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Light-Emitting Oncolytic Vaccinia Virus GL-ONC1

National Cancer Institute

Source

National Cancer Institute. *Light-Emitting Oncolytic Vaccinia Virus GL-ONC1*. NCI Thesaurus. Code C79833.

An attenuated oncolytic vaccinia virus encoding the light-emitting fusion protein Renilla luciferase-Aequorea green fluorescent protein (RUC-GFP) with potential bioluminescent and antineoplastic activities. Upon administration, light-emitting oncolytic vaccinia virus GL-ONC1 specifically enters tumor cells due to the permeable nature of the tumor vasculature. Once inside the cell, the virus replicates, resulting in tumor cell lysis and the release of mature viral particles into the tumor microenvironment. Released viral particles may then infect and destroy neighboring tumor cells. In addition, the release of tumor-associated antigens (TAAs) by lysed tumor cells into the bloodstream may activate the immune system to mount a cytotoxic T lymphocyte (CTL) response against the tumor. The expression of RUC-GFP by this agent allows for both detection and monitoring of virally infected tumor cells in vivo and vitro with luciferase-mediated bioluminescence imaging and fluorescence imaging techniques.