

827 **Table S1. Electrophysiological characteristics of CA1 pyramidal neurons from 1 week-old CRND8 mice.**

	Tg-	Tg+
Resting membrane potential (mV)	-59.6 ± 0.5 (n = 9)	-60.2 ± 1.0 (n = 8)
Resting input resistance (MΩ)	212.9 ± 16.5 (n = 9)	211.9 ± 9.3 (n = 8)
Input resistance at -90 mV (MΩ)	137.9 ± 13.6 (n = 8)	161.6 ± 9.2 (n = 8)
Input resistance at -80 mV (MΩ)	1156.3 ± 13.7 (n = 8)	175.0 ± 8.6 (n = 8)
Input resistance at -70 mV (MΩ)	181.9 ± 14.2 (n = 8)	191.9 ± 7.9 (n = 8)
Input resistance at -60 mV (MΩ)	231.2 ± 23.5 (n = 8)	217.5 ± 8.7 (n = 7)
Anomalous rectification (MΩ/nA)	176.2 ± 27.5 (n = 9)	143.0 ± 8.9 (n = 8)
Sag (steady state/peak ratio)	0.76 ± 0.014 (n = 9)	0.77 ± 0.006 (n = 8)
Rheobase (pA)	34.7 ± 4.7 (n = 9)	36.0 ± 4.6 (n = 8)
Current threshold for 10 APs (pA)	123.6 ± 18.5 (n = 9)	96.7 ± 8.6 (n = 8)
fAHP amplitude (mV)	11.2 ± 1.2 (n = 9)	10.5 ± 1.5 (n = 8)

828 There was no significant difference in any of the above parameters (Mann Whitney test, P > 0.05).

829 **Table S2. Electrophysiological characteristics of CA1 pyramidal neurons from 1 month-old CRND8 mice.**

	Tg-	Tg+
Resting membrane potential (mV)	-63.8 ± 0.6 (n = 14)	-63.8 ± 0.7 (n = 16)
Resting input resistance (MΩ)	125.8 ± 4.0 (n = 14)	123.8 ± 5.1 (n = 16)
Input resistance at -90 mV (MΩ)	92.8 ± 3.9 (n = 14)	87.4 ± 5.5 (n = 16)
Input resistance at -80 mV (MΩ)	105.7 ± 3.7 (n = 14)	101.5 ± 5.4 (n = 16)
Input resistance at -70 mV (MΩ)	124.1 ± 3.9 (n = 14)	122.6 ± 5.8 (n = 16)
Input resistance at -60 mV (MΩ)	154.4 ± 8.5 (n = 12)	155.7 ± 8.7 (n = 14)
Anomalous rectification (MΩ/nA)	60.3 ± 3.3 (n = 14)	67.6 ± 3.7 (n = 16)
Sag (steady state/peak ratio)	0.83 ± 0.009 (n = 14)	0.83 ± 0.008 (n = 16)
Rheobase (pA)	59.8 ± 6.7 (n = 14)	64.1 ± 6.8 (n = 16)
Current threshold for 10 APs (pA)	129.5 ± 11.3 (n = 14)	136.7 ± 11.0 (n = 16)
fAHP amplitude (mV)	7.2 ± 0.84 (n = 14)	8.2 ± 1.2 (n = 16)
ADP amplitude (mV)	11.9 ± 1.1 (n = 14)	13.1 ± 0.8 (n = 16)
ADP latency (ms)	3.0 ± 0.07 (n = 14)	2.8 ± 0.8 (n = 16)
ADP decay time (ms)	19.3 ± 1.4 (n = 14)	20.5 ± 1.4 (n = 16)

830 There was no significant difference in any of the above parameters (Mann Whitney test, P > 0.05).

831 **Table S3. Neuromab primary antibodies.**

Target protein	Clone	Catalog number	Dilution
Kv 1.1	K20/78	75-007	1:100
Kv 1.2	K14/16	75-008	1:300
Kv 3.1b	N16b/8	75-041	1:300
Kv 4.2	K57/1	75-016	1:750
Kv 4.3	K75/41	75-017	1:300
Slo1	L6/60	75-022	1:300
Nav 1.1	K74/71	75-023	1:300
Nav 1.2	K69/3	75-024	1:300

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