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## 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.

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Antonio Daga and Giorgio Corte contributed equally to this work.

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