Reviewer’s report

Title: Lipid Metabolism Enzyme ACSVL3 Supports Glioblastoma Stem Cell Maintenance and Tumorigenicity

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Reviewer: Roger Abounader

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Sun et al. investigate the role of the lipid metabolism enzyme ACSVL3 in glioblastoma (GBM) stem cell maintenance and tumorigenicity. The authors find that ACSVL3 is overexpressed in GBM stem cells as compared to differentiated cells and that expression levels depend on the differentiation/stemness status of the cells. They show that ACSVL3 knockdown induces stem cell differentiation, inhibits neurosphere growth, and inhibits the tumor initiating capacity of the cells. They also demonstrate that ACSVL3 is induced by the activation of RTKs that are known to regulate stem cell malignancy. They conclude that ACSVL3 is a driver of stem cell malignancy and a potential therapeutic target in GBM.

The findings of this paper are interesting and new. The experimental design is sound and the data are convincing and support the conclusions. The manuscript is very well written. This reviewer cannot identify any weaknesses in the study.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I have no competing interests with any aspect of the paper.