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Genetically-modified MAGE-A3-expressing MG1 Maraba Virus Vaccine

National Cancer Institute

Source

National Cancer Institute. *Genetically-modified MAGE-A3-expressing MG1 Maraba Virus Vaccine*. NCI Thesaurus. Code C118973.

A vaccine consisting of the attenuated, genetically-modified, oncolytic form of the Maraba virus, MG1, which has been engineered to express a gene encoding the cancer testis antigen melanoma antigen family A3 (MAGE-A3), with potential antineoplastic activity. Upon administration of genetically-modified MAGE-A3-expressing MG1 Maraba virus vaccine, the attenuated Maraba virus selectively and rapidly replicates in cancer cells; however, it is unable to replicate in normal, healthy cells. This induces a selective Maraba virus-mediated cytotoxicity in those cancer cells, and leads to cancer cell lysis. In addition, the expression of MAGE-A3 further stimulates the host immune system to mount a cytotoxic T-lymphocyte (CTL) response against tumor cells expressing MAGE-A3. The tumor-associated antigen MAGE-A3 is overexpressed by a variety of cancer cell types. The attenuated virus is a double mutant strain with single amino acid substitutions occurring in both G protein (Q242R) and M protein (L123W).