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# A viral attack on brain tumors: the potential of oncolytic virus therapy

Kasra Mokhtarpour<sup>1</sup>, Milad Akbarzadehmoallemkolaei<sup>1 2</sup>, Nima Rezaei<sup>3 4 5</sup>

Affiliations

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## Abstract

Managing malignant brain tumors remains a significant therapeutic hurdle that necessitates further research to comprehend their treatment potential fully. Oncolytic viruses (OVs) offer many opportunities for predicting and combating tumors through several mechanisms, with both preclinical and clinical studies demonstrating potential. OV therapy has emerged as a potent and effective method with a dual mechanism. Developing innovative and effective strategies for virus transduction, coupled with immune checkpoint inhibitors or chemotherapy drugs, strengthens this new technique. Furthermore, the discovery and creation of new OVs that can seamlessly integrate gene therapy strategies, such as cytotoxic, anti-angiogenic, and immunostimulatory, are promising advancements. This review presents an overview of the latest advancements in OVs transduction for brain cancer, focusing on the safety and effectiveness of G207, G47 $\Delta$ , M032, rQNestin34.5v.2, C134, DNX-2401, Ad-TD-nsIL12, NSC-CRAd-S-p7, TG6002, and PVSRIPO. These are evaluated in both preclinical and clinical models of various brain tumors.

**Keywords:** Brain tumor; Gene therapy strategies; Malignant brain tumors; Oncolytic virus therapy; Virus transduction.

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