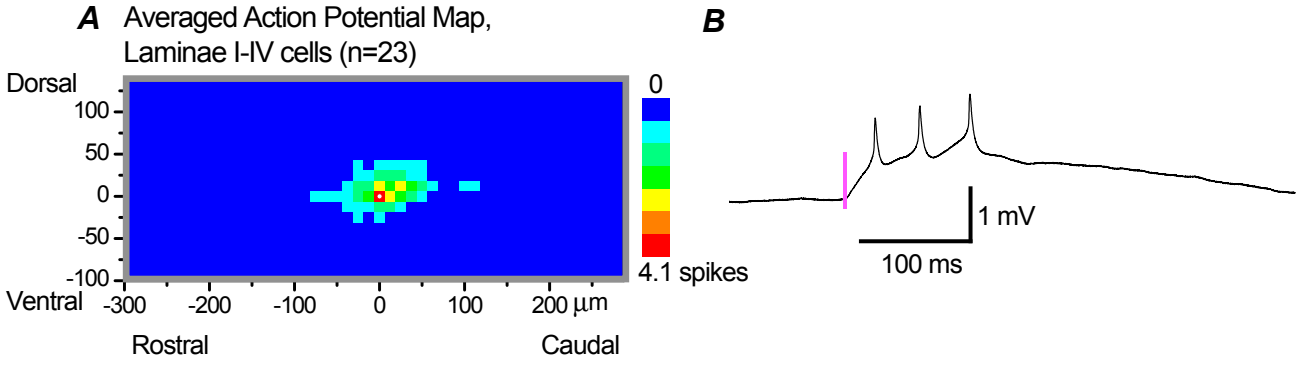


**Supplemental Figure**

***A***, Action Potential Map, for determining the spatial resolution of the synaptic mapping with LSPS. The spatial resolution of the synaptic mapping is determined by the size of the area surrounding the photostimulus from which neurons can be activated to threshold, since the evoking of synaptic responses requires the firing of action potentials in the presynaptic neurons. The size of this area is determined by recording from single neurons in current-clamp mode while mapping the locations of stimulus sites that are effective for evoking action potentials. Such action potential mapping data were obtained for a sample of superficial and deep dorsal horn neurons, and analyzed quantitatively, in our first LSPS study, Kato et al. (2007), in the rat. Above is shown an averaged map from similar data obtained in parasagittal slices of the mouse, for a sample of dorsal horn neurons in laminae I-IV (n=23). The small white circle marks the soma location. The stimulus grid size used for this action potential mapping was 12.5 x 12.5 µm. The recordings for this mapping were done in cell-attached mode. ***B,*** Sample recording of photostimulation-evoked action potentials, in cell-attached mode. The 3-ms stimulus is indicated by the pink vertical line.