



Supplementary Figure 1. Comparison between cortico-cortical (CC) projecting and cortico-thalamic (CT) projecting cells. **a and b**, Examples of recordings from the soma (black) and dendrite (red) of CC and CT projecting cells using the criterion described in Kumar and Ohana (2008) on the basis of the firing frequency of the first 2-4 APs. Cells which responded with a high frequency burst following injection of a long, steady-state current at the soma at twice rheobase were defined as cortico-cortical (CC) others as cortico-thalamic (CT) projecting cells. **c**, Attenuation of steady state hyperpolarizing long current injection as a function of distance from soma (also see Fig. 1). For **c-l** CC cells are represented with filled circles or bars, CT cells with open circles or bars, dendritic recordings in red and somatic recordings in black. **d**, Sag at the soma and at the dendrite as a function of distance from soma. **e**, Ratio of somatic to dendritic sag as a function of distance. **f**, Average membrane time constant (τ) for soma (black) and dendrite (red) of CC (filled bars) and CT (open bars) projecting cells. Statistically different values, indicated with asterisks, were obtained using a paired t-test (for CC $n = 14$; $p = 4.10^{-6}$, for CT $n = 5$). **g**, Average input resistance (R_{input}). Asterisks indicate statistically different values, which were obtained using a paired t-test ($n = 14$; $p = 8.910^{-4}$). Hash signs indicate statistically different values, which were obtained using a two sample unequal variance t-test ($n = 14$ and $n = 5$ for CC and CT, respectively; $p = 0.023$). **h, i and j**, Dendritic amplitude (h), half width (i) and latency (j) of back propagating APs as a function of distance from soma. **k**, Distribution of critical frequencies of CC and CT neurons measured via the after depolarization (ADP) at the soma (see also Figure 6). There is no statistically significant difference between the two groups using a two sample unequal variance t-test ($n = 14$ and $n = 5$ for CC and CT, respectively; $p = 0.477$). **l**, Threshold for single (gray circles) and two component (red circles) dendritic spikes in CC versus CT cells as a function of distance from the soma (see also Figure 8).