



HOME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH

QUICK SEARCH: [advanced]		
Author:	Keyword(s):	
Go		
Year:	Vol:	Page:

First published online September 11, 2008

Submitted on May 10, 2008

Accepted on September 3, 2008

CANCER STEM CELLS

Hedgehog Signaling Regulates Brain Tumor Initiating Cell Proliferation and Portends Shorter Survival for Patients with PTEN-Coexpressing Glioblastomas

Qijin Xu , Xiangpeng Yuan , Gentao Liu , Keith L. Black , John S Yu *

* To whom correspondence should be addressed. E-mail: Yuj@csbs.org .

This Article
<ul style="list-style-type: none"> ▶ Full Text (PDF) ▶ Supplemental Data ▶ Alert me when this article is cited ▶ Alert me if a correction is posted
Services
<ul style="list-style-type: none"> ▶ Similar articles in this journal ▶ Similar articles in PubMed ▶ Alert me to new issues of the journal ▶ Download to citation manager ▶ Reprints/Permissions
Google Scholar
<ul style="list-style-type: none"> ▶ Articles by Xu, Q. ▶ Articles by Yu, J. S
PubMed
<ul style="list-style-type: none"> ▶ PubMed Citation ▶ Articles by Xu, Q. ▶ Articles by Yu, J. S

▶ Abstract

The identification of brain tumor stem-like cells (BTSCs) has implicated a role of biological self-renewal mechanisms in clinical brain tumor initiation and propagation. The molecular mechanisms underlying the tumor-forming capacity of BTSCs, however, remain unknown. Here, we have generated molecular signatures of GBM using gene expression profiles of BTSCs and have identified both sonic hedgehog (SHH) signaling dependent and independent BTSCs and their respective glioblastoma surgical specimens. BTSC proliferation could be abrogated in a pathwaydependent fashion *in vitro* and in an intracranial tumor model in SCID mice. Both SHH-dependent and - independent brain tumor growth required PI3KmTOR signaling. In human GBMs, the levels of SHH and PTCH1 expression were significantly higher in PTEN-expressing tumors than in PTEN-deficient tumors. In addition, we show that hyperactive SHHGLI signaling in PTEN-coexpressing human GBM is associated with reduced survival time. Thus, distinct proliferation signaling-dependency may underpin glioblastoma propagation by BTSCs. Modeling these BTSC proliferation mechanisms may provide a rationale for individualized glioblastoma treatment.

Author contributions: Q.X.: conception and design, collection and/or assembly of data, data analysis and interpretation, manuscript writing, final approval of manuscript; X.Y.: collection and/or assembly of data, data analysis and interpretation, final approval of manuscript; G.L.: collection and/or assembly of data, data analysis and interpretation, final approval of manuscript; K.L.B.: Financial support, provision of study material or patients, final approval of manuscript; J.S.Y.: conception and design, provision of study material or patients, data analysis and interpretation, manuscript writing, final approval of manuscript.

Key Words. glioblastoma, cancer stem cells, hedgehog, PTEN

HOME HELP FEEDBACK SUBSCRIPTIONS ARCHIVE SEARCH

STEM CELLS THE ONCOLOGIST CME ALPHAMED PRESS JOURNALS

Copyright © 2008 by AlphaMed Press.