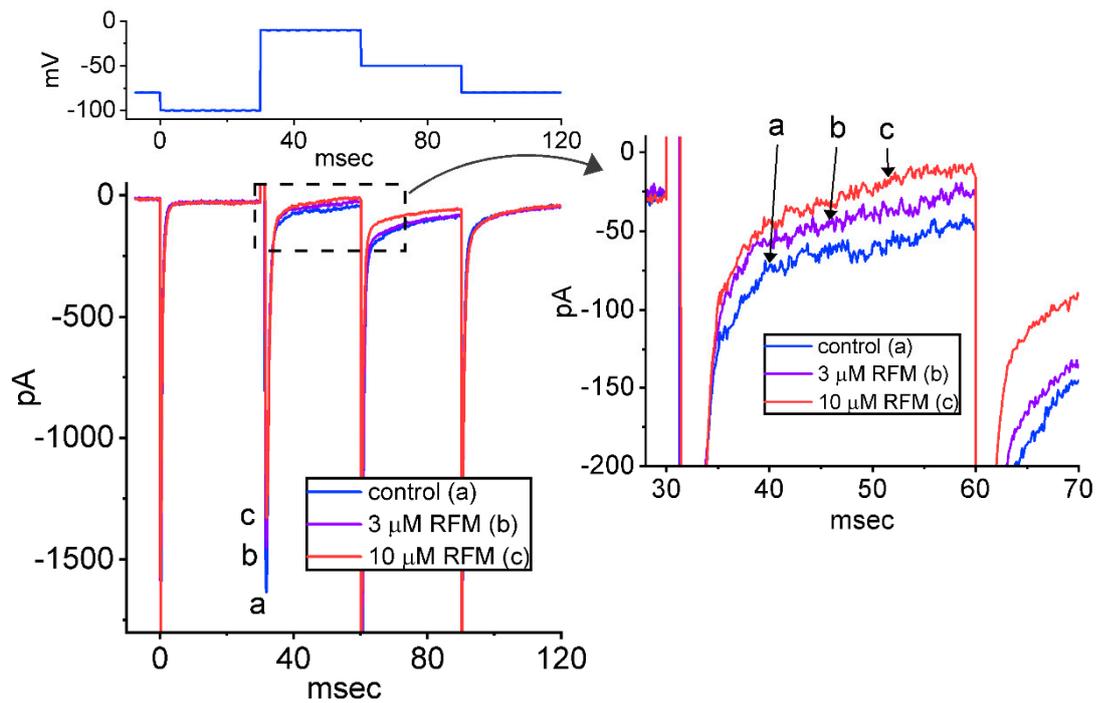


Supplementary Information

Effect of rufinamide (RFM) on voltage-gated Na⁺ current (I_{Na}) in mouse hippocampal (mHippoE-14) neurons

In another set of experiments, we sought to determine if the presence of RFM can result in any perturbations on peak and late components of I_{Na} in hippocampal mHippoE-14 cells. The preparation of hippocampal neurons is illustrated in **Materials and Methods**. As cells were depolarized from -100 to -10 mV with a duration of 30 msec, the peak and late amplitude of I_{Na} was robustly evoked with a rapid activating and inactivating time course. One minute of exposing cells to 3 or 10 μ M RFM progressively and differentially decreased the peak and late I_{Na} (**Supplementary Figure S1**). For example, the presence of 10 μ M RFM significantly decreased the peak and late I_{Na} to 1234 ± 89 and 21 ± 6 pA ($n = 8$, $P < 0.05$) from control values of 1623 ± 102 and 49 ± 9 pA ($n = 8$), respectively. After washout of RFM, peak and late amplitudes of I_{Na} were returned to 1611 ± 98 and 48 ± 9 pA ($n = 8$). It is clear from the present observations that similar to the results found in pituitary GH₃ cells, the presence of RFM is effective in suppressing peak and late I_{Na} in mHippoE-14 neurons and that RFM decreased late I_{Na} to a greater extent than peak I_{Na} .



Supplementary Figure S1. Inhibitory effect of RFM on I_{Na} in hippocampal mHippoE-14 cells. In these experiments, cells were immersed in Ca^{2+} -free, Tyrode's solution containing 10 mM tetraethylammonium chloride and 0.5 mM $CdCl_2$, and the recording electrode was filled with Cs^+ -containing solution. The upper part shows the voltage-clamp protocol applied. Current trace labeled a is control, and those labeled b and c were acquired in the presence of 3 and 10 μM RFM, respectively. Current traces at a faster time scale in the right side indicate an expanded record from dashed box in the left side.