Expert Opin Drug Discov. 2023 Jan 31. doi: 10.1080/17460441.2023.2174097. Online ahead of print.

Glioblastoma treatment slowly moves towards change: novel druggable targets and translational horizons in 2022

Lidia Gatto [1], Enrico Franceschi [2], Alicia Tosoni [2], Vincenzo Di Nunno [1], Stefania Bartolini [2], Alba Ariela Brandes [2]

Affiliations

PMID: 36718723 DOI: 10.1080/17460441.2023.2174097

Abstract

Introduction: : Glioblastoma (GBM) is the most common primary brain tumor in adults. GBM treatment options have been the same for the past 30 years and have only modestly extended survival, despite aggressive multimodal treatments. The progressively better knowledge of GBM biology and a comprehensive analysis of its genomic profile have elucidated GBM heterogeneity, contributing to a more effective molecular classification and to the development of innovative targeted therapeutic approaches.

Areas covered: : In this article, the report all the noteworthy innovations for immunotherapy and targeted therapy, providing insights into the current advances in trial designs, including combination therapies with immuno-oncology agents and target combinations.

Expert opinion: : GBM molecular heterogeneity and brain anatomical characteristics critically restrain drug effectiveness. Nevertheless, stimulating insights for future research and drug development come from innovative treatment strategies for GBM, such as multi-specific "off-the-shelf" CAR-T therapy, oncolytic viral therapy and autologous dendritic cell vaccination. Disappointing results from targeted therapies-clinical trials are mainly due to complex interferences between signaling pathways and biological processes leading to drug resistance: hence, it is imperative in the future to develop combinatorial approaches and multimodal therapies, such as dual block of PI3K and MAPK signaling or PI3K/MTOR inhibition, to improve therapeutic benefit and survival.

Keywords: CAR T cells; NTRK; Toca 511; bevacizumab; buparlisib; dendritic cell vaccine; glioblastoma; immunotherapy; larotrectinib; oncolytic virotherapy; regorafenib.

LinkOut - more resources

Full Text Sources

Taylor & Francis

Miscellaneous

NCI CPTAC Assay Portal