



See caption on next page. To animate these simulations, open the following files in a web browser. a: Supplementary Video 1, nn1599-S6.gif; b: Supplementary Video 2, nn1599-S7.gif

Supplementary Figure 1. Successful forward propagation of dendritic spikes in strong dendritic excitability models (model cells 1 and 2, with animations).

(a) Response to activation of the strong dendritic excitability model cell 1 with 10% of PP synapses. Left: color map of peak depolarization. Animations in the corresponding files plot instantaneous voltage. Middle: voltage versus time plots at three dendritic locations (soma, black; apical dendrite, green; apical tuft, red; positions indicated by small colored dots on color map). Right: plot of peak voltage (black) as a function of distance from the soma for a path along the main apical dendrite to the end of the apical tuft bearing the red dot. The red line indicates the voltage profile at the end of the simulation; the instantaneous voltage displayed in the animations is more informative. The data shown here are identical to those shown in Figure 1b, left, but they can be animated. To animate this simulation, open Supplementary Video 1, nn1599-S6.gif, in a web browser.

(b) Response to activation of the strong dendritic excitability model cell 2 with 10% of PP synapses. Plots are as described for **a**. To animate this simulation, open Supplementary Video 2, nn1599-S7.gif, in a web browser.