

Figure Legend (other cell with clusters):

Optical control of hippocampal GABAergic neurons. A) Visualization of channelrhodopsin2(ChR2)-expressing hippocampal neurons in a VGAT-ChR2-EYFP transgenic mouse. Open arrowheads indicate ChR2-EYFP-expressing GABAergic neurons located in the CA1 layer of the hippocampus. Right image shows a higher magnification view of the cell in the left image indicated by the solid arrowhead. EYFP fluorescence was enhanced by immunofluorescent labeling. B) Illustration of the fiber optic cable and recording electrodes positioned in the CA1 area of the dorsal hippocampus. C) Cluster plot of two hippocampal neurons recorded simultaneously with the Cheetah32 Acquisition system by Neuralynx. The spike waveforms for a putative GABAergic interneuron (red) are shown below for each recording channel. D,E) Optical stimulation of neuron shown in "C" in red with the Spectralynx LED stimulator by Neuralynx. This neuron fired in response to both continuous light and light pulses of various frequencies. D) Plot of spike amplitude on channel 2 over time. The cell in red, with high spike amplitude on channel 2, fired selectively to blue light. E) Magnified views of the response to continuous light and a 5 Hz light pulse.

Figure by: Bender AC & Lenck-Santini PP,
 Dept. of Neurology, Geisel School of Medicine at Dartmouth (2012).



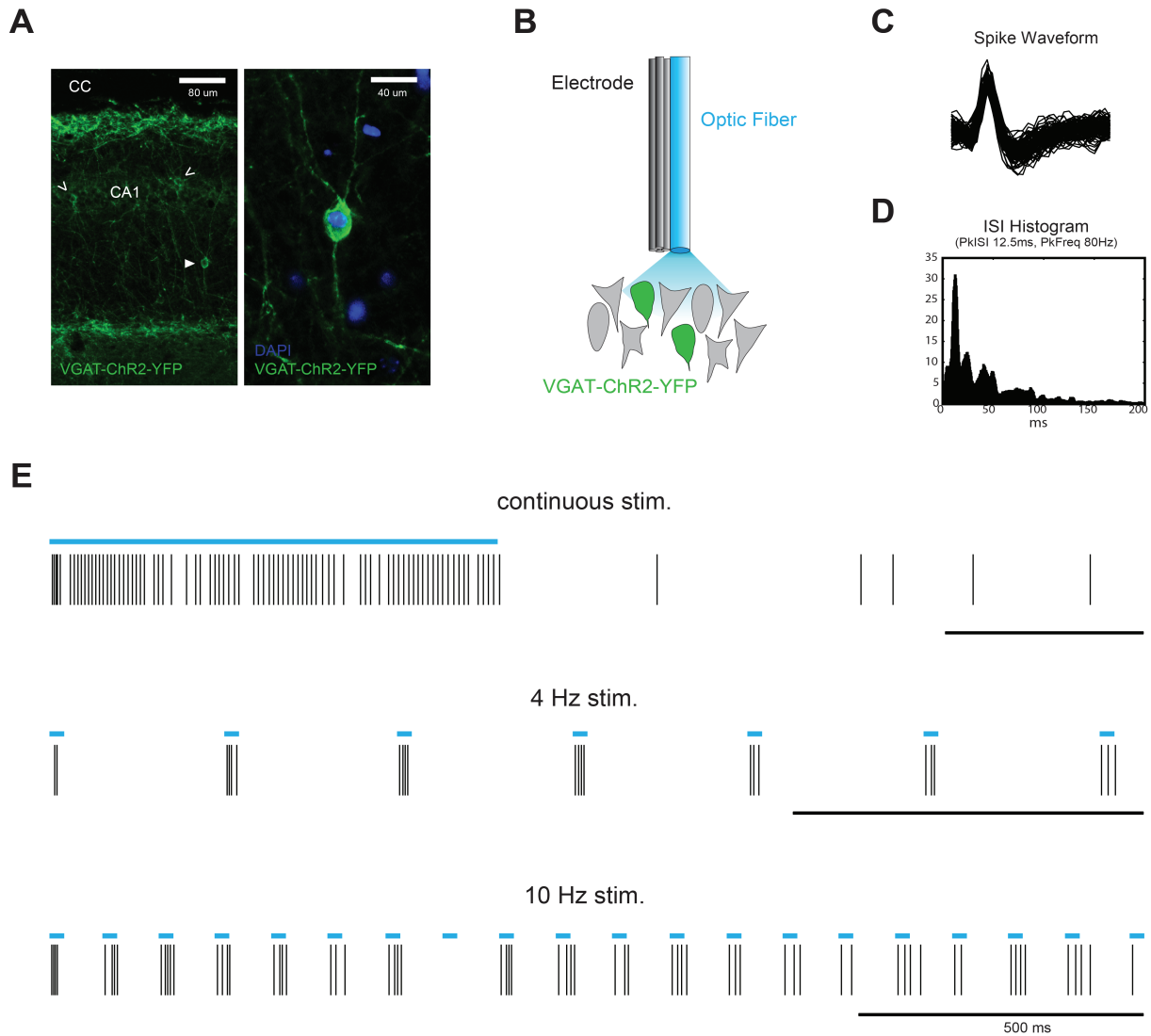


Figure Legend:

Optical control of hippocampal GABAergic neurons. A) Visualization of channelrhodopsin2(ChR2)-expressing hippocampal neurons in a VGAT-ChR2-EYFP transgenic mouse. Open arrowheads indicate ChR2-EYFP-expressing GABAergic neurons located in the CA1 layer of the hippocampus. Right image shows a higher magnification view of the cell in the left image indicated by the solid arrowhead. EYFP fluorescence was enhanced by immunofluorescent labeling. B) Illustration of the fiber optic cable and recording electrodes positioned in the CA1 area of the dorsal hippocampus. C,D) Properties of a putative hippocampal interneuron recorded with the Cheetah32 Acquisition system by Neuralynx. Spike waveforms (C) and inter-spike interval (ISI) histogram are shown (D). The peak ISI was 12.5 ms, corresponding to a firing frequency of 80 Hz. E) Optical stimulation of neuron shown in "C" with the Spectralynx LED stimulator by Neuralynx. The cell fired continuously in response to constant blue light and fired in bursts synchronously with both a 4 Hz and 10 Hz, 10 ms light pulse.

Figure by: Bender AC & Lenck-Santini PP,
Dept. of Neurology, Geisel School of Medicine at Dartmouth (2012).



GEISEL
— SCHOOL OF —
MEDICINE
AT DARTMOUTH