Reviewer's report

Title: SOX4 inhibits GBM cell growth and induces G0/G1 cell cycle arrest through Akt-p53 axis

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Reviewer: Xisong Ke

Reviewer's report:

SOX4 is an important transcription factor and has been well-associated with tumor initiation and progression; however, the exact function of SOX4 in tumor is complex and even contradictory. Jing Zhang et al. has symmetrically examined the role of SOX4 in glioma cells using overexpression and knockout experiments followed by gene expression profiling and a number of functional assays and mechanism studies. Generally, the work was well designed and experiments were well-performed, the results and statistics were properly analyzed. The authors demonstrated that SOX4 is a tumor suppressor in glioma cells and the mechanism is involved to Akt-p53 axis. Very interesting, the authors found that SOX4 increased beta-catenin expression but blocked its nuclear accumulation in GBM cells.

Major Compulsory Revisions

The authors suggested that SOX4 inhibits the translocation of beta-catenin to the nucleus based on the accumulation of beta-catenin in the cytoplasm in Western blot analysis. However, it is known that there is a destruction complex (APC-AXIN-CK1#-GSK3#) regulating the nucleus level of #-catenin. It is hard to conclude that SOX4 inhibits the translocation of beta-catenin since the nucleus beta-catenin seems no significant change between control cells and pSFH cells in Figure 4D. One way to evaluate the connection of SOX4 and Wnt signaling is to examine the active- #-catenin (ABC) using antibody against dephosphorylated #-catenin or quantify Wnt signaling using a TopFlash reporter.

Minor Essential Revisions

In page 11, RT-PRC should be RT-PCR.

Discretionary Revisions

For GO analysis in Figure 4B, it is also important to present the p-value or FDR of each item to show the “enrichment”.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests: The reviewer declare no competing of interests in relation to the paper.