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From promise to progress: the dynamic landscape of glioblastoma immunotherapy

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Abstract

Glioblastoma multiforme (GBM) is the most common CNS cancer, it has dismal survival rates despite several effective mediators: intensified cytotoxic therapy, chimeric antigen receptor (CAR)-T cell therapy, viral therapy, adoptive cell therapy, immune checkpoint blockade therapy, radiation therapy and vaccine therapy. This review examines the basic concepts underlying immune targeting and examines products such as checkpoint blockade drugs, CAR-T cells, oncolytic viruses, combinatory multimodal immunotherapy and cancer vaccines. New approaches to overcoming current constraints and challenges in GBM therapy are discussed, based on recent studies into these tactics, findings from ongoing clinical trials, as well as previous trial results.

Keywords: CAR immunotherapies; Glioblastoma; immune checkpoint blockade therapy; immunotherapy; vaccine.