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# PE/HPV16 E7/KDEL Fusion Protein/GPI-0100 TVGV-1

National Cancer Institute

## Source

National Cancer Institute. *PE/HPV16 E7/KDEL Fusion Protein/GPI-0100 TVGV-1*. NCI Thesaurus. Code C126276.

A fusion protein consisting of a peptide sequence of human papillomavirus (HPV) type 16 E7 nuclear protein and fused to the *Pseudomonas aeruginosa* exotoxin A (PE) and a endoplasmic reticulum (ER) retention signal (KDEL), with potential antineoplastic activity. Upon administration of PE/HPV16 E7/KDEL fusion protein TVGV-1, the PE moiety binds to CD91 (LRP1) expressed on a variety of cells, including antigen-presenting cells such as dendritic cells (DCs), which facilitates the internalization, through endocytosis, of TVGV-1. Following endocytosis, this agent is proteolytically cleaved by the proteasome and the epitopes from the HPV E7 protein become bound to MHC-I molecules and are presented on the DC-cell surface. This facilitates a cytotoxic T-cell- mediated immune response against HPV16 E7 expressing-tumor cells. KDEL targets the fusion protein to the ER, which increases this agent's potential to be bound by MHC-I molecules; this increases the immune response against HPV16 E7-expressing cancer cells.