

Figure S1

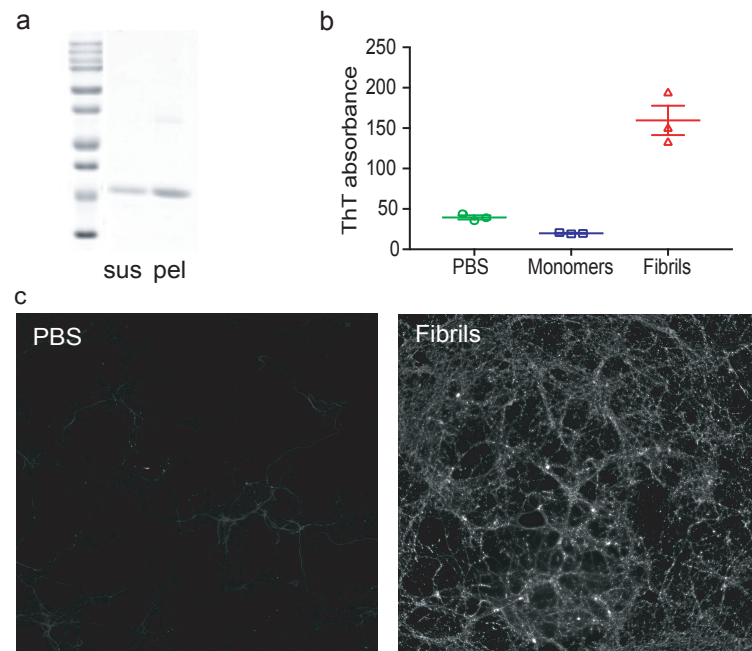


Figure S1- Characterization of fibrils. **a** Sedimentation assay-After fibrilization process, reactions were centrifuged (100,000xg, 30 min, 23°C) and both pellet and supernatant were separated on 15% SDS-PAGE gel and visualized with Coomassie Brilliant Blue. Most of the α -synuclein fibrillized and is present in the pellet (pel) fraction while supernatant (sus) contains relatively lower amount of α -synuclein. **b** Fibrillized α -synuclein shows increased absorbance in the Thioflavin T (ThT) assay. Data represents mean \pm sem of 3 replicates for each condition. **c** Mouse hippocampal neurons 12 days after transduction with PBS (negative control) or 200 nM fibrils. Immuno-staining for pSer129- α -synuclein reveals presence of intraneuronal inclusions.

Figure S2

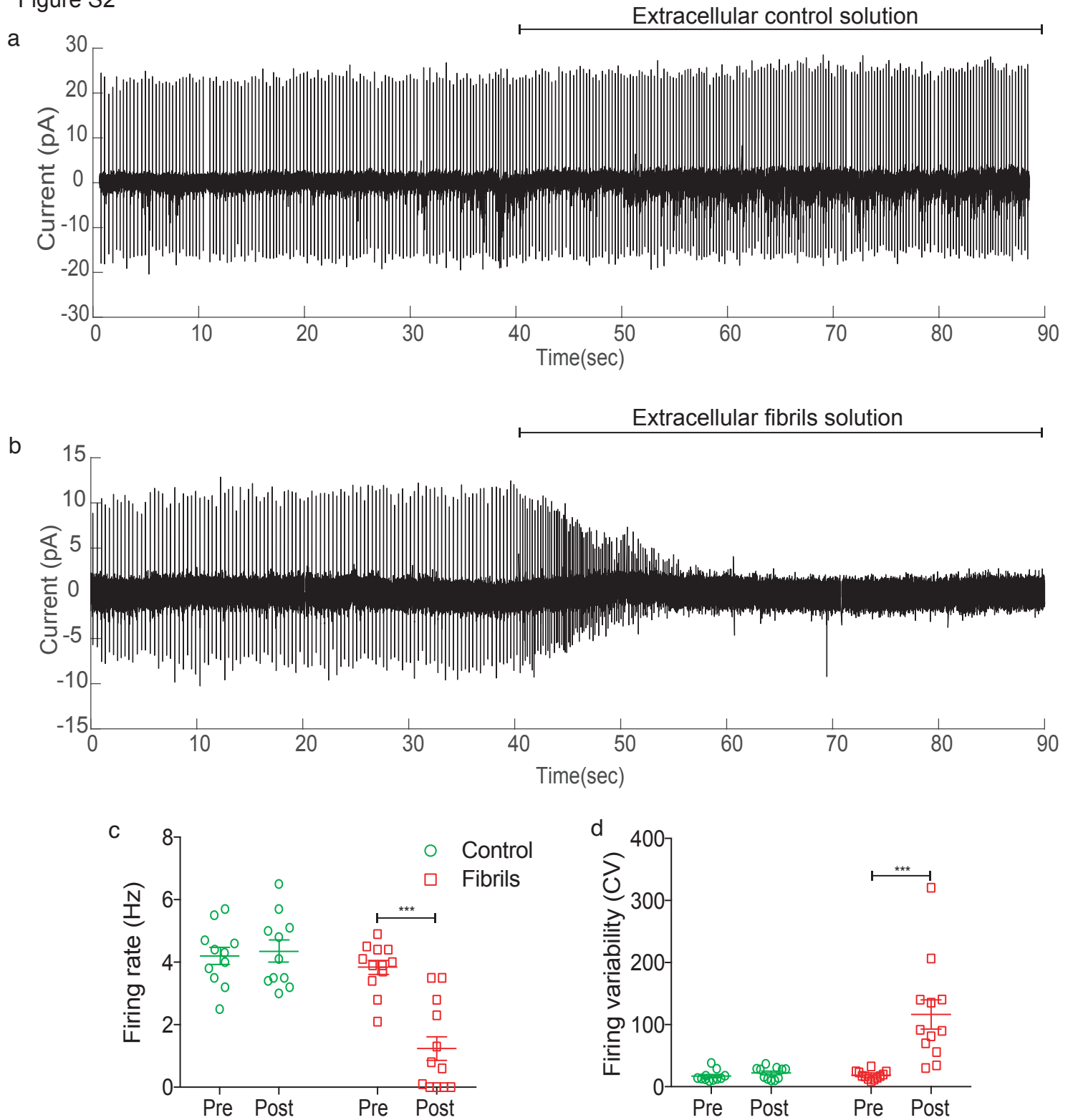


Figure S2- Extracellular application of fibrils diminishes the pacemaker firing activity of DLS-ISN neurons. Representative trace of cell-attached (on-cell) recording from DLS-ISN neuron with **a** extracellular control solution puffed on with a second pipette from 40 sec onwards showing no change in firing activity and **b** 10 nM fibrils dissolved in extracellular solution puffed with a second pipette from 40 sec onwards showing a rapid cessation of pacemaker firing. **c** Graph shows the average firing frequency pre and post application of extracellular control solution and fibrils solution. A significant decrease in firing frequency was observed post fibrils application ($p < 0.001$, Ordinary one-way ANOVA followed by Holm Sidak's multiple comparison test) but not post control solution application. **d** Graph shows changes in firing variability (CV) pre and post application of extracellular control solution and fibrils solution. A significant rise in firing variability was observed post fibrils application ($p < 0.001$, Ordinary one-way ANOVA followed by Holm Sidak's multiple comparison test) but not post control solution application. All data is represented as mean \pm sem. Control- $n=11$, $N=3$; Fibrils- $n=12$, $N=3$, where n = number of neurons, N = number of mouse.