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DNA Plasmid-encoding Interleukin-12/HPV DNA Plasmids Therapeutic Vaccine MEDI0457

National Cancer Institute

Source

National Cancer Institute. *DNA Plasmid-encoding Interleukin-12/HPV DNA Plasmids Therapeutic Vaccine MEDI0457*. NCI Thesaurus. Code C123919.

A DNA-based combination immunotherapeutic, MEDI0457, composed of VGX-3100, a preparation of DNA plasmids encoding the E6 and E7 genes of human papillomavirus (HPV) subtypes 16 and 18, combined with INO-9012, a DNA plasmid encoding the immune activator and pro-inflammatory cytokine human interleukin-12 (IL-12) with potential immunoactivating and antineoplastic activities. Upon intramuscular delivery by electroporation of VGX-3100, the HPV E6 and E7 proteins are translated in cells and elicit a cytotoxic T-lymphocyte (CTL) response against cancer cells expressing the E6 and E7 antigens, resulting in tumor cell lysis. HPV type 16 and HPV type 18 are associated with the development of certain types of cancer. Upon intramuscular delivery by electroporation of INO-9012, IL-12 is expressed and activates the immune system by promoting the activation of natural killer cells (NK cells), inducing secretion of interferon-gamma (IFN-g) and promoting CTL responses against tumor cells. This boosts the immune response and results in increased CTL-mediated tumor cell death as compared with the administration of VGX-3100 alone.