

Special Issue

Novel Therapeutic Strategies for Targeting Glioblastoma Stem Cells

Message from the Guest Editors

Glioblastoma (GBM), derived from glial and astrocytes, is the most aggressive and lethal primary brain tumor in adults, classified as WHO grade 4. The standard treatment for glioblastoma is temozolomide (TMZ)-mediated chemotherapy conjugated with radiotherapy (CCRT) and surgery. Unfortunately, there is currently no effective treatment, and all patients experience recurrence after therapy. Due to its heterogeneity, the brain–blood barrier (BBB), and the immunosuppressive tumor microenvironment, the average survival time from diagnosis is about 12–15 months. Glioblastoma stem cells (GSCs) are capable of self-renewal and tumor initiation upon repeated transplantation, contributing to tumor heterogeneity. Standard treatments often fail to fully eliminate GSCs, leading to disease recurrence. GSC research has emerged, offering new insights into GBM resistance and treatment. GSCs self-renew, drive tumor growth, and play a key role in tumor cell heterogeneity and the induction of systemic immunosuppression.

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