

Supplementary Figure

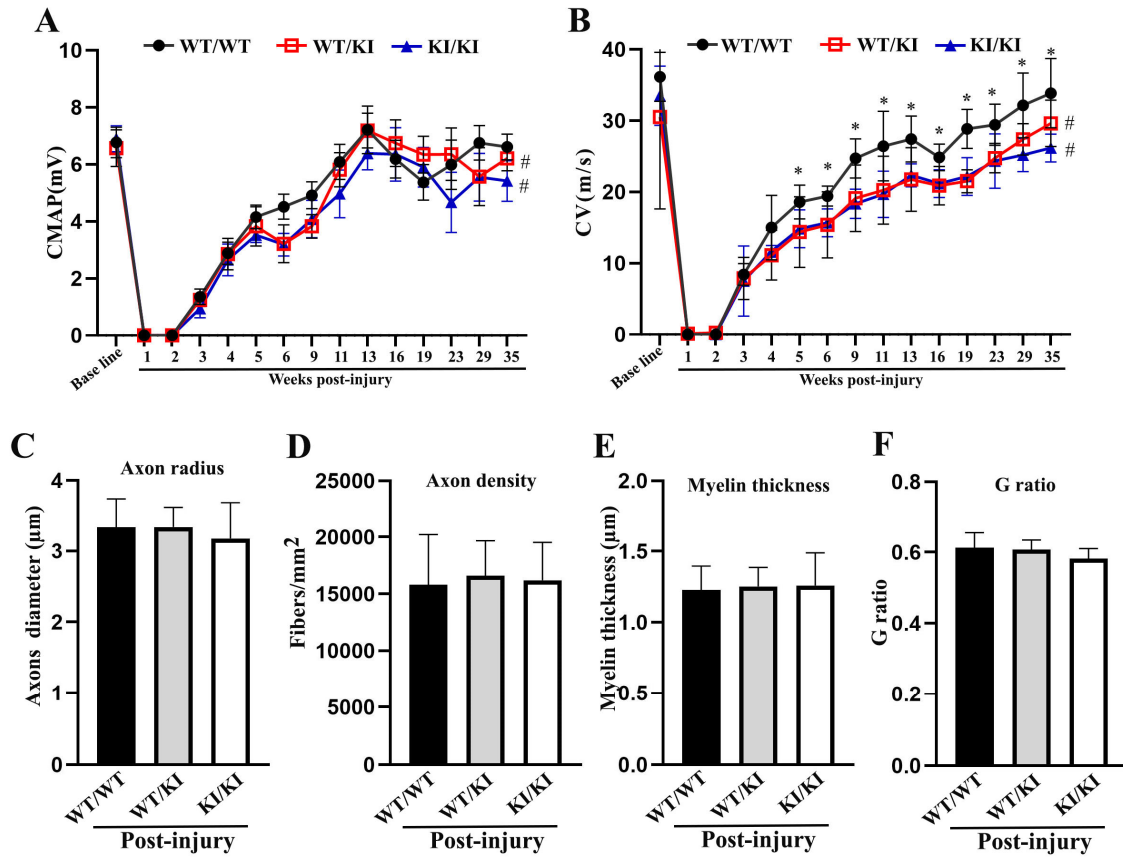


Figure 1. Electrophysiological and morphological analysis in sciatic nerves of *Lrsam1*^{+/+}, *Lrsam1*^{+/C698R} and *Lrsam1*^{C698R/C698R} mice after nerve crush injury. (A) NCS was carried out before the surgery, post-surgery, and every 2-5 weeks until 35 weeks. Baseline measurements showed no difference in CMAP between the genotypes (n=6-7 per genotypic group, p>0.535). The linear mixed model showed no significant negative effect of *Lrsam1*^{+/C698R} and *Lrsam1*^{C698R/C698R} genotypes on CMAP. Time overall had a positive effect on CMAP, associated with 0.168mV increase per week (p<0.001) in all animals. #p<0.001. Interactions of time and genotype were not found to be significant. (B) CV baseline measurements showed no significant difference between the genotypes (n=6-7 per genotypic group, p>0.731). A linear

mixed model showed a significant negative effect of *LrsamI*^{+/C698R} genotype on CV: - 3.306 m/s over the whole time excluding the baseline as compared with *LrsamI*^{+/+} (p<0.001). *LrsamI*^{C698R/C698R} had a negative effect on CV compared with *wt*, -3.131m/s (p<0.001). Time overall had a positive effect on CV, associated with 760m/s increase per week overall in all animals (p<0.001). Interactions of Genotype x Time were found to have a significant effect on CV and indicated a slowed rate of CV recovery in *LrsamI*^{+/C698R} and *LrsamI*^{C698R/C698R} mice during the whole time period (*LrsamI*^{+/+} increased 0.869 mV (p<0.001), *LrsamI*^{+/C698R} increased 0.723 mV (p<0.001), *LrsamI*^{C698R/C698R} increased 0.671mV per week (p<0.001), interaction (p<0.001). # = p<0.001. We found that CV was significantly different from 5 to 35 weeks between genotypes at each timepoint post-surgery. *= p<0.001. (C, D, E, F) The morphometric analysis results showed no significant difference in axon radius, axon density, myelin thickness, and G-ratio in injured *LrsamI*^{+/C698R} and *LrsamI*^{C698R/C698R} nerves compared to injured *LrsamI*^{+/+} nerves.