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# Oncolytic Vaccinia Virus TG6002

National Cancer Institute

## Source

National Cancer Institute. *Oncolytic Vaccinia Virus TG6002*. NCI Thesaurus. Code C148178.

A modified, replicative oncolytic vaccinia virus (VV), deleted of the genes for tyrosine kinase (TK) and ribonucleotide reductase (RR), and expressing the yeast-originated, bifunctional cytosine deaminase/uracil phosphoribosyltransferase gene (FCU1), with potential immunomodulating and antineoplastic activities. Upon intravenous administration of the oncolytic vaccinia virus TG6002, the virus preferentially targets and infects tumor cells, causing oncolysis. In turn, the lysed tumor cells release various tumor-associated antigens (TAAs), which induce an immune response against the tumor cells. Upon concomitant administration of the non-cytotoxic prodrug flucytosine (5-fluorocytosine; 5-FC), the FCU1 expressed in the infected cancer cells produce the enzymes cytosine deaminase and uracil phosphoribosyltransferase which catalyze the conversion of 5-FC into the cytotoxic forms 5-fluorouracil (5-FU) and 5-fluoro-uridyl monophosphate (5-FUMP); 5-FU and 5-FUMP exert a cytotoxic effect in the infected tumor cells. Double gene deletion (TK-RR-) restricts the propagation of TG6002 to the tumor cells, thereby reducing toxicity to normal cells.