

Infiltrating growing pattern xenografts induced by glioblastoma and anaplastic astrocytoma derived tumor stem cells

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Abstract

Objective: The number of evidences regarding the role of tumor stem cells (TSC) in the initiation and progression of high-grade astrocytomas became more and more numerous in the last years. This issue has been intensively tested in glioblastoma, but little attention has been paid for anaplastic astrocytoma. The main objective of this paper was to study the morphological characteristics of the xenografts developed from glioblastoma and anaplastic astrocytoma derived cancer stem cells.

Methods: The authors of this study successfully isolated and partial characterized primary cultures of glioblastoma and anaplastic astrocytoma derived TSC. Tumors stem cells have been stereotactically inoculated in nude mice brains and the xenografts have been studied using morphological and imunohistochemistry techniques.

Results: The tumor xenografts which have been established in nude mice using TSC had different characteristics when compared with U87 xenografts previously developed by our group, and depend of the origin type of the tumors (glioblastoma versus anaplastic astrocytoma). The diffuse growing pattern and cells infiltration have been more pronounced in both anaplastic astrocytoma and glioblastoma derived TSC xenografts compared with U87 line xenografts.

Conclusion: Our results support the hypothesis regarding the role of TSC in the infiltration process of glioblastoma and anaplastic astrocytoma. The extensive infiltration growing patterns of these types of xenografts make them useful models for studying the invasion mechanisms in gliomas.

Abbreviations: TSC - tumor stem cells.

Key words: glioblastoma, anaplastic astrocytoma, tumor stem cells, nestin, xenografts

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