

## OPEN PEER REVIEW REPORT 2

**Name of journal:** Neural Regeneration Research

**Manuscript NO:** NRR-D-20-00308

**Title:** Hydrogen sulfide enhances adult neurogenesis by activating Akt/GSK-3 $\beta$ / $\beta$ -catenin signaling in the MPTP mouse model of Parkinson's Disease

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### COMMENTS TO AUTHORS

The authors investigated the effect of H<sub>2</sub>S in a MPTP-induced mouse model of Parkinson' disease (PD). The model is well known and the effect of H<sub>2</sub>S is not a new finding, because it was already published by Kida et al. in 2011.

The protective effect of H<sub>2</sub>S was recently proved in the 6-OHDA model of PD, and the beneficial effect was explained by its antioxidant and anti-apoptotic properties in both models.

The intraperitoneal administration of NaHS instead of inhalation of H<sub>2</sub>S is an easier and more reproducible way of study. They used in vivo and in vivo models as well.

The methods used here are well established and the results are acceptable.

Here the authors proved that beyond the neuroprotective effect of H<sub>2</sub>S it enhances the regenerative capacity in the subventricular zone via the beta-catenin pathway.

Although in the animal experiments the number of animals was indicated as 6 in each group, but the reproducibility of experiments were not mentioned.

Furthermore, the only way of NaHS administration was started before MPTP/p administration. Did they perform further studies to investigate the NaHS effect starting administration after MPTP/p treatment? The pure effect of NaHS on naive animals was neither presented nor mentioned, did they performed this type of investigation?