

**Supplementary Figure 1 – Ictal activity induced by 4AP in mesial temporal lobe and neocortical regions.** Representative seizure recorded from mesial temporal lobe regions and the neocortex simultaneously in a single rat. Note the onset of the seizure (arrows) in the right entorhinal cortex and right CA3 region of the hippocampus followed by a propagation of ictal activity to the left subiculum and later the right neocortex. Behavioral symptoms such as head and trunk extension occurred during ictal activity in temporal lobe regions whereas the tonic-clonic phase of the seizure occurred when ictal activity propagated to the neocortex.

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