

Figure	Structure	Age	Samples	Variable	3 genotype comparison					2 genotype comparison				Age comparison for HET mice		
					Test	P genotype	Post-test	P post-test HET vs WT	P post-test KO vs WT	P post-test KO vs HET	Test	P HET vs WT	P KO vs WT	P KO vs HET	Test vs P90	Test vs P30
Figure 1B,C	CC	P90	Coronal sections	CC thickness at different levels CC thickness at midline	Two-way RM ANOVA One-way ANOVA	0.0636 0.0109	x Tukey's	x 0.6284	x 0.0102	x 0.063	Two-way RM ANOVA Unpaired t test	0.2145 0.4122	0.0153 0.0045			
Figure 1E-G	CC	P90	Sagittal sections	Area Minimum caliper Maximum caliper	One-way ANOVA One-way ANOVA One-way ANOVA	0.0002 0.0243 0.1115	Tukey's Tukey's x	0.7676 0.4471 x	0.0003 0.0195 x	0.0012 0.1906 x	Unpaired t test Unpaired t test Unpaired t test	0.573 0.24 0.4786	0.0004 0.0163 0.1458			
Figure 2A	CC	P30	Sagittal sections	Area Minimum caliper Maximum caliper	One-way ANOVA One-way ANOVA One-way ANOVA	0.0015 0.0407 0.007	Tukey's Tukey's Tukey's	0.0822 0.64 0.994	0.001 0.0358 0.0157	0.0971 0.1849 0.0128	Unpaired t test Unpaired t test Unpaired t test	0.0531 0.4381 0.9184	0.0002 0.0059 0.0022			
Figure 2B	CC	P7	Sagittal sections	Area Minimum caliper Maximum caliper	One-way ANOVA One-way ANOVA One-way ANOVA	0.9582 0.9212 0.6897	x x x	x x x	x x x	x x x	Unpaired t test Unpaired t test Unpaired t test	0.956 0.7405 0.4657	0.7816 0.9858 0.4518			
Figure 2D,E	CC	P2	Coronal sections	CC thickness at different levels CC thickness at midline	Two-way RM ANOVA One-way ANOVA	0.2762 0.3681	x x	x x	x x	x x	Two-way RM ANOVA Unpaired t test	0.1673 0.1797	0.458 0.8182			
Figure 2G,H	CC	E17.5	Coronal sections	CC thickness at different levels CC thickness at midline	Two-way RM ANOVA Kruskal-Wallis	0.0055 0.0076	Tukey's Dunn's	0.0057 0.0105	0.0314 0.3143	0.6736 0.5831	Two-way RM ANOVA Mann Whitney	0.0046 0.0022	0.0329 0.132			
Figure 3B,D	AC	P90	Horizontal sections Sagittal sections	Aca thickness AC area	One-way ANOVA One-way ANOVA	0.0164 <0.0001	Tukey's Tukey's	0.0643 0.1629	0.7779 0.002	0.0173 <0.0001	Unpaired t test Unpaired t test	0.0286 0.0571	0.5459 0.0051			
Figure 3E	AC	P30	Sagittal sections	Area	Kruskal-Wallis	0.0139	Dunn's	<0.9999	0.1197	0.0242	Mann Whitney	0.5887	0.0411			
Figure 3F	AC	P7	Sagittal sections	Area	One-way ANOVA	0.91	x	x	x	x	Unpaired t test	0.7355	0.6983			
Figure 3G	AC	E17.5	Sagittal sections	Area	One-way ANOVA	0.0087	Tukey's	0.9062	0.0115	0.0219	Unpaired t test	0.3076	0.0187			
Figure 4B-D,F	CC	P30	Ultra-thin sections	Axon diameter G-ratio % of axons with mitochondria % of myelinated fibers	Kruskal-Wallis Kruskal-Wallis One-way ANOVA One-way ANOVA	<0.0001 0.0114 0.0096 0.0612	Dunn's Dunn's Tukey's x	0.1691 0.0488 0.0298 x	<0.0001 0.0181 0.6085 x	<0.0001 >0.9999 0.0099 x	Mann Whitney Kolmogorov-Smirnov test Mann Whitney Unpaired t test Unpaired t test	0.0487 0.1314 0.0271 0.0429 0.0135	<0.0001 <0.0001 0.0065 0.183 0.3735	<0.0001		
Figure 4E	CC	P30	Ultra-thin sections	G-ratio as a function of axon diameter							Linear regression/Slope Linear regression/Elevation	0.5891 <0.0001	0.9058 0.6072	0.6916 0.0005		
Figure 5B-D,F	Aca	P30	Ultra-thin sections	Axon diameter G-ratio % of axons with mitochondria % of myelinated fibers	Kruskal-Wallis Kruskal-Wallis One-way ANOVA One-way ANOVA	<0.0001 <0.0001 0.0053 0.0818	Dunn's Dunn's Tukey's x	0.0009 <0.0001 0.0043 x	<0.0001 >0.9999 0.1144 x	0.2313 <0.0001 0.0609 x	Mann Whitney Kolmogorov-Smirnov test Mann Whitney Unpaired t test Unpaired t test	0.0003 0.0004 <0.0001 0.0007 0.1218	<0.0001 <0.0001 0.4641 0.07 0.2456	0.1692		
Figure 5E	Aca	P30	Ultra-thin sections	G-ratio as a function of axon diameter							Linear regression/Slope Linear regression/Elevation	0.0024 x	0.8909 0.0913	0.0003 x		
Figure 5H-J,L	Acp	P30	Ultra-thin sections	Axon diameter G-ratio % of axons with mitochondria % of myelinated fibers	Kruskal-Wallis Kruskal-Wallis One-way ANOVA Kruskal-Wallis	<0.0001 <0.0001 0.3239 0.0857	Dunn's Dunn's x x	>0.9999 0.0519 x x	<0.0001 <0.0001 x x	<0.0001 <0.0001 x x	Mann Whitney Kolmogorov-Smirnov test Mann Whitney Unpaired t test Unpaired t test	0.4592 0.8077 0.0169 0.2852 0.4	<0.0001 <0.0001 <0.0001 0.229 0.1	0.0004		
Figure 5K	Acp	P30	Ultra-thin sections	G-ratio as a function of axon diameter							Linear regression/Slope Linear regression/Elevation	0.9198 0.0047	<0.0001 x	<0.0001 x		
Figure 6B,E	Aca	P7	Ultra-thin sections	Axon diameter	Kruskal-Wallis	0.0023	Dunn's	>0.9999	0.0402	0.0023	Mann Whitney Kolmogorov-Smirnov test	0.3686 0.5806	0.0132 0.0008	<0.0001		
Figure 6C,F	Acp	P7	Ultra-thin sections	Axon diameter	Kruskal-Wallis	0.4803	x	x	x	x	Mann Whitney Kolmogorov-Smirnov test	0.4411 0.4553	0.6967 0.8021	0.4676		
Figure 6D,G	CC	P7	Ultra-thin sections	Axon diameter	Kruskal-Wallis	<0.0001	Dunn's	<0.0001	0.0019	<0.0001	Mann Whitney Kolmogorov-Smirnov test	<0.0001 <0.0001	<0.01 0.0144	<0.0001		

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Figure 7B,C	Somatosensory cortex	P10-P12	Acute coronal slices	Firing Resting membrane potential	Two-way RM ANOVA One-way ANOVA	0.0001 0.8806	Šidak's x	0.0002 x	0.0031 x	0.8085 x	Unpaired t test	0.6819	0.6646			
Figure 8B	Brain	E17.5 P2 P7 P10 P15 P30 P90	Protein extracts	Caspr2							Mann Whitney Unpaired t test Mann Whitney Unpaired t test Unpaired t test Unpaired t test Mann Whitney	0.0022 <0.0001 0.0022 <0.0001 <0.0001 <0.0001 0.0022				
Figure 8B	Brain	E17.5 P2 P7 P10 P15 P30	Protein extracts	Caspr2 in HET mice										Mann Whitney Mann Whitney Mann Whitney Mann Whitney Mann Whitney		0.0411 0.0087 0.0022 0.0022 0.9372 0.3939
Figure 8C	Brain	E17.5 P7 P10 P30	mRNAs	Cntnap2 mRNAs							Unpaired t test Unpaired t test Unpaired t test Unpaired t test	0.0194 0.0107 0.0065 0.0001				
Figure 8C	Brain	E17.5 P7 P10	mRNAs	Cntnap2 mRNAs in HET mice											Unpaired t test Unpaired t test Unpaired t test	0.6052 0.1471 0.0564
Figure 8D	Brain	E17.5 P2 P7 P10 P15 P30 P90	Protein extracts	TAG-1	Kruskal-Wallis One-way ANOVA One-way ANOVA One-way ANOVA One-way ANOVA One-way ANOVA Kruskal-Wallis	0.7552 0.2164 0.0008 0.0062 0.0005 0.0001 <0.0001	x x Tukey's Tukey's Tukey's Dunn's	x x 0.9664 0.0909 0.9386 0.0122 0.5831	x x 0.0024 0.0048 0.002 0.0001 0.0011	x x 0.0015 0.3142 0.002 0.0001 0.0694	Mann Whitney Unpaired t test Unpaired t test Unpaired t test Unpaired t test Unpaired t test Mann Whitney	0.6991 0.7438 0.8029 0.0698 0.7514 0.0215 0.0649	0.9372 0.0727 0.0027 0.0003 0.0003 0.0001 0.0022			
Figure 9B,C	Sciatic nerve	Adult	Ultra-thin sections	Axon diameter G-ratio	Kruskal-Wallis Kruskal-Wallis	<0.0001 <0.0001	Dunn's Dunn's	0.0025 0.0001	<0.0001 0.0274	<0.0001 >0.9999	Mann Whitney Mann Whitney	0.0013 0.0001	<0.0001 0.0001			
Figure 9D	Sciatic nerve	Adult	Ultra-thin sections	G-ratio as a function of axon diameter							Linear regression/Slope Linear regression/Elevation	0.1755 0.1443	0.146 0.1443	0.0109 x		
Figure 9F	Sciatic nerve	Adult	Teased fibers	Node length	Kruskal-Wallis	<0.0001	Dunn's	0.0207	<0.0001	<0.0001	Mann Whitney	0.0019	<0.0001			
Figure 9G	Sciatic nerve	Adult	Teased fibers	Node length as a function of axon diameter Node diameter	Kruskal-Wallis	0.5342	x	x	x	x	Linear regression/Slope Linear regression/Elevation Mann Whitney	0.4858 0.0052 0.2644	0.0315 x 0.8038	0.2559 0.0001		
Figure 9H		Adult	Grid-walking test	Grid-walking test	One-way ANOVA	0.0011	Tukey's	0.0009	0.3716	0.0256	Unpaired t test	0.0008	0.1882			
Figure S1B,C	Somatosensory cortex	E17.5	Coronal sections	Number of Ctip2 <sup>+</sup> cells/mm <sup>3</sup> Number of Satb2 <sup>+</sup> cells/mm <sup>3</sup>	One-way ANOVA One-way ANOVA	0.8247 0.8148	x x	x x	x x	x x	Unpaired t test Unpaired t test	0.9662 0.411	0.6395 0.8468			
Figure S1D	Somatosensory cortex	E17.5	Coronal sections	Cortex thickness	Two-way RM ANOVA	0.2281	x	x	x	x	Two-way RM ANOVA	0.1866	0.889			
Figure S2B	Brain	P10 P15 P30 P90	Protein extracts	MBP MBP MBP MBP	One-way ANOVA Kruskal-Wallis One-way ANOVA One-way ANOVA	0.3444 0.812 0.0248 0.7331	x x Tukey's x	x x 0.593 x	x x 0.0323 x	x x 0.0602 x	Unpaired t test Mann Whitney Unpaired t test Unpaired t test	0.1833 0.4848 0.7804 0.5419	0.1581 >0.9999 0.0042 0.4308			
Figure S2C	Brain	P30 P90 P30 P90	Protein extracts	PLP PLP MAG MAG	Kruskal-Wallis Kruskal-Wallis Kruskal-Wallis Kruskal-Wallis	0.0327 0.4657 0.0452 0.2761	Dunn's x Dunn's x	>0.9999 x >0.9999 x	0.1197 x 0.0916 x	0.0602 x 0.1197 x	Mann Whitney Mann Whitney Mann Whitney Mann Whitney	0.8182 0.4848 0.9372 0.0931	0.0411 0.8182 0.0411 0.6991			
Figure S2E	CC CC Neocortex Neocortex	P30 P30 P30 P30	Protein extracts	MBP MAG MBP MAG	Kruskal-Wallis One-way ANOVA One-way ANOVA One-way ANOVA	0.6001 0.4457 0.0753 0.0201	x x x Tukey's	x x x 0.9188	x x x 0.0544	x x x 0.1114	Mann Whitney Unpaired t test Unpaired t test Unpaired t test	0.4848 0.6837 0.581 0.7502	0.3939 0.3957 0.0169 0.0029			