

## OPEN PEER REVIEW REPORT 1

**Name of journal:** Neural Regeneration Research

**Manuscript NO:** NRR-D-23-00563

**Title:** Autophagy in neural stem cells and glias for brain health and diseases

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**Reviewer's country:** USA

### COMMENTS TO AUTHORS

This review article reviews autophagy-mediated mechanisms in the regulation of neural stem cells (NSCs) and glial cells, summarizes how such mechanisms impact normal brain functions and the pathogenesis of neurodevelopmental disorders and neurodegenerative diseases, including Alzheimer's disease (AD) and Parkinson's disease (PD), and highlights the current knowledge gaps need to be filled for deeper understanding of the roles of autophagy and neural stem cells (NSCs) and glial cells in the development of disease pathologies. Overall, I found this to be an interesting review, which covers the right extent of recent investigations. The authors can consider expanding the discussion on the impact of autophagy on astrocyte lipid metabolism and providing more critical comments on the therapeutic potential of autophagy manipulations in NSCs and glia in the context of the disease. In addition, I have some recommendations for the authors to consider:

1. In the introduction session on autophagy, the authors cited only few review papers. Even though a long list of references, this reviewer encourages to cite more original research articles related to the specific points presented in the manuscript.
2. Given the expanded description in the text, it will be helpful to have a figure which summarizes the proposed models of the involvement of autophagy abnormalities in microglia and astrocytes and the pathophysiology of AD and PD.