

## OPEN PEER REVIEW REPORT 1

**Reviewer:** Sagar Gaikwad, Indian Institute of Advanced Research, India.

### Comments to the authors:

In the manuscript, the authors investigated the effects of neural stem cell (NSCs) transplantation on cognitive functions and neuronal loss in a rat model of spinal cord injury (SCI). The authors claim that NSCs transplantations improves the motor and sensory functions via decreased over-expression of P2X4R and GFAP and dampened neuropathic pain after SCI. Collectively, this is well performed study and supports the author's conclusion.

### Comments:

- After SCI, expression of P2X4 and P2X7 receptors may increase in microglia, astrocytes, or neurons. The authors should demonstrate the levels of P2X4R on microglia, astrocytes and neurons (using specific markers immunofluorescence microscopy), after the SCI with or without NSCs transplantation. How the NSCs alters the receptors expression? Supporting literature should be cited.
- For the reproducibility of the study, the source of the NSCs and detailed procedure for isolation should be described in detail? what's the exact number of NSCs per animal transplanted?
- Brief experimental details need to be provided in each figure legends. Figure legends should support your figure entirely, meaning that the reader of your paper should be able to understand your figure, paired with its legend, without going to the results or methods sections, please describe each sub figure for the clear understanding of the data.
- Does the NSCs transplanted animals completely recovered? what about the mortality score between the groups?
- Full form of CPT test need to be shown.
- Section 3.3.1 Please describe the method for calculating the significant differences. How the positive cells were quantified ?