERT), simian virus 40 (SV40) and cytomegalovirus (CMV), with potential antineoplastic activity. Upon intratumoral injection and transfection of Ad5-SGE-REIC/Dkk-3, tumor cells express REIC/DKK3 protein. This may result in the activation of c-Jun-NH2-kinase (JNK) and ultimately lead to apoptosis via Bcl2 suppression and caspase-3 activation. REIC/DKK3 is expressed by healthy cells, but expression is reduced or absent in many cancer cells due to REIC/DKK3 gene defects, and this prevents tumor cell apoptosis. Increased expression of REIC/DKK3 in cancer cells may lead to an induction of tumor cell apoptosis and a reduction in tumor cell growth, while sparing normal, healthy cells expressing endogenous REIC/DKK3. The SGE system, also called C-TSC (CMV promoter driving the triple tandem enhancer sequences of hTERT, SV40 and CMV), enhances gene expression compared to more conventional adenoviral vectors.