

ABSTRACT

Int J Cancer. 2022 Dec 7. doi: 10.1002/ijc.34381. Online ahead of print.

Epigenetic alterations in glioblastomas: Diagnostic, prognostic and therapeutic relevance.

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Glioblastoma, the most common and heterogeneous tumor affecting brain parenchyma, is dismally characterized by a very poor prognosis. Thus, the search of new, more effective treatments is a vital need. Here, we will review the druggable epigenetic features of glioblastomas that are, indeed, currently explored in preclinical studies and in clinical trials for the development of more effective, personalized treatments. In detail, we will review the studies that have led to the identification of epigenetic signatures, IDH mutations, MGMT gene methylation, histone modification alterations, H3K27 mutations and epitranscriptome landscapes of glioblastomas, in each case discussing the corresponding targeted therapies and their potential efficacy. Finally, we will emphasize how recent technological improvements permit to routinely investigate many glioblastoma epigenetic biomarkers in clinical practice, further enforcing the hope that personalized drugs, targeting specific epigenetic features, could be in future a therapeutic option for selected patients.

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DOI: 10.1002/ijc.34381

PMID: 36479695