

## PubMed

U.S. National Library of Medicine  
National Institutes of Health



Display Settings:  Abstract

[Oncogene](#). 2010 Jan 11. [Epub ahead of print]

### **Cerebellar stem cells act as medulloblastoma-initiating cells in a mouse model and a neural stem cell signature characterizes a subset of human medulloblastomas.**

Sutter R, Shakhova O, Bhagat H, Behesti H, Sutter C, Penkar S, Santuccione A, Bernays R, Heppner FL, Schüller U, Grotzer M, Moch H, Schraml P, Marino S.

Neuroscience Centre, Blizard Institute of Cell and Molecular Science, Barts and the London School of Medicine and Dentistry, Queen Mary University of London, London, UK.

Cells with stem cell properties have been isolated from various areas of the postnatal mammalian brain, most recently from the postnatal mouse cerebellum. We show here that inactivation of the tumor suppressor genes Rb and p53 in these endogenous neural stem cells induced deregulated proliferation and resistance to apoptosis in vitro. Moreover, injection of these cells into mice formed medulloblastomas. Medulloblastomas are the most common malignant brain tumors of childhood, and despite recent advances in treatment they are associated with high morbidity and mortality. They are highly heterogeneous tumors characterized by a diverse genetic make-up and expression profile as well as variable prognosis. Here, we describe a novel ontogenetic pathway of medulloblastoma that significantly contributes to understanding their heterogeneity. Experimental medulloblastomas originating from neural stem cells preferentially expressed stem cell markers Nestin, Sox2 and Sox9, which were not expressed in medulloblastomas originating from granule-cell-restricted progenitors. Furthermore, the expression of these markers identified a subset of human medulloblastomas associated with a poorer clinical outcome. *Oncogene* advance online publication, 11 January 2010; doi:10.1038/onc.2009.472.

PMID: 20062081 [PubMed - as supplied by publisher]

[LinkOut](#) - more resources