

ABSTRACT

Semin Cancer Biol. 2022 Feb 10:S1044-579X(22)00032-3. doi: 10.1016/j.semcancer.2022.02.012. Online ahead of print.

Checkpoint: Inspecting the barriers in glioblastoma immunotherapies.

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Despite an aggressive standard of care involving radiation therapy, temozolomide-based chemotherapy, and surgical resection, glioblastoma multiforme (GBM) continues to exhibit very high recurrence and mortality rates partly due to the highly plastic and heterogenous nature of the tumor. In recent years, activation of the immune system has emerged as a promising strategy in cancer therapies. However, despite recent successes in other fields, immunotherapeutic approaches continue to encounter challenges in GBM. In this review, we first discuss immunotherapies targeting the most well-studied immune checkpoint proteins, CTLA-4 and PD-1, followed by discussions on therapies targeting immune-stimulatory molecules and secreted metabolic enzymes. Finally, we address the major challenges with immunotherapy in GBM and the potential for combination and neoadjuvant immunotherapies to tip the scales in the fight against glioblastoma.

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DOI: 10.1016/j.semcancer.2022.02.012
PMID: 35150865