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CD105/Yb-1/SOX2/CDH3/MDM2-polyepitope Plasmid DNA Vaccine

National Cancer Institute

Source

National Cancer Institute. *CD105/Yb-1/SOX2/CDH3/MDM2-polyepitope Plasmid DNA Vaccine*. NCI Thesaurus. Code C116321.

A plasmid DNA vaccine containing the mammalian expression vector pUMVC3 (pNGVL3) encoding epitopes of CD105 (Endoglin), Y-box binding protein 1 (Yb-1), SRY-box 2 (SOX2), cadherin 3 (CDH3), and murine double minute 2 (MDM2) proteins, with potential immunomodulating and antineoplastic activities. Upon intradermal administration of pUMVC3-CD105/Yb-1/SOX2/CDH3/MDM2-epitopes plasmid DNA vaccine, the plasmid transfects cells and the peptides are expressed. This generates a specific memory T_H1 (T-helper) cell immune response, stimulates secretion of cytokines by the T cells and leads to a cytotoxic T-lymphocyte (CTL) response against CD105/Yb-1/SOX2/CDH3/MDM2-expressing tumor cells. CD105/Yb-1/SOX2/CDH3/MDM2 proteins are highly immunogenic tumor associated antigens that are overexpressed in breast cancer. Additionally, these antigens are associated with breast cancer stem cells and with epithelial to mesenchymal transformation (EMT).