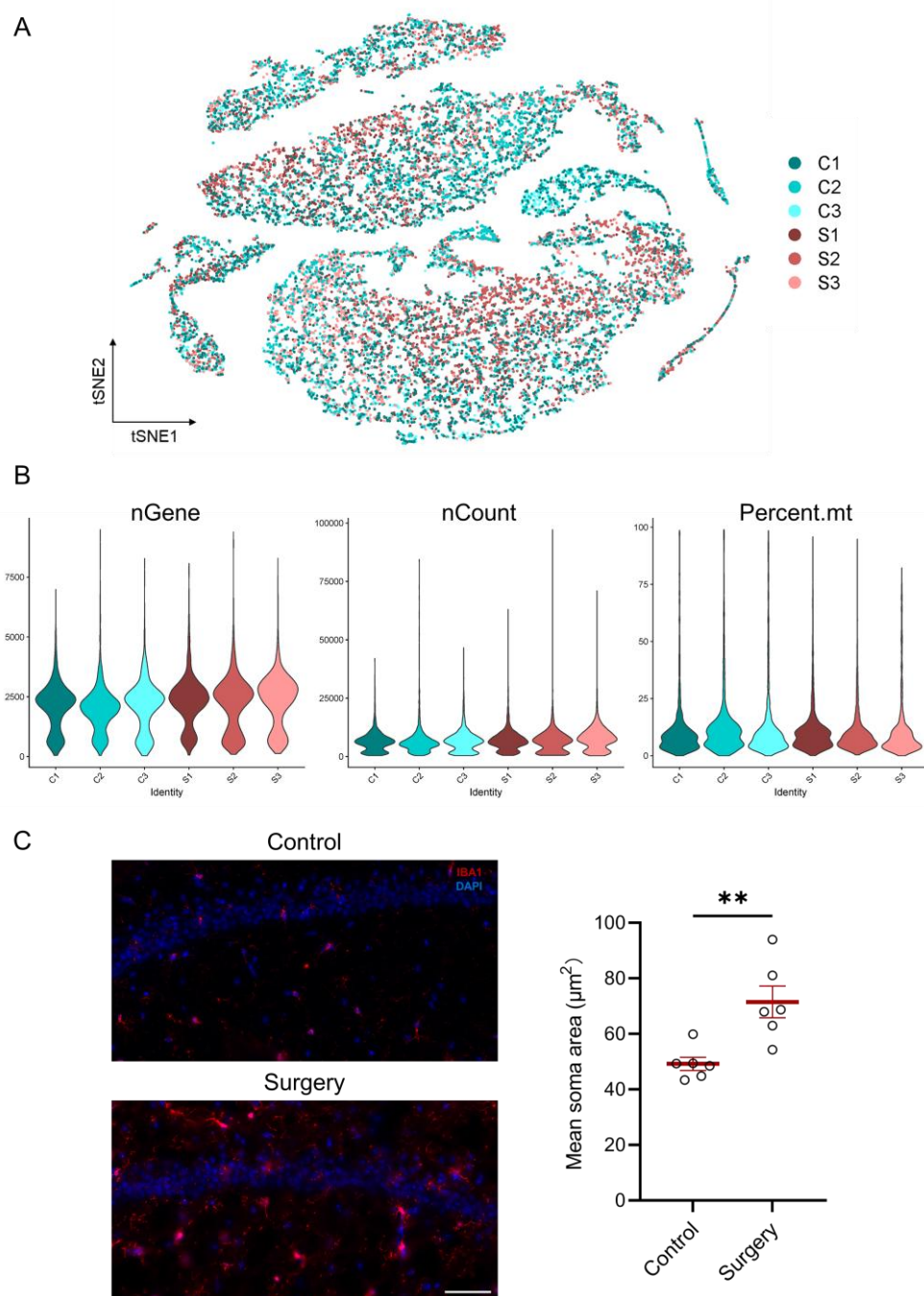


Figure S1 ScRNA-seq quality control metrics and morphological changes of microglia



(A) t-SNE plot showed single cells colored by sample origin (3 mice per group), and all clusters contained cells from both groups. Partial segregation within clusters was observed between surgery and control conditions. **(B)** Quality control metrics of scRNA-seq data. **(C)** Microglia from the surgery group exhibited enlarged soma size, indicative of an activated state. IBA1 (red), DAPI (blue). Scale bars, 50 μm . Results were presented as mean $\pm$ SEM (n=6). Two-tailed t-test, **p<0.01 vs. control group.

Table S1 Antibody Information

Antibody Target	Host Species	Clonality	Vendor (Company)	Catalog Number	Dilution Ratio	Application
IBA1	Rabbit	Monoclonal	Abcam	ab178846	1:1000	IF
GFAP	Rabbit	Monoclonal	Abcam	ab68428	1:200	IF
CD31	Rabbit	Monoclonal	Abcam	ab222783	1:200	IF
Goat Anti-Rabbit IgG (H+L)	Goat	Polyclonal	Elabscience	E-AB-1010	1:50	IF

Table S2 RNA FISH Probe Information

Target Gene	Probe Type	Fluorophore Label	Vendor (Company)	Probe sequence
Tnf	RNA FISH	5'-FAM	SAINTBIO	agttccacgtcgcgcatcatgcttctgtg
Tnfrsf1a	RNA FISH	5'-FAM	SAINTBIO	catcttgaaagcacgagggcccactacttc
Ccl2	RNA FISH	5'-FAM	SAINTBIO	gctctccagcctactcattgggatcatctt
Il1b	RNA FISH	5'-FAM	SAINTBIO	ttgctctgacttctatcttgttgaagaca
Tspo	RNA FISH	5'-FAM	SAINTBIO	caggccacggtagtggtgccgccgccccca
C1qa	RNA FISH	5'-FAM	SAINTBIO	ctaacacctgaaagagcccctgtgttgg
Egr1	RNA FISH	5'-FAM	SAINTBIO	tcagagatctgcagcggagacatcaattgc
Ifitm3	RNA FISH	5'-FAM	SAINTBIO	aagggtgctgatgttcaggcacttagcagtg
Icam1	RNA FISH	5'-FAM	SAINTBIO	tggcaccagaatgattatagtccagttatt