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## The role of stem-like glioma cells in GBM progression and post-treatment recurrence

Glioblastoma multiforme (GBM) is the most malignant intrinsic brain tumor. The current standard of care for newly diagnosed GBMs involves maximum safe resection, radiation therapy and concomitant/adjuvant chemotherapy with DNA alkylating agent temozolimide (TMZ). The efficacy of existing therapies is unsatisfactory with a rather modest survival advantage compared to radiation treatment alone (median survival 14.6 vs. 12.2 months, respectively), <10% of the highest 5-years survival rate and inevitable post-treatment recurrence. Developing effective therapies for GBM previously based on the paradigm for the pathogenesis and therapeutic resistance of this devastating disease is ongoing. A new conception of GBM has emerged after the identification of a distinct population of glioma stem-like cells (GSCs). GSCs are thought to have the highest tumorigenic potential among all cell types comprising the tumor and responsible for tumor growth after treatment. However, there is still considerable uncertainty regarding the precise role of GSCs in the initiation, maintenance and progression of GBM with some fundamental questions remaining. Is there a universal type of stem-like glioma cells? What criteria define glioma cell stemness? How does the degree of glioma cell stemness relate to the clinicopathological criteria of glioma aggressiveness? Our research indicates that, in GBM, the type of cells collectively called GICs comprise heterogeneous subtypes of phenotypically and functionally distinct cells with varying tumorigenic potential. Our findings urge a reconsideration of some of the key assumptions of the GIC paradigm and provide important insights into the roles of different types of stem-like cells in GBM.

## Biography

Ella L Kim has completed her PhD from the Institute of Molecular Biology and Genetics, Kiev, Ukraine and Post-doctoral studies from the Barrow Neurological Institute, Phoenix, AZ, USA. She is directing the Laboratory of Experimental Neurooncology at the Johannes Gutenberg University Medical Center.

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