SOX2 Silencing in Glioblastoma Tumor Initiating Cells Causes Stop of Proliferation and Loss of Tumorigenicity

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Abstract

Glioblastoma, the most aggressive cerebral tumor, is invariably lethal. Glioblastoma cells express several genes typical of normal neural stem cells. One of them, SOX2, is a master gene involved in sustaining self-renewal of several stem cells, in particular of neural stem cells. To investigate its role in the aberrant growth of glioblastoma, we silenced SOX2 in freshly derived glioblastoma tumor initiating cells (TICs). Our results indicate that SOX2 silenced glioblastoma TICs, despite the many mutations they have accumulated, stop proliferating and lose tumorigenicity in immunodeficient mice. SOX2 is then fundamental for maintenance of self-renewal capacity of neural stem cells also when they have acquired cancer properties. SOX2, or its immediate downstream effectors, would then be an ideal target for glioblastoma therapy.

Author contributions: R.M.R.G.: conception, design, collection, analysis and interpretation of data and manuscript writing; F.G.: collection and assembly of data, analysis and interpretation of data; D.M.: assembly, and analysis and interpretation of data; M.C.C.: collection of data; P.M.: provision of study material, analysis and interpretation of data; M.P.: collection and assembly of data; G.L.R.: provision of study materials; G.L.Z.: provision of study materials; A.D.: conception, analysis and interpretation of data, manuscript writing; G.C.: conception, analysis and interpretation of data and manuscript writing.

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Key Words. Glioblastoma, Tumor initiating cells, SOX2 gene silencing, tumorigenesis