

OPEN PEER REVIEW REPORT 1

Name of journal: Neural Regeneration Research

Manuscript NO: NRR-D-21-00457

Title: Functional recovery and muscle atrophy in pre-clinical models of peripheral nerve transection and gap-grafting in mice: Effects of 4-aminopyridine

Reviewer's Name: David Brogan

Reviewer's country: USA

COMMENTS TO AUTHORS

The authors have performed a well done study analyzing the effects of 4-AP on nerve and muscle regeneration after nerve transection and repair. This builds on earlier data that they have published looking at the effects of 4-AP on neurogenic muscle atrophy after crush injury. The experimental methods are rigorous and widely accepted; the question posed is novel and interesting. I found the paper to be well written and methodologically sound. Overall, I think the discussion may benefit from a slightly different focus, but have relatively few criticisms. Some specific questions / suggestions include:

Interesting that the G5/7 group had less trouble walking - any thoughts as to why?

What do you make of the lack of effect of 4-AP on the SFI?

Shin has previously suggested that maximal muscle recovery in a rat model will be seen at 16 weeks - do you think there is any benefit to extending your analysis?

P. 12, line 19 - spelling error on isograft

p. 14, first paragraph - I'm not sure that this discussion adds much to the paper - we know that nerve grafting is inferior to primary repair. I would guess that the useful information your data provides is the effect, or lack there-of, of 4-AP on the isograft, and what, if any, difference 4-AP has on isograft vs primary repair.

Figure 3, 4 and 5 - where are the white asterisks?

I'm not sure Figure 5 offers much in the zoomed in sections on the right - what are you trying to convey?

Figures 6 and 7 are hard to visualize - do you have a higher resolution?