

## **Open peer review report 1**

**Reviewer:** Maria Solesio, New York University, USA.

### **Comments to the authors:**

This is a very innovative article, using a non-conventional approach. The experiments make sense and the statistical analysis is well-conducted, showing interesting conclusions. However, they should use some extra negative control and they should work more on the introduction and fix the problem that they have with their bibliography manager program. Also, their conclusions are clearly over-ambitious.

In this manuscript, the authors evaluate the role of acupuncture on improving cognitive deficits, in a well-known and standard mice model of senescence.

Major comments:

- Introduction: The introduction is too short and is not well written, as sentences are not really logically linked and they do not bring the reader through a rational thread. Citations are messy, some abbreviations are used without having previously stated the meaning (CA1) and the authors propose as facts some ideas that may not be that universally accepted, ("AD is a synaptic disorder disease": not only, and many other authors propose other etiology for AD. "Current medical treatment can't yet completely cure AD": can it partially do it?). In addition, in the abstract, authors state that "SAMP8 is an ideal research model of AD". Then, they should then explain why in the introduction. Authors must definitively work more on the introduction.
- Experiments: Why the authors chose that acupuncture frequency? Which points were used? They should explain these aspects. As a negative control, the authors should use different acupuncture points, not related to neurodegeneration, and check if, in that case, no effect is observed.
- Discussion: Conclusions have to be written again. They are over-ambitious. Just because the authors found an improvement in the maze performance from the mice and in the dendritic degeneration, they cannot assume that acupuncture is a good therapy in AD, which may be a much more complex therapy. The authors should re-write this part, making it more realistic.

Minor comments:

- Fig. 1 is illegible and, overall, the quality of the figures is quite poor.
- The authors have some problems with the citation program they use, as many bibliographic citations just do not appear in the text, in some others there is just a year but not authors....
- Discussion: The authors need to add citations to the sentence "Acupuncture is different from drug therapy and gets better effect on the treatment of multiple chronic conditions with little adverse reaction".