

Figure S1. Choppers exhibit Onset responses with addition of I_{LT} . Both Chopper neurons (2/2) tested with additional g_{LT} applied via dynamic clamp switched their temporal responses to Onset once they were pushed beyond trans g_{LT}. Bin width = 1ms. This is similar to the effects of g_{LT} applied to Tonic neurons classified as Primary-Like (Figure 8).

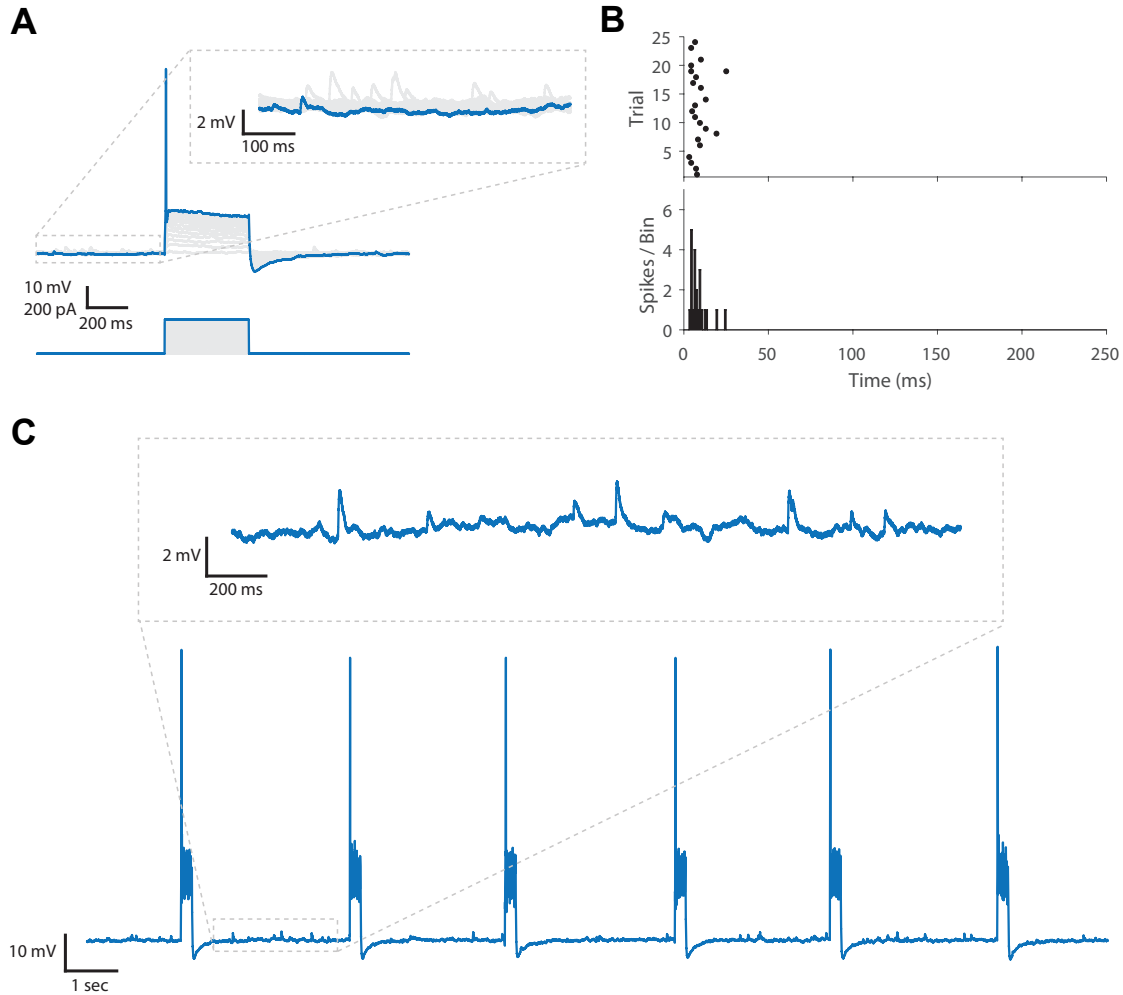


Figure S2. Low-amplitude spontaneous post-synaptic potentials in a Single-Spiking neuron.

A. Recordings from a Single-Spiking neuron showing the presence of spontaneous post-synaptic potentials. Blue corresponds to maximum current injection depicted (300 pA) and its resulting voltage trace; all other traces are grey. Current injected 0-300 pA ($\Delta 25$ pA). Inset: Note low amplitude spontaneous events (1-3 mV). **B.** Raster and Onset PSTH from the neuron shown in **A**. Bin width = 1 ms. **C.** Voltage trace depicting responses to modeled nerve-induced EPSCs (6 of 25 trials in **B**). Spontaneous post-synaptic potentials were observed, but remained subthreshold (1-3 mV), were not consistently timed relative to the applied stimulus nor to the evoked action potential. Since the amplitude of these spontaneous events was an order of magnitude smaller than model-induced EPSPs and they showed no consistent timing, these spontaneous events are unlikely to affect classification of the evoked temporal response patterns.