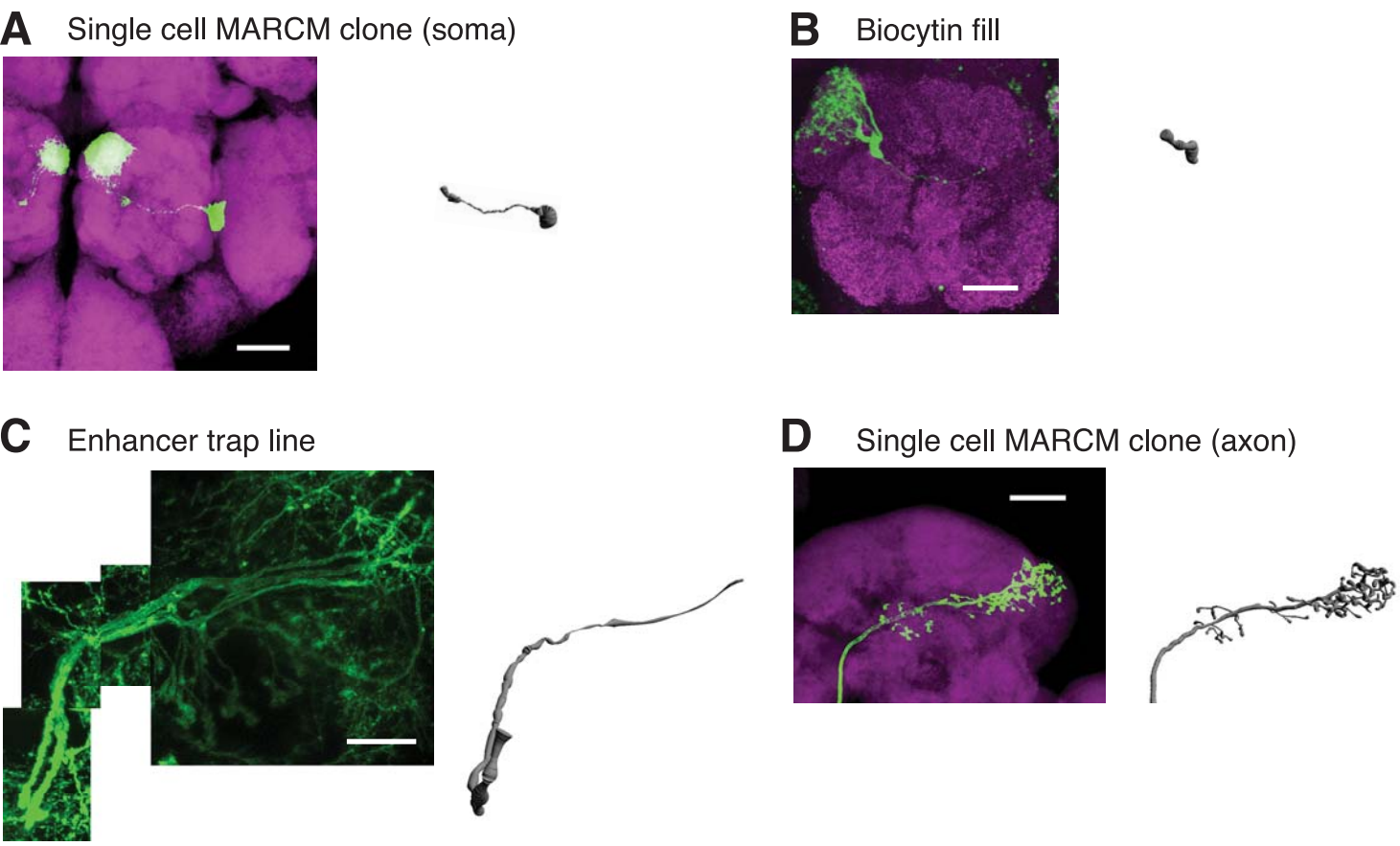
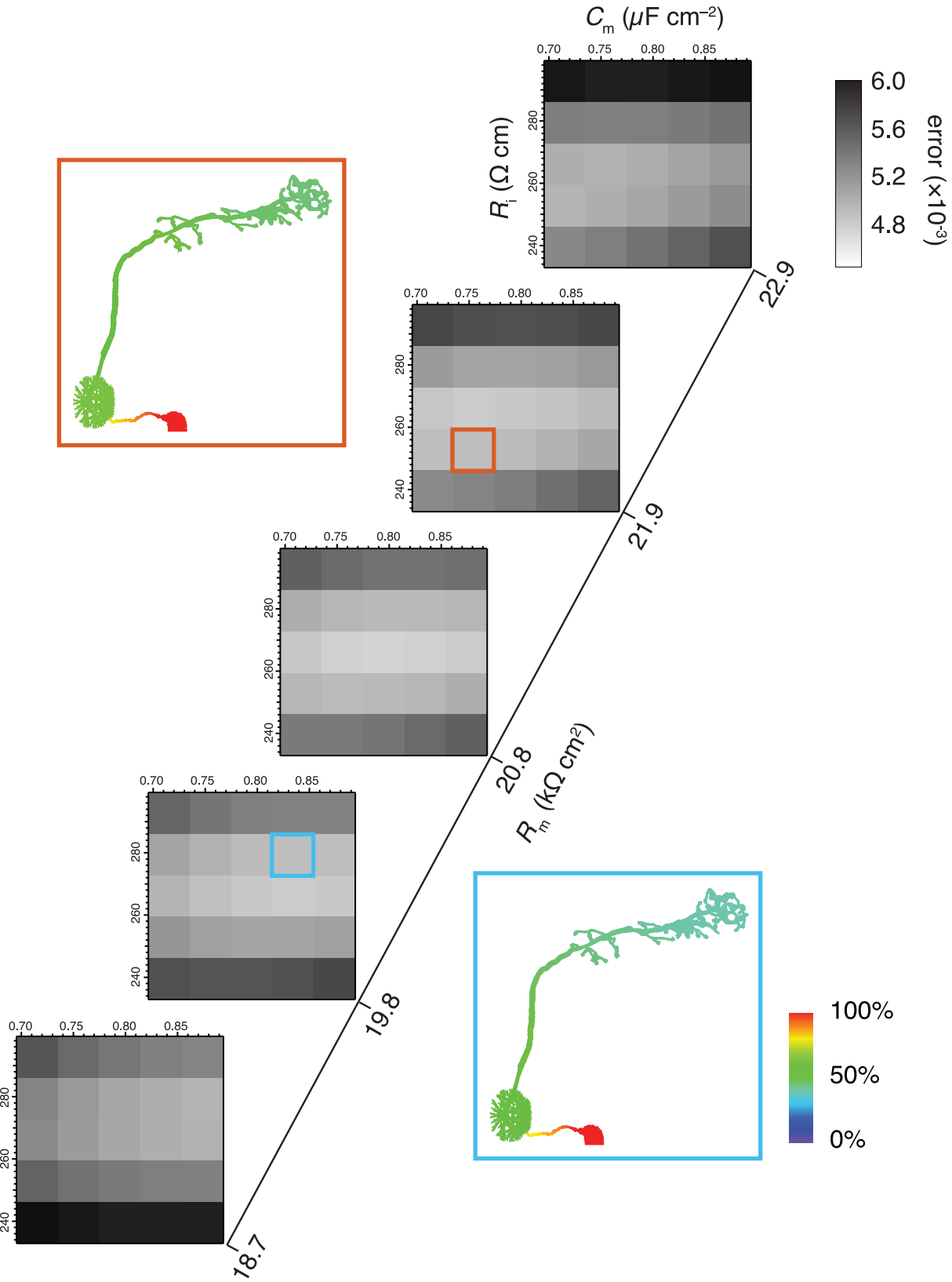


Supplemental Figure 1. Reconstruction of subcellular regions of the projection neuron. In all panels, the source confocal image is on the left and the 3D reconstruction is on the right. The biocytin (***B***) or CD8 (others) channel is shown in green, and the nc82 channel is in magenta. All images are maximum projections except the nc82 channels of ***A*** and ***D***, which are mean projections. ***A***, Reconstruction of the soma and primary neurite. Scale bar is 30 μm. Image from Jefferis et al. (2007). ***B***, Reconstruction of the initial segments of the dendrite and axon. Scale bar is 30 μm. ***C***, Reconstruction of the middle segment of the axon. Scale bar is 20 μm. ***D***, Reconstruction of the axon terminals. Scale bar is 30 μm. Image from Jefferis et al. (2007).



Supplemental Figure 2. The fit error as a function of R_m, R_i, and C_m displayed as a volume. Lighter shades of gray indicate less error in the fit. Each parameter was varied by up to ±10% of the values returned by the best-fitting algorithm. The data set to which the model was compared is from Cell 3 (Fig. 4). The morphology used was Dendrite 2 (Fig. 4). Two example plots of steady-state voltage attenuation from the soma are shown. The corresponding location in parameter space is indicated by the similarly-colored square in the plot of the error function.