

ABSTRACT

Gene. 2022 Jan 28:146217. doi: 10.1016/j.gene.2022.146217. Online ahead of print.

Gospel of malignant Glioma: Oncolytic virus therapy.

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Glioma accounts for nearly 80% of all intracranial malignant tumors. It is a major challenge to society as it causes impaired brain function in many patients. Currently, gliomas are mainly treated with surgery, postoperative radiotherapy, and chemotherapy. However, the curative effects of these treatments are not satisfactory. Oncolytic virus (OV) is a novel treatment which works by activating the immune functions and inducing apoptosis of tumor cells. The OV propagates indefinitely in the host cell, eventually leading to the death of host cell. Subsequently, a large number of antigens and signal molecules are released which exert antitumor immunity. Several preclinical and clinical studies have shown that G207, DNX2401, Zika and other viruses have important roles in malignant tumors. For example, these viruses can reduce the growth of tumor cells without causing severe complications. However, the known OVs have not been clearly classified. Herein, we divided OVs into neurotropic and non-neurophilic OVs based on whether the OVs are naturally neurotropic or not. The therapeutic effects of each group were compared. Finally, challenges encountered in the clinical application of OVs in the treatment of malignant gliomas were summarized.

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DOI: 10.1016/j.gene.2022.146217

PMID: 35093451

Conflict of interest statement: Declaration of Competing Interest The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.