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Glioblastoma therapy: going beyond Hercules Columns.

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Abstract

Glioblastoma multiforme is the most common primary brain tumor in adults. Median survival from the time of diagnosis is 14 months, with less than 5% of patients surviving 5 years. Despite advances in deciphering the complex biology of these tumors, the overall prognosis has only slightly improved in the past three decades. The clinical failure of many therapeutic approaches can be explained by the following considerations: the location of tumors within the brain presents a special set of challenges, including ability of drugs to cross the BBB; cancer cells have unstable genetic structures, very susceptible to mutations; cancer cells have an amalgam of different genetic defects that respond in different ways to any given treatment agent; and, infiltrating and apparently normal but 'activated' cells are evident in the brain surrounding the main tumor. In this way, the biologic phenomena of the 'normal brain' adjacent to the enhanced tumor could allow us to understand the first steps of cancerogenesis and, consequently, to interfere with the pathways responsible for tumor growth and recurrence.

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