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DTA-H19 Plasmid

National Cancer Institute

Source

National Cancer Institute. *DTA-H19 Plasmid*. NCI Thesaurus. Code C64845.

A plasmid DNA encoding the A chain of the diphtheria toxin (DT-A) driven by the transcriptional regulatory sequences of human H19, with potential antineoplastic activity. Because the expression of DT-A is under the control of H19 promoter elements, DT-A is selectively expressed in tumor cells capable of turning on H-19. DT-A catalyzes ADP-ribosylation of translation elongation factor 2 (EF-2), resulting in the inhibition of protein synthesis and apoptosis. In addition, DT-A protein released from lysed cells cannot enter and kill neighboring cells because of the absence of the DT-B chain, further enhancing the selective cytotoxicity of this agent. Human H19 is a paternally-imprinted, oncofetal gene encoding an RNA product; it acts as a riboregulator in gene expression and is found at substantial levels in different human tumor cell types while its expression in normal adult tissue is limited.