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Development of Molecularly Targeted Agents and Immunotherapies in Glioblastoma: A Personalized Approach.

[Coleman N](#)¹, [Ameratunga M](#), [Lopez J](#).

1 Drug Development Unit, The Royal Marsden Hospital, London, UK.

Over the past decade, precision cancer medicine has driven major advances in the management of advanced solid tumours with the identification and targeting of putative driver aberrations transforming the clinical outcomes across multiple cancer types. Despite pivotal advances in the characterization of genomic landscape of glioblastoma, targeted agents have shown minimal efficacy in clinical trials to date, and patient survival remains poor.

Immunotherapy strategies similarly have had limited success. Multiple deficiencies still exist in our knowledge of this complex disease, and further research is urgently required to overcome these critical issues. This review traces the path undertaken by the different therapeutics assessed in glioblastoma and the impact of precision medicine in this disease. We highlight challenges for precision medicine in glioblastoma, focusing on the issues of tumour heterogeneity, pharmacokinetic-pharmacodynamic optimization and outline the modern hypothesis-testing strategies being undertaken to address these key challenges.

KEYWORDS: Glioblastoma; high grade glioma; immunotherapy; targeted therapy

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