

Supplementary Table 1. Key Resources

Experimental Models: Mouse lines

Organism	Source	Species	Identifier
STOCK Tg(Mobp-EGFP) IN1Gsat/Mmucd	MMRRC	Mus musculus	RRID:MMRRC_030483- UCD
FVB.Cg-Tg(Cspg4-EGFP*)HDbe/J	Jackson Laboratory	Mus musculus	RRID:IMSR_JAX:022735
B6;129S6- Gt(ROSA)26Sortm14(CAG- tdTomato)Hze/J	Jackson Laboratory	Mus musculus	RRID:IMSR_JAX:007908
Olig2tm1(cre/Esr1*)Htak/Olig2tm1 (cre/Esr1*)Htak	RBRC	Mus musculus	RRID:MGI:5426962

Recombinant DNA

Virus	Source	Identifier
AAV9-MBP-eGFP	gift from Dr. Thomas McCown	This paper

Software and Algorithms

Name	Source	Identifier
ZEN Blue/Black	Zeiss	RRID:SCR_013672
ImageJ	https://imagej.nih.gov/ij/	RRID:SCR_003070
Fiji	http://fiji.sc	RRID:SCR_002285
Adobe Illustrator CS6	Adobe	RRID:SCR_014198
Origin 8.0	OriginLab Corp.	RRID:SCR_014212
Imaris	Bitplane	RRID:SCR_007370

Supplementary Table 2. Key Resources (Primary and Secondary antibodies)

Primary antibodies

Target Proteins (or markers)	Host species	Source	Dilution	Catalog number	Identifier
Aspartoacylase (ASPA)	Rabbit	Genetex	1:1500	GTX113389	RRID:AB_2036283
Caspr	Guinea pig	gift from M. A. Bhat	1:1500	n/a	Bhat et al., 2001; PMID: 11395000
CNPase	Rabbit	Cell Signaling	1:500	5664	RRID:AB_10705523
EGFP	Goat	SICGEN	1:150	AB0020-200	RRID:AB_2333099
EGFP	Chicken	Aves lab	1:1500	GFP-1020	RRID:AB_10000240
dsRed	Rabbit	CloneTech	1:500	632496	RRID:AB_10013483
MBP	Mouse	Sternberger Monoclonal	1:2000	808401	RRID:AB_2564741
NaV Pan	Mouse	Sigma-Aldrich	1:1000	S8809	RRID:AB_477552
Neurofilament	Mouse	Covance	1:1000	SMI-31R	RRID:AB_10122491
NG2	Guinea pig	Generated in D.E. Bergles lab against entire NG2 protein	1:4000	n/a	Kang et al., 2013; PMID: 23542689
PDGFaR	Rabbit	Cell Signaling	1:500	3174S	RRID:AB_2162345

Secondary antibodies

Target species	Conjugate	Source	Dilution	Catalog number	Identifier
Anti-Rabbit	Alexa 488	Jackson Immuno	1:500	711-546-152	RRID:AB_2340619
Anti-Rabbit	Cy3	Jackson Immuno	1:500	711-166-152	RRID:AB_2313568
Anti-Rabbit	Cy5	Jackson Immuno	1:500	711-606-152	RRID:AB_2340625
Anti-Mouse	Alexa 488	Jackson Immuno	1:500	715-546-150	RRID:AB_2340849
Anti-Mouse	Cy3	Jackson Immuno	1:500	715-166-151	RRID:AB_2340817
Anti-Mouse	Cy5	Jackson Immuno	1:500	715-175-151	RRID:AB_2340820
Anti-Guinea Pig	FITC	Jackson Immuno	1:500	706-096-148	RRID:AB_2340454
Anti-Guinea Pig	Cy3	Jackson Immuno	1:500	706-166-148	RRID:AB_2340461
Anti-Guinea Pig	Cy5	Jackson Immuno	1:500	706-606-148	RRID:AB_2340477
Anti-Goat	Alexa 488	Jackson Immuno	1:500	705-546-147	RRID:AB_2340430
Anti-Goat	Cy3	Jackson Immuno	1:500	705-166-147	RRID:AB_2340413
Anti-Chicken	Alexa 488	Jackson Immuno	1:500	703-546-155	RRID:AB_2340376

*All secondary antibodies are F(ab')₂ fragments purified from donkey.