

# Review of: "Synapse Weakening-Induced Caspase-3 Activity Confers Specificity to Microglia-Mediated Synapse Elimination"

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Potential competing interests: No potential competing interests to declare.

The manuscript by Zhou Yu, et al., titled "Synapse Weakening-Induced Caspase-3 Activity Confers Specificity to Microglia-Mediated Synapse Elimination," describes a model in which caspase-3 plays a crucial role in synapse elimination during visual system development and potentially in neurodegenerative diseases such as Alzheimer's. The article offers an important clinical perspective and possible therapies by exploring the potential of caspase-3 inhibition as a strategy to prevent synaptic loss induced by A $\beta$ . The article is scientifically valid, as it presents solid experimental data well integrated into existing literature, along with a clear discussion of the limitations of its approach. However, some minor concerns should be addressed.

Specific comments:

1. Please better define the structure of the manuscript (Introduction, Materials and Methods, Results, Discussion, and Conclusion); as it is, the paper is confusing.
2. There are various grammatical errors and typos that should be corrected.
3. The figures need to be better numbered: the supplemental figures should be placed at the end of the manuscript to better clarify the flow of the research.
4. Regarding Materials and Methods:
  - The authors should always use the same acronyms;
  - They should always use the same word to describe something in order to avoid confusing the reader;
  - A bullet-point or numbered structure could be included for longer or more complex experimental steps: for example, when describing the preparation of sections and imaging, the steps could be listed sequentially;
  - Sometimes, images are referenced before the complete description of image acquisition.