L1
NGC-DA

L2/3
PC

L4
LBC

L5
TTPC

L6
TPC

‑ Node of Ranvier ⎯ Myelin ⎯ Unmyelinated Axon ⎯ Apical Dendrite ⎯ Basal Dendrite • Soma

Figure S1. Morphology of model human cortical neurons. 3D reconstructions of morphological cell types used in this study. Each row contains the 5 clones of each cell type drawn from the layer indicated on the left. Adult human versions shown here, with morphologies colored to indicate nodes of Ranvier (red), myelin (black), and unmyelinated axonal sections (yellow), as well as apical dendrites (blue) and basal dendrites (green). Scale bars = 250 μm.
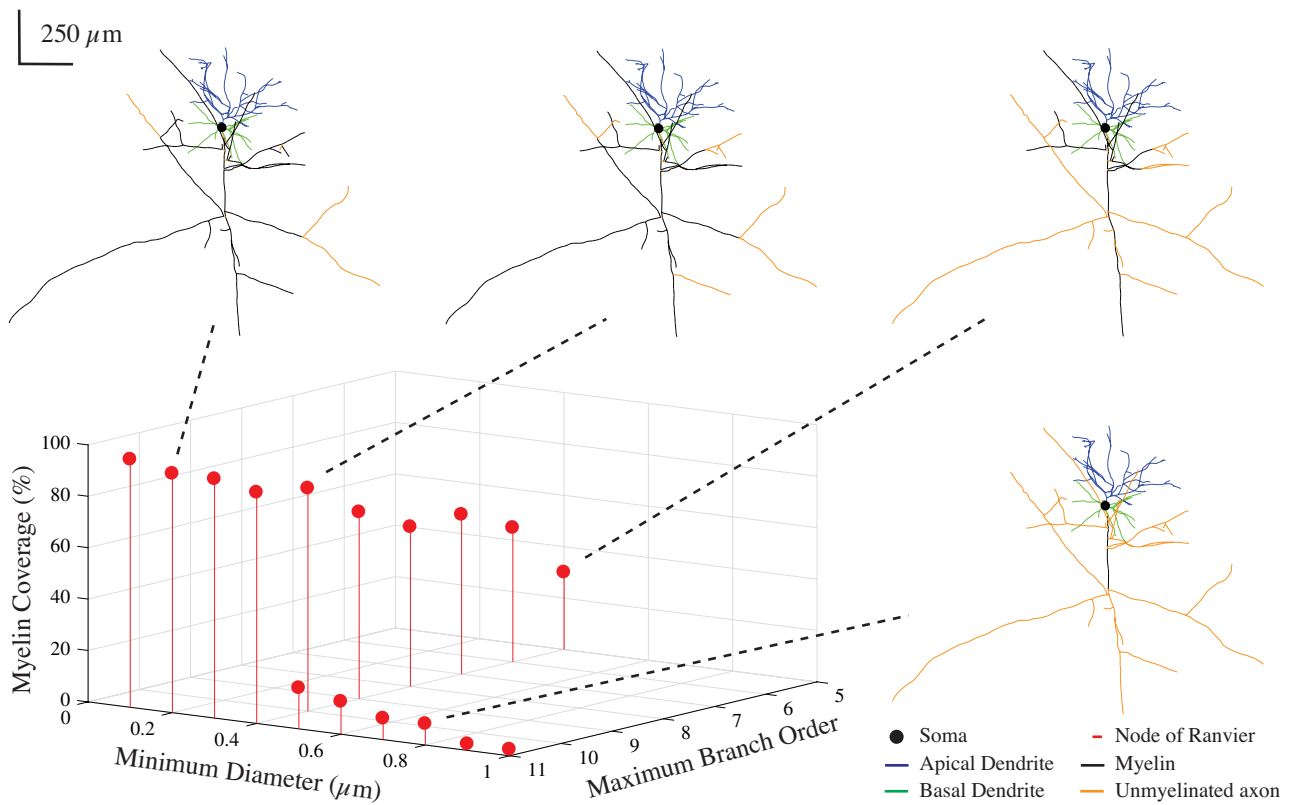
Figure S2. Method for scaling myelin coverage. Percent myelin coverage (by surface area) for example L2/3 pyramidal cell model as the minimum myelinated axon diameter and maximum branch order are varied. These two parameters were controlled to generate the patterns of myelination used in Fig. 6, which includes all unique values of percent myelin coverage shown here.
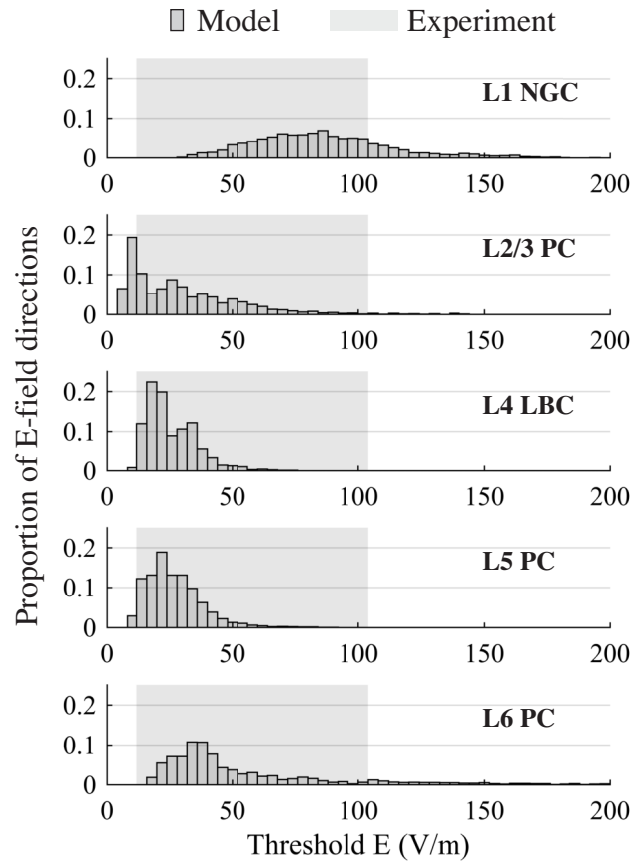
Figure S3. Thresholds for 100 ms, uniform E-field stimulation agree with *in vitro* experiments. Histograms of simulated threshold amplitudes for 100 ms, uniform E-field stimulation across all E-field directions for each cell type (5 clones per cell type). Shaded region indicates range of minimum E-field intensities at which excitatory post-synaptic potentials (EPSPs) were observed in [6].