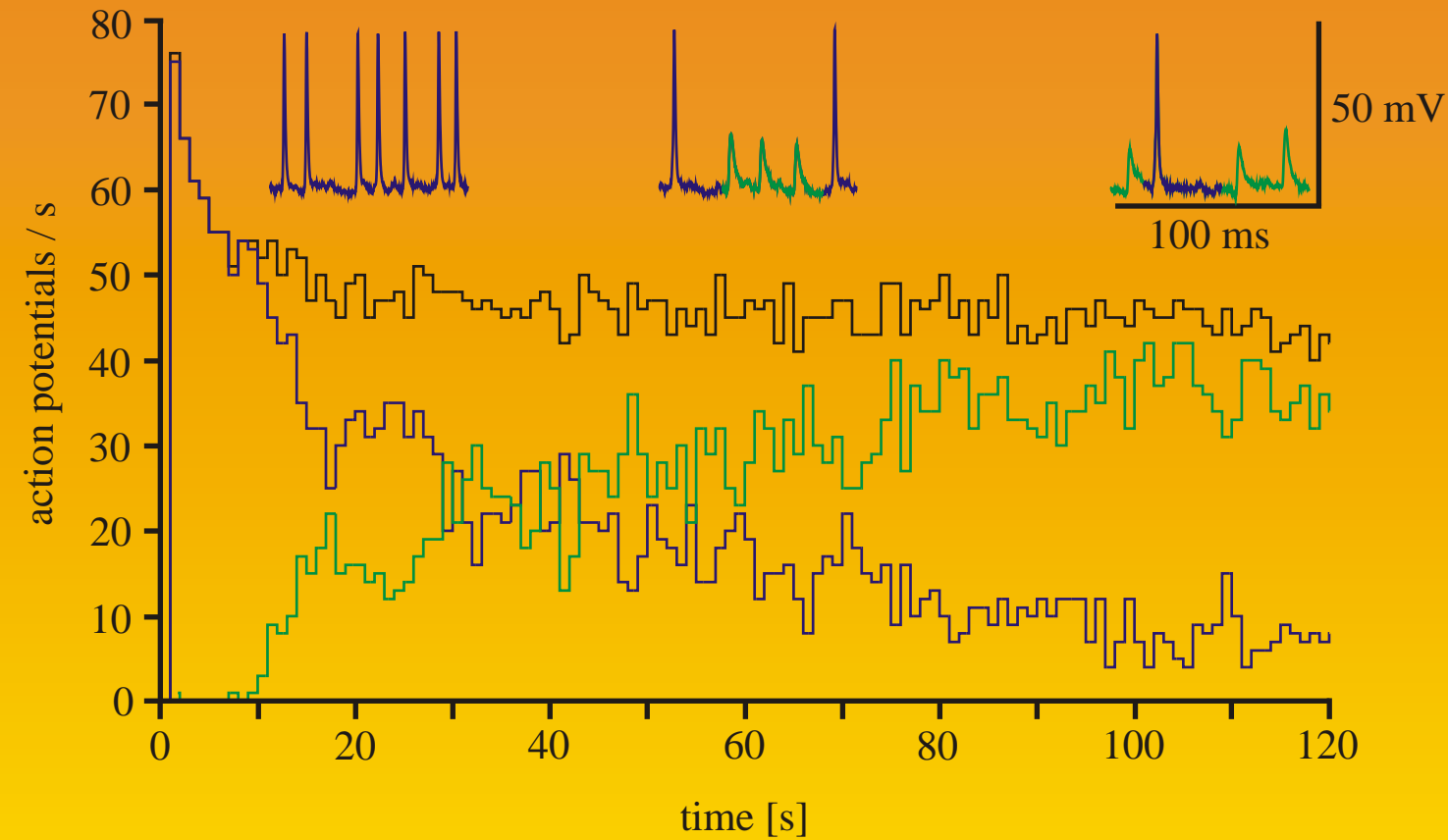


small action potentials



An unexpected phenomenon, the appearance of a second class of action potentials, was observed in four of the 50 experimental preparations. These small action potentials had reliable amplitude compared with normal action potentials (18.2 mV vs 63.7 mV) and steadily replaced the normal action potentials as the stimulus continued. The combined firing rate for normal and small action potentials followed a similar time course of slow adaptation to the other experiments. The histograms show action potential frequencies plotted versus stimulus duration. The white plot accounts for all action potentials, while the plots in red and yellow differentiate between full scale action potentials (red) and “dendritic” action potentials (yellow). Inserts show actual recordings taken during the experiment (t= 10s, 60s, and 100s).

The small action potentials could be of dendritic origin. We have evidence that action potentials are already generated in the dendrite. Here for some reason some of those “dendritic action potentials” failed to trigger full scale somatic action potentials”.