

Table S1 Primary antibodies sequentially stained and their conditions of reaction

Round	1	2	3	4	5	6	7
Primary antibody	NG2	CC1	PDGFR α	Olig1	Iba1	GFAP	Ki67
Supplier	Abcam	Calbiochem	Cell Signaling	Millipore	Wako	Millipore	Abcam
Catalog number	ab129051	OP80	3174	MAB5540	019-19741	MAB360	ab16667
Immune animal	Rabbit	Mouse	Rabbit	Mouse	Rabbit	Mouse	Rabbit
Clone	Polyclonal	Monoclonal	Monoclonal	Monoclonal	Polyclonal	Monoclonal	Monoclonal
Concentration	1:200	1:50	1:200	1:250	1:200	1:600	1:100
Reaction	O/N	O/N	O/N	MW	MW	MW	MW
AEC (min)	30	20	30	25	15	5	5

O/N: overnight at 4°C

MW: microwaved for 15 min

Table S2 Statistical results of Fig. 2

Fig. No		Young Adult LAs Mean \pm SEM (%)	Young Adult ICs Mean \pm SEM (%)	Student's T-Test P-Value
2A	Immature OLs	6.48 \pm 0.62	10.04 \pm 0.47	0.010
2B	OPCs	2.78 \pm 0.37	5.03 \pm 0.44	0.018
2C	Premyelinating OLs	3.70 \pm 0.65	5.01 \pm 0.53	0.194
2D	Mature OLs	83.60 \pm 0.38	84.36 \pm 1.15	0.562
2E	Astrocytes	5.58 \pm 0.43	4.19 \pm 0.83	0.211
2F	Microglia	4.34 \pm 0.59	1.41 \pm 0.18	0.009

Table S3 Statistical results of Fig. 3

Fig. No		Aged LAs Mean \pm SEM (%)	Aged ICs Mean \pm SEM (%)	Student's T-Test P-Value
3A	Immature OLs	5.17 \pm 0.70	7.44 \pm 1.28	0.171
3B	OPCs	3.78 \pm 0.73	5.29 \pm 0.84	0.223
3C	Premyelinating OLs	1.40 \pm 0.20	2.15 \pm 0.48	0.196
3D	Mature OLs	84.77 \pm 0.17	85.80 \pm 1.22	0.433
3E	Astrocytes	5.85 \pm 0.70	4.78 \pm 0.53	0.264
3F	Microglia	4.20 \pm 0.52	1.98 \pm 0.60	0.031

Table S4 Statistical results of Fig. 4

Fig. No		Young Adult LAs Mean \pm SEM (%)	Aged LAs Mean \pm SEM (%)	Student's T-Test P-Value
4A	Immature OLs	6.48 \pm 0.62	5.17 \pm 0.70	0.238
4B	OPCs	2.78 \pm 0.37	3.78 \pm 0.73	0.329
4C	Premyelinating OLs	3.70 \pm 0.65	1.40 \pm 0.20	0.012
4D	Mature OLs	83.60 \pm 0.38	84.77 \pm 0.17	0.026
4E	Astrocytes	5.58 \pm 0.43	5.85 \pm 0.70	0.770
4F	Microglia	4.34 \pm 0.59	4.20 \pm 0.52	0.866
		Young Adult Mean \pm SEM	Aged Mean \pm SEM	Student's T-Test P-Value
4G	Number of Cells per LA	4.68 \pm 0.07	4.11 \pm 0.15	0.031
4H	Density of LAs (LAs/mm ²)	135.67 \pm 6.16	143.16 \pm 12.82	0.660
4I	Density of ICs (Cells/mm ²)	302.74 \pm 16.99	366.65 \pm 11.92	0.024

Table S5 Statistical results of Fig. S1

Fig. No		Young Adult ICs Mean \pm SEM (%)	Aged ICs Mean \pm SEM (%)	Student's T-Test P-Value
S1A	Immature OLs	10.04 \pm 0.47	7.44 \pm 1.28	0.157
S1B	OPCs	5.03 \pm 0.44	5.29 \pm 0.84	0.816
S1C	Premyelinating OLs	5.01 \pm 0.53	2.15 \pm 0.48	0.011
S1D	Mature OLs	84.36 \pm 1.15	85.80 \pm 1.22	0.444
S1E	Astrocytes	4.19 \pm 0.83	4.78 \pm 0.53	0.558
S1F	Microglia	1.41 \pm 0.18	1.98 \pm 0.60	0.466

Table S6 Statistics result of Fig. 5B

		Cell Density Mean \pm SEM (cells/0.18 mm ²)
Young Adult		310.33 \pm 11.05
+1w		905.00 \pm 16.04
+4w		572.33 \pm 44.67
+10w		584.50 \pm 18.91
+24w		535.00 \pm 31.02
Aged		316.00 \pm 15.96
		ANOVA Pr(>F)
		0.0000
		Tukey's Test P-Value
a	Young Adult vs +1w	0.0000
b	Young Adult vs +4w	0.0001
c	Young Adult vs +10w	0.0000
d	Young Adult vs +24w	0.0002
	Young Adult vs Aged	1.0000
e	+1w vs +4w	0.0000
f	+1w vs +10w	0.0000
g	+1w vs +24w	0.0000
h	+1w vs Aged	0.0000
	+4w vs +10w	0.9993
	+4w vs +24w	0.8970
i	+4w vs Aged	0.0000
	+10w vs +24w	0.6757
j	+10w vs Aged	0.0000
k	+24w vs Aged	0.0001

Table S7 Statistical results of Fig. 5C–I

Fig. No		+4w LAs Mean ± SEM (%)	+10w LAs Mean ± SEM (%)	+24w LAs Mean ± SEM (%)	ANOVA Pr(>F)	Tukey's Test P-Value		
						+4w vs +10w	+4w vs +24w	+10w vs +24w
5C	Immature OLs	7.28 ± 0.88	8.98 ± 0.64	6.15 ± 0.24	0.022	0.181	0.429	0.019
5D	OPCs	3.26 ± 0.34	2.80 ± 0.34	3.12 ± 0.69	0.824	0.823	0.981	0.897
5E	Premyelinating OLs	4.02 ± 0.78	6.18 ± 0.35	3.03 ± 0.49	0.006	0.054	0.440	0.006
5F	Mature OLs	61.42 ± 1.61	68.88 ± 1.12	76.08 ± 1.73	0.001	0.023	0.000	0.019
5G	Astrocytes	13.25 ± 0.66	15.46 ± 1.08	13.49 ± 1.78	0.480	0.536	0.992	0.561
5H	Microglia	18.05 ± 2.82	6.68 ± 0.95	4.28 ± 0.21	0.000	0.002	0.000	0.459
Fig. No		+4w LAs Mean ± SEM	+10w LAs Mean ± SEM	+24w LAs Mean ± SEM	ANOVA Pr(>F)	Tukey's Test P-Value		
						+4w vs +10w	+4w vs +24w	+10w vs +24w
5I	Number of Cells per LA	3.77 ± 0.08	4.23 ± 0.09	4.02 ± 0.09	0.022	0.018	0.183	0.252

Table S8 Statistical results of Fig. 6

Fig. No		+24w LAs Mean \pm SEM (%)	+24w ICs Mean \pm SEM (%)	Student's T-Test P-Value
6A	Immature OLs	6.15 \pm 0.24	5.65 \pm 0.39	0.314
6B	OPCs	3.12 \pm 0.69	1.56 \pm 0.28	0.083
6C	Premyelinating OLs	3.03 \pm 0.49	4.09 \pm 0.33	0.125
6D	Mature OLs	76.08 \pm 1.73	77.51 \pm 1.49	0.553
6E	Astrocytes	13.49 \pm 1.78	14.76 \pm 1.96	0.649
6F	Microglia	4.28 \pm 0.21	2.09 \pm 0.75	0.030

