OPEN PEER REVIEW REPORT 1

Name of journal: Neural Regeneration Research
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Title: High-dose biotin does not foster remyelination and does not stimulate malonyl coenzyme A synthesis in the regenerating nerve
Reviewer's Name: Christina Dimovasili
Reviewer's country: USA

COMMENTS TO AUTHORS

The present letter to the editor is a short communication of some interesting findings regarding the effects of high dose biotin (HDB) on remyelination in a mouse model of sciatic nerve crush.
Given the recent termination of HDB clinical trials in MS patients due to lack of amelioration of the disease progress, the data presented in this study are adding value to the efforts of explaining the outcomes of the clinical trials. The authors raise a valid point that the HBD study as a treatment for MS is not very well supported by experimental data in animal models and although previous literature suggests that biotin protects and supports OLs in vitro (PMID: 32470040), remyelination in terms of new myelin production was not possible to be shown and quantified.

A few minor comments on the presented data:

Information on the N of mice used is missing.
Also, information on how many slices were analyzed per sample (if multiple) and how far apart and from the lesion area they were located.
It would be useful to have Methods for Figure 2.

Overall, these preliminary findings that show no difference between HDB and control groups in grip efficacy and myelin production are of high importance to the scientific community and as such I encourage the authors to submit this study as a research paper using these data as part of a larger and more complete study.
The clinical studies were carried out over a span of 2 years and clinical assessment as well as biomarker (neurofilament light chain) screening was performed. It would be interesting to see if the present data differ when investigating longer periods of treatment, as 21 days might be too short to see a quantifiable myelin generation.