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## **Supplemental Information**

### **Enhanced Dendritic Compartmentalization**

#### **in Human Cortical Neurons**

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Sex	Age	Handedness	Age at epilepsy onset	Diagnosis	Seizure frequency (per month)	Antiepileptic drugs (pre-surgery)	Brain region
M	26	R	21	Hippocampal Sclerosis and low-grade neuronal lesion	0.5 - 1	LEV, LTG, CBZ	R ATL
M	37	R	1	Hippocampal Sclerosis	1-2	LTG, LEV, LCM	L ATL
M	20	L	17	Moderate gliosis of the end folium (CA4) and the pyramidal cell layer (CA1)	12	LEV, VPA, BZD1	L ATL
M	32	R	29	Hippocampal Sclerosis	Daily	LCM, LTG	L ATL
M	28	R	13	Hippocampal Sclerosis	15; at least weekly	LEV, BZD2, OXC	R ATL
M	28	R	2	Hippocampal Sclerosis	2-3	CLB, LTG	L ATL
F	40	R	21	Hippocampal Sclerosis	4-5	LEV, LTG, BZD	R ATL
F	42	R	15	Hippocampal Sclerosis	3-4	LEV, LTG	R ATL
F	22	R	16	Hippocampal Sclerosis	~12	OXC	R ATL

**Table S1. Patient information, related to STAR Methods.**

Channel	Soma	Axon	Dendrite
Leak	1.5	1.5	2.0
HCN	4.0	1.5	$221 * (e^{3.75 * x / 450} - 1) / (e^{3.75} - 1) + 4$ for $x < 450$ 225 for $x \geq 450$
K <sub>M</sub>	0.08	133.22	17.0
K <sub>P</sub>	-	1888.51	$325 * (e^{-16 * x / 550} - 1) / (e^{-16} - 1) + 375$
K <sub>T</sub>	-	772.74	1150.0
Na <sub>P</sub>	-	58.35	-
Na <sub>T</sub>	3500.0	38961.8	$165 + 1335 * (e^{-15 * x / 500} - e^{-15}) / (1 - e^{-15})$ for $x < 500$ 165 for $500 \leq x < 575$ $165 * (1 - (x - 575) / 225)$ for $x > 575$
K <sub>V 3.1</sub>	3380.3	3737.99	-
SK	996.5	0.47	0.02
Ca <sub>LVA</sub>	5.57	8.13	15.57
Ca <sub>HVA</sub>	6.44	2.22	$127.5 * x / 150 + 50$ for $x \leq 150$ 177.5 for $150 < x \leq 650$ $127.5 * (1 - (x - 650) / 50) + 50$ for $650 < x \leq 700$ 50 for $x > 700$

**Table S2. Biophysical model parameters, related to Figure 7.**