SUPPLEMENTAL INFORMATION

Control of hippocampal synaptic plasticity by microglia-dendrite interactions depends on genetic context in mouse models of Alzheimer's disease.

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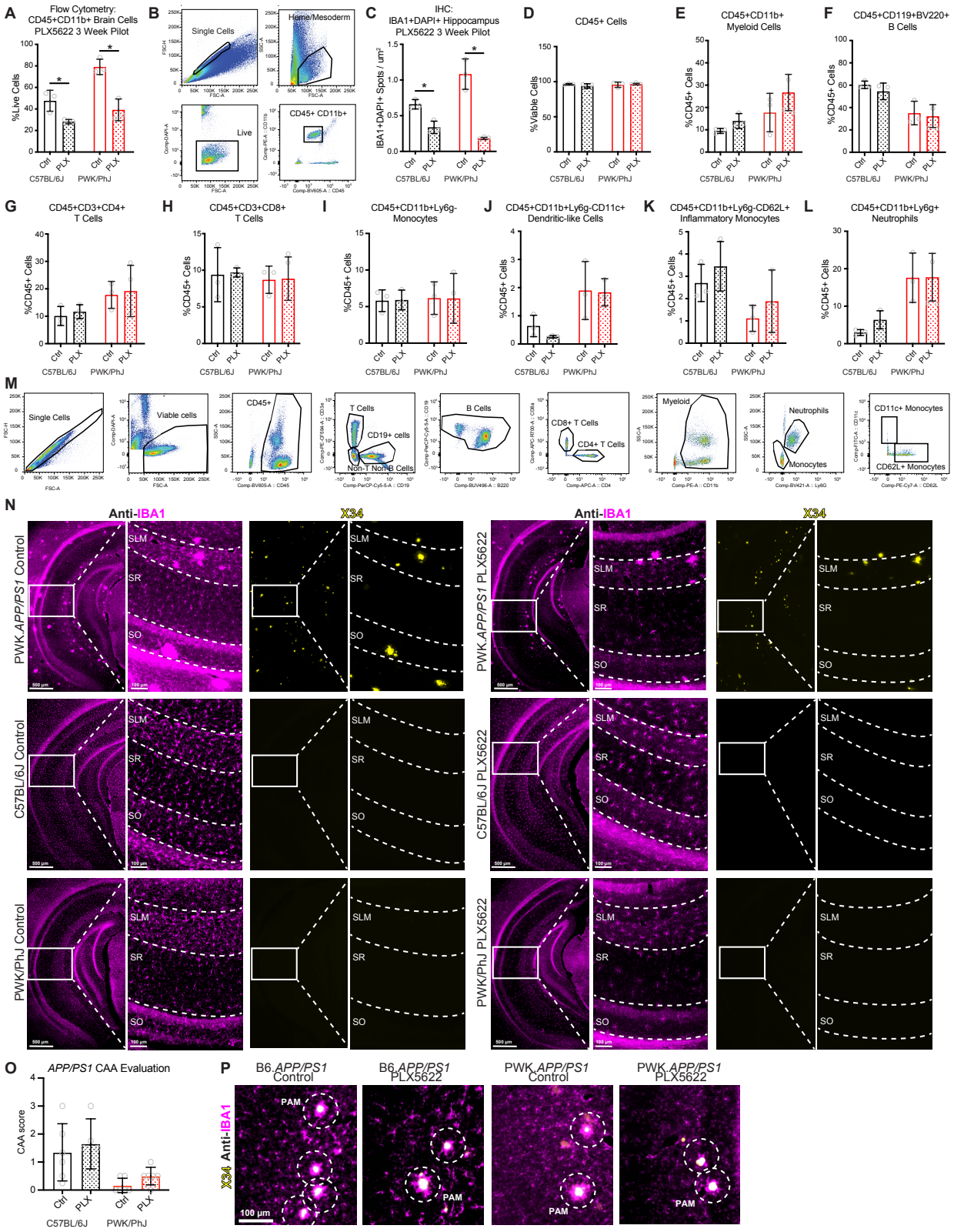
A
Flow Cytometry:
CD45+CD11b+ Brain Cells
PLX5622 3 Week Pilot
%Live Cells
Ctrl
PLX
C57BL/6J
PWK/PhJ
B
Single Cells
Heme/Mesoderm
Live
CD45+ CD11b+
C
IHC:
IBA1+DAPI+ Hippocampus
PLX5622 3 Week Pilot
IBA1+DAPI+ Spots / um2
D
CD45+ Cells
%Viable Cells
E
CD45+CD11b+
Myeloid Cells
%CD45+ Cells
F
CD45+CD119+BV220+
B Cells
G
CD45+CD3+CD4+
T Cells
H
CD45+CD3+CD8+
T Cells
I
CD45+CD11b+Ly6g-
Monocytes
J
CD45+CD11b+Ly6g-CD11c+
Dendritic-like Cells
K
CD45+CD11b+Ly6g-CD62L+
Inflammatory Monocytes
L
CD45+CD11b+Ly6g+
Neutrophils
M
Single Cells
Viable cells
CD45+
T Cells
CD19+ cells
Non-T Non-B Cells
B Cells
CD8+ T Cells
CD4+ T Cells
Myeloid
Neutrophils
Monocytes
CD11c+ Monocytes
CD62L+ Monocytes
N
Anti-IBA1
X34
PWK APP/PS1 Control
PWK APP/PS1 PLX5622
C57BL/6J Control
C57BL/6J PLX5622
PWK/PhJ Control
PWK/PhJ PLX5622
SLM
SR
SO
O
APP/PS1 CAA Evaluation
CAA score
P
B6 APP/PS1 Control
B6 APP/PS1 PLX5622
PWK APP/PS1 Control
PWK APP/PS1 PLX5622
X34 Anti-IBA1
PAM
100 µm

Figure S1: Evaluation of PLX5622-mediated microglia depletion across B6 and PWK mice, related to Figure 1.

(A-B) Flow cytometric analysis (A) and gating strategy (B) of CD45+CD11b+ cells isolated from brain hemispheres of B6 and PWK mice treated for 3 weeks with Control diet or PLX5622 diet. Data presented as percent (%) of live cells. Two-way ANOVA detected significant ($p<0.05$) treatment, strain, and interactions.

(C) Immunohistochemical analysis of CA1 anti-IBA1 fluorescence from B6 and PWK mice treated for 3 weeks with Control control or PLX5622 diet. Two-way ANOVA detected significant ($p<0.05$) treatment and interactions.

(D-M) Flow cytometric analysis of peripheral blood from B6 and PWK female mice treated with Control diet or PLX5622 diet for 3 weeks. Blood cell populations were quantified: CD45+ cells (D), CD45+CD11b+ myeloid cells (E), CD45+CD19+BV220+ B cells (F), CD45+CD3+CD4+ helper T cells (G), CD45+CD3+CD8+ cytotoxic T cells (H), CD45+CD11b+Ly6g- monocytes (I), CD45+CD11v+Ly6g-CD11c+ dendritic-like cells (J), CD45+CD11b+Ly6g-CD62L+ inflammatory monocytes (K), and CD45+CD11b+Ly6g+ neutrophils. CD45+ cells in (D) reported as percent (%) of live cells. Populations quantified in (E-L) reported as % of CD45+ cells. Example gating strategy for peripheral blood analysis is depicted in (M). Two-way ANOVA identified significant ($p<0.05$) strain effects for (E), (F), (G), (J), (K), and (L).

(N) Images of IBA1+ microglia (magenta) and X34+ Aβ plaques (yellow) across CA1 sub-regions part of the long-term PLX5622 study. SLM = stratum lacunosum moleculare, SR = stratum radiatum, SO = stratum oriens.

(O) Scoring of CAA severity across *APP/PS1* mice. Nonparametric two-tailed t-tests identified no significant within-strain differences between control Control and PLX5622 treated animals (see **Table S2**).

(P) Images corresponding to **Figure 1** analysis of plaque-associated microglia (PAM) across *APP/PS1* mice. Images taken at 10X magnification, and regions of interest (100 μm in diameter)

identified as X34+ and X34- across the SLM (5/mouse) in X34 channel. Separately, circular regions overlayed on corresponding IBA1 channels, and IBA1+ area quantified for each region. Depicted images are merged IBA1 (magenta) and X34 (yellow) 10X images, with example circular ROIs outlined for PAM.

All data presented at mean ± SD, with individual measures plotted as grey points.

Statistical analyses performed on B6 and PWK mouse strains together. For (A), (C)-(L) *adjusted $p<0.05$ Bonferroni post-hoc tests (see **Table S1**).

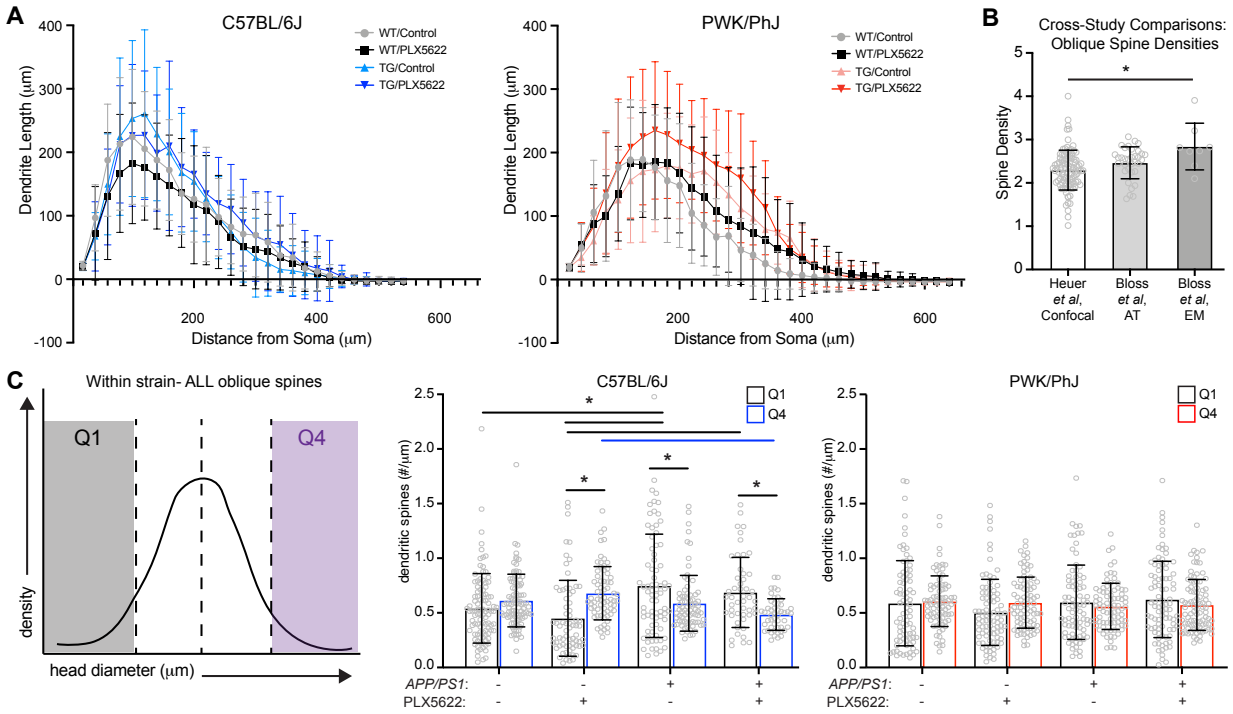

Figure S2: Analyses of oblique dendrite structural organization and spine size analysis, related to Figure 2.

(A) Sholl analysis of oblique dendrites reporting dendritic length (μm) in 20μm concentric distances from the soma origin. Data presented as mean ± SD of reconstructed neurons (n=3-5/mouse). Two-way ANOVA of dendrite length identify significant ($p<0.05$) genotype effect 120 μm and 160-200 μm away from the neuronal soma in B6. In PWK significant treatment identified at 220 μm and 300-340 μm, significant genotype 220-380μm, and significant interaction at 100 μm, 380μm and 480-500 μm from soma.

(B) Comparisons of oblique spine densities acquired from B6 WT/+ Control animals from the current study to array tomography (AT) and serial section electron microscopy (ssEM) oblique densities acquired from previous studies[28,35] with young, B6 mice. Data on graph is presented as mean ± SD, with data points representing measures from individual branches. One-way ANOVA identified significant ($p<0.05$) effect with $F = 6.578$.

(C) Quartile-based analyses of oblique spine head diameters. All oblique spines within each strain were divided into quartiles based on head diameter (μm). The smallest spines assigned to the first quartile (black, Q1) and the largest spines assigned to the fourth quartile (blue/red, Q4) were identified and reassigned back to originating dendrite. Spine densities (spines/μm) for Q1 and Q4 spines were calculated separately. Data points represent individual oblique branches. Two-way ANOVA within Q1 identified significant ($p<0.05$) genotype effect, and within Q4 identified significant genotype and interaction. One-way ANOVA across quartiles identified significant effect in B6 ($F=7.582$) with no effect in PWK.

All data in bar graphs presented at mean ± SD, with individual measures plotted as grey points. Statistical analyses (unless noted otherwise) performed on B6 and PWK mouse strains separately. For (B) and (C) *adjusted $p<0.05$ Bonferroni post-hoc tests (see **Table S3**).

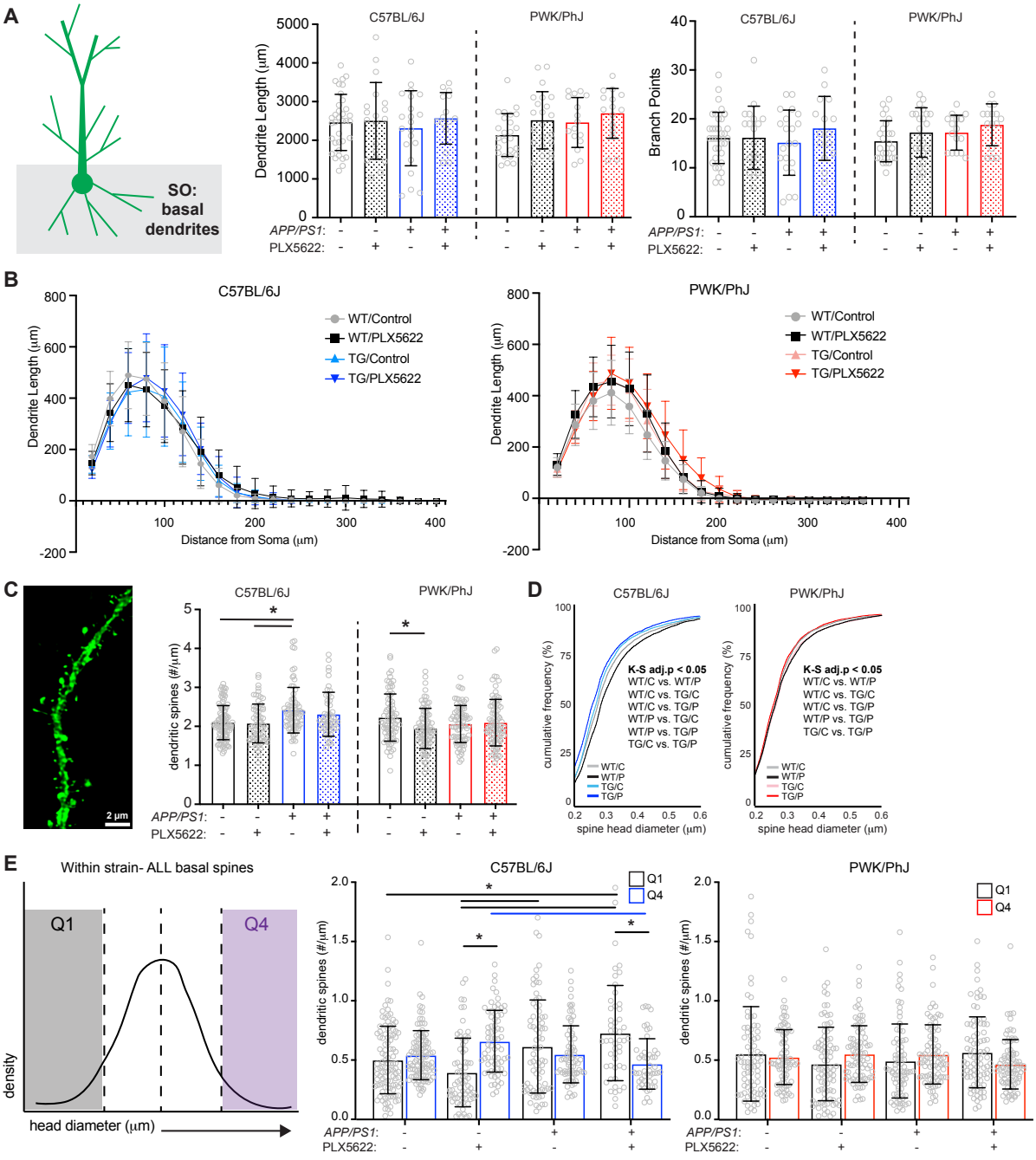

Figure S3: Basal dendritic structure, spine density and spine size, related to Figure 2.

(A) Basal dendritic reconstruction analyses quantifying total dendritic length (left) and number of branch points (right) across the dendritic tree. GFP+ dendrites were manually reconstructed from confocal images acquired at 40X magnification. Reconstructions were assigned an origin at the neuronal soma and traced all basal branches until point of termination. Individual data points

represent each reconstructed neuron (n=3-5/mouse). Two-way ANOVA for total dendrite length identify significant ($p<0.05$) treatment effects for PWK only.

(B) Sholl analysis of basal dendrites reporting dendritic length (μm) in 20 μm concentric distances from the origin set at the neuronal soma. Data on graph is presented as mean ± SD of reconstructed neurons. Two-way ANOVA of dendrite length identify significant ($p<0.05$) treatment effect at 20μm, and genotype effect 20-40 μm from neuronal soma in B6. In PWK significant treatment at 120-200μm, genotype at 140-240 μm, and interaction at 60 μm and 180 μm from soma.

(C) Image of a basal EGFP+ branch (left), and results of basal spine densities (spines/μm; center) across genotype/treatment groups. Data points represent individual branches (right, n=10-15/mouse). Two-way ANOVA identify significant ($p<0.05$) genotype in B6, and significant treatment effect and interaction in PWK.

(D) Cumulative distributions of spine head diameters (μm) for basal spines across genotype/treatment groups, separated by strain. Statistical results from Kolmogorov-Smirnov (K-S) tests for differences in cumulative distributions are reported in **Table S4G-H**, with significant (adj.$p<0.05$) pairwise comparisons reported on the figure. WT/C = Wild-type Control, WT/P = Wild-type PLX5622, TG/C = *APP/PS1* Control, TG/P = *APP/PS1* PLX5622.

(E) Quartile-based analysis of basal spine head diameters (performed as in **S2C**). Two-way ANOVA in B6 identified significant ($p<0.05$) genotype effects and interaction in both Q1 and Q4, and in PWK identified significant interactions in both Q1 and Q4. One-way ANOVA across quartiles identified significant effect in B6 ($F=8.564$) with no effect in PWK.

All data in bar graphs presented at mean ± SD, with individual measures plotted as grey points. Statistical analyses (unless noted otherwise) performed on B6 and PWK mouse strains separately. For (A), (C), (D), (E) *adjusted $p<0.05$ Bonferroni post-hoc tests (see **Table S4**).

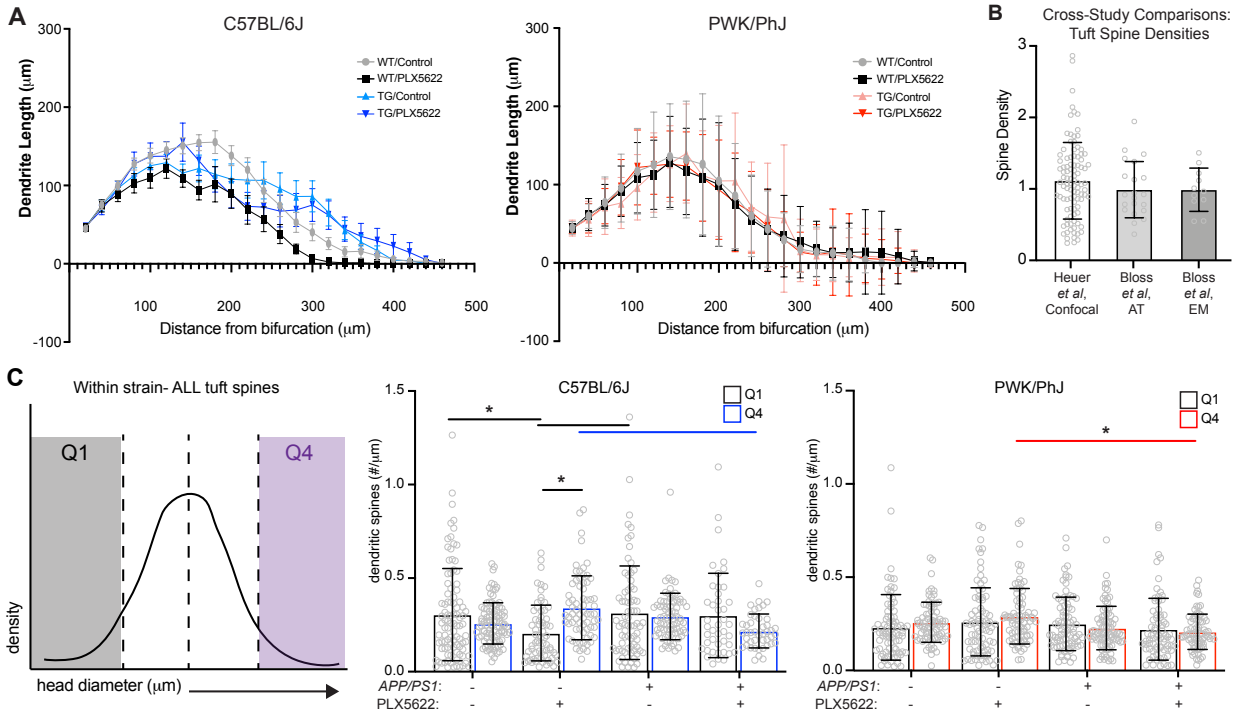

Figure S4: Analyses of tuft dendritic structure and spine sizes, related to Figure 3.

(A) Sholl analysis of tuft dendrites reporting dendritic length (μm) in 20μm concentric distances from the origin set at the main bifurcation of the primary apical branch. Data on graph is presented as mean ± SD of reconstructed neurons (n=3-5/mouse). Two-way ANOVA of dendrite length identify significant ($p<0.05$) genotype effect 220μm, treatment effect 280-380μm, and interaction 140-160 μm from main bifurcation in B6 only.

(B) Cross-study comparisons of tuft spine densities acquired from B6 WT/+ Control animals from the current study (using confocal microscopy), AT and ssEM tuft densities acquired from young, B6 mice[28,35]. Data on graph is presented as mean ± SD, with data points representing measures from individual branches. One-way ANOVA identified no significant effect.

(C) Quartile-based analysis of tuft spine head diameters (as in **S2C**). Two-way ANOVA within Q1 identified significant ($p<0.05$) treatment effect, and within Q4 identified significant genotype and interaction in B6, and significant genotype effect within Q4 in PWK. One-way ANOVA across quartiles identified significant effects in both B6 ($F=4.419$) and PWK ($F=2.666$).

All data in bar graphs presented at mean ± SD, with individual measures plotted as grey points. Statistical analyses (unless noted otherwise) performed on B6 and PWK mouse strains separately. For (C) *adjusted $p<0.05$ Bonferroni post-hoc tests (see **Table S5**).

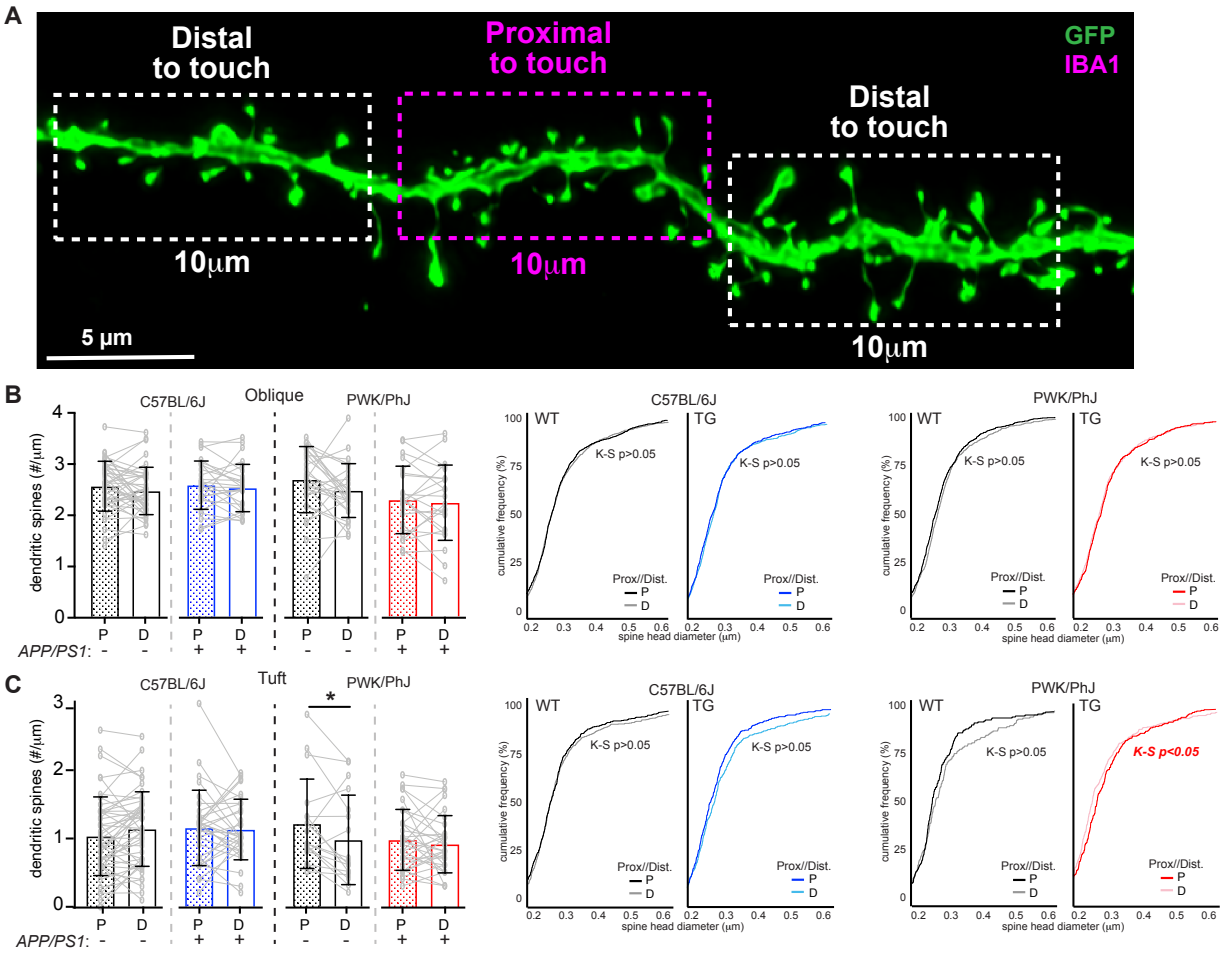

Figure S5: Microglia-dendrite interactions do not selectively shape spines at the point of contact, related to Figure 4.

(A) Image of the dendrite depicted in **Figure 4A**, with outlines depicting regions that are proximal and distal to a microglia-dendrite interaction (Touch+). 10 μm of each type of segment for each dendrite with a microglia contact were quantified for spine density and head diameter.

(B) Analysis of spine density (left) and head diameter (right) of Touch+ oblique branches, comparing region of the dendrite proximal versus distal to the microglia contact. Spine density data points represent individual branches (n≤15 mouse). Paired t-tests were performed to compare spine densities between proximal and distal branch segments within each strain/genotype group.

(C) Identical analysis to (B) for tuft dendrites.

For (B) and (C) *p<0.05, paired t-test. Cumulative distributions were statistically analyzed with Kolmogorov-Smirnov (K-S) tests. All statistical analyses for corresponding diagrams reported in **Table S6** and **Table S7**.

SUPPLEMENTAL TABLES

Table S1- Associated Statistics for 3 Week PLX Pilot, related to Figure S1

S1A. CD45+CD11b+ brain myeloid cells flow cytometry statistical tests

Strain	Control vs. PLX5622 Bonferroni post-hoc t-test adj. p-value
C57BL/6J (n=3)	0.0342
PWK/PhJ (n=3)	0.0005
Two-Way ANOVA p-value:	Treatment: 0.0002 Strain: 0.0017 Interaction: 0.0560

S1B. IBA1+DAPI+ / um^2 CA1 IHC statistical tests

Strain	Control vs. PLX5622 Bonferroni post-hoc t-test adj. p-value
C57BL/6J (n=3)	0.0215
PWK/PhJ (n=3)	<0.0001
Two-Way ANOVA p-value:	Treatment: <0.0001 Strain: 0.0892 Interaction: 0.0031

S1C. Microglia depletion efficiency calculated by flow cytometry and IHC

	% Depletion ((PLX-Control)/Control)*100	
Strain	Flow Brain Hemisphere %live CD45+CD11b+ cells	IHC Dorsal CA1 IBA1+DAPI+ cells
B6	40.8 ± 7.4	49.0 ± 8.1
PWK	50.4 ± 7.8	83.2 ± 2.1

S1D. Peripheral blood flow cytometry statistical tests

	Control vs. PLX5622 Bonferroni post-hoc t-test adj. p-value		
Blood Cell Population (%CD45+ Cells)	C57BL/6J (n=3)	PWK/PhJ (n=3)	Two-Way ANOVA p-values
CD45+ Cells (%Viable)	0.55570	>0.9999	Treatment: 0.6083 Strain: 0.5238 Interaction: 0.2989
CD45+CD11b+ Myeloid	0.8018	0.2229	Treatment: 0.0951 Strain: 0.0185 Interaction: 0.5415
CD45+CD19+BV220+ B Cells	0.8323	>0.9999	Treatment: 0.4001 Strain: 0.001 Interaction: 0.7544
CD45+CD3+CD4+ T Cells	>0.9999	>0.9999	Treatment: 0.6633 Strain: 0.0497 Interaction: 0.9793
CD45+CD3+CD8+ T Cells	>0.9999	>0.9999	Treatment: 0.8820 Strain: 0.6184 Interaction: 0.9599
CD45+CD11b+Ly6g- Monocytes	>0.9999	>0.9999	Treatment: 0.9822 Strain: 0.8318 Interaction: 0.9625
CD45+CD11b+ly6g-CD11c+ Dendritic-like Cells	0.9129	>0.9999	Treatment: 0.5371 Strain: 0.0035 Interaction: 0.6564
CD45+CD11b+Ly6g-CD62L+ Inflammatory Monocytes	0.8043	0.7764	Treatment: 0.2395 Strain: 0.0292 Interaction: 0.9848
CD45+CD11b+Ly6g+ Neutrophils	0.8128	>0.9999	Treatment: 0.5376 Strain: 0.0015 Interaction: 0.5681

S1E. Body weight statistical tests

	Control vs. PLX5622 Bonferroni post-hoc t-test adj. p-value		
Treatment Week	**C57BL/6J (n=3/treatment)**	**PWK/PhJ (n=3/treatment)**	**Two-Way ANOVA p-values**
Week 0	>0.9999	0.9241	Treatment: 0.4577 Strain: <0.0001 Interaction: 0.7629
Week 1	0.8826	>0.9999	Treatment: 0.5272 Strain: <0.0001 Interaction: 0.6409
Week 2	>0.9999	0.8918	Treatment: 0.3790 Strain: 0.0002 Interaction: 0.8446
Week 3	0.1408	0.0960	Treatment: 0.0141 Strain: <0.0001 Interaction: 0.8665

S1F. Food consumption statistical tests

	Control vs. PLX5622 Bonferroni post-hoc adj. p-value		
Treatment Week	**C57BL/6J (n=1 pen/treatment)**	**PWK/PhJ (n=1 pen/treatment)**	**Two-Way ANOVA p-values**
Week 1	>0.9999	>0.9999	Treatment: 0.2487 Strain: 0.2217
Week 2	>0.9999	>0.9999	Treatment: 0.6625 Strain: 0.1498
Week 3	>0.9999	>0.9999	Treatment: 0.5806 Strain: 0.2557

Table S2- Associated Statistics for IBA1+DAPI+ and X34 Counts, related to Figure 1 and Figure S1

S2A. Summary statistics for tests associated with Table S2

Group	Mice (N)
B6 WT/+ Control	6
B6 WT/+ PLX5622	6
B6 TG/+ Control	6
B6 TG/+ PLX5622	5
PWK WT/+ Control	6
PWK WT/+ PLX5622	6
PWK TG/+ Control	6
PWK TG/+ PLX5622	6

S2B. B6 IBA1+DAPI+ / um^2 statistical tests

C57BL/6J		SLM	SR	SO
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	<0.0001	<0.0001	<0.0001
WT/+ Control	TG/+ Control	0.0419	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	<0.0001	<0.0001	<0.0001
WT/+ PLX5622	TG/+ Control	<0.0001	<0.0001	<0.0001
WT/+ PLX5622	TG/+ PLX5622	0.8012	>0.9999	>0.9999
TG/+ Control	TG/+ PLX5622	<0.0001	<0.0001	<0.0001
Two-way ANOVA within vCA1 region (p-values):		Treatment: <0.0001 Genotype: 0.0209 Interaction: 0.5283	Treatment: <0.0001 Genotype: 0.9898 Interaction: 0.7809	Treatment: <0.0001 Genotype: 0.07532 Interaction: 0.05250
Cross-region two-way ANOVA (p-values):		vCA1 region: <0.0001 Genotype/Treatment group: <0.0001 Interaction: <0.0001		

S2C. PWK IBA1+DAPI+ / um^2 statistical tests

PWK/PhJ		SLM	SR	SO
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	0.0002	0.0005	0.0023
WT/+ Control	TG/+ Control	<0.0001	0.0449	0.0119
WT/+ Control	TG/+ PLX5622	>0.9999	0.0272	0.0378
WT/+ PLX5622	TG/+ Control	<0.0001	<0.0001	<0.0001
WT/+ PLX5622	TG/+ PLX5622	0.0125	>0.9999	>0.9999
TG/+ Control	TG/+ PLX5622	<0.0001	<0.0001	<0.0001
Two-way ANOVA within vCA1 region (p-values):		Treatment: <0.0001 Genotype: <0.0001 Interaction: 0.1562	Treatment: <0.0001 Genotype: 0.0008 Interaction: 0.1674	Treatment: <0.0001 Genotype: 0.7979 Interaction: 0.8307
Cross-region two-way ANOVA (p-values):		vCA1 region: <0.0001 Genotype/Treatment group: <0.0001 Interaction: 0.2072		

S2D. Microglia depletion efficiencies across CA1 (% of Control control counterpart)

	% Depletion ((PLX-Control)/Control)*100		
Strain/Genotype	**SLM**	**SR**	**SO**
B6 WT/+	61.4 ± 5.8	62.8 ± 3.9	60.9 ± 5.3
B6 TG/+	58.9 ± 3.1	64.4 ± 3.5	59.9 ± 5.9
PWK WT/+	48.8 ± 7.2	75.2 ± 6.5	61.1 ± 10.1
PWK TG/+	46.7 ± 6.9	68.1 ± 7.4	64.6 ± 7.0

S2E. B6 X34 / um^2 statistical tests

C57BL/6J		SLM		SR		SO	
		Adj. p-value		Adj. p-value		Adj. p-value	
Group A	Group B	Area	Spots	Area	Spots	Area	Spots
TG/+ Control	TG/+ PLX5622	0.4584	>0.9999	>0.9999	>0.9999	>0.9999	0.4550
Two-Way ANOVA across vCA1 regions (p-values)		Area vCA1 Region: <0.0001 Treatment: 0.2381 Interaction: 0.6295			Spots vCA1 Region: 0.0146 Treatment: 0.7769 Interaction: 0.2838		

S2F. PWK X34 / um^2 statistical tests

PWK/PhJ		SLM		SR		SO	
		Adj. p-value		Adj. p-value		Adj. p-value	
Group A	Group B	Area	Spots	Area	Spots	Area	Spots
TG/+ Control	TG/+ PLX5622	>0.9999	0.1118	>0.9999	>0.9999	>0.9999	>0.9999
Two-Way ANOVA across vCA1 regions (p-values)		Area vCA1 Region: <0.0001 Treatment: 0.9515 Interaction: 0.7969			Spots vCA1 Region: <0.0001 Treatment: 0.0907 Interaction: 0.3688		

S2G. Plaque-associated IBA1+ microglia area / um^2 statistical tests

SLM		B6.*APP/PS1* p-value		PWK.*APP/PS1* p-value	
Group A	Group B	PAM	NPAM	PAM	NPAM
Control	PLX5622	0.0303	0.0173	0.0022	0.0022

S2H. Plaque-associated IBA1+ microglia percent reduction comparing Control and PLX5622 groups

SLM		B6.*APP/PS1* %reduction		PWK.*APP/PS1* %reduction	
Group A	Group B	PAM	NPAM	PAM	NPAM
Control	PLX5622	43.196 ± 11.000	53.216 ± 9.205	48.856 ± 3.033	66.388 ± 7.832

S2I. CAA Score statistics across *APP/PS1* mice

Strain	Control vs. PLX5622 Nonparametric t-test, p-value
C57BL/6J (TG)	0.5173
PWK/PhJ (TG)	0.1775

Table S3- Associated Statistics for Oblique Dendrites & Spine Densities, related to Figure 2 and S2

S3A. Summary oblique statistics for tests associated with Table S3

	N			
Group	**Mice**	**Neurons**	**Branches**	**Spines**
B6 WT/+ Control	7	35	100	9444
B6 WT/+ PLX5622	5	21	70	6633
B6 TG/+ Control	5	20	77	8824
B6 TG/+ PLX5622	4	14	49	4900
PWK WT/+ Control	6	26	81	8449
PWK WT/+ PLX5622	6	22	87	8151
PWK TG/+ Control	6	18	82	7775
PWK TG/+ PLX5622	6	20	90	8892

S3B. B6 dendrite statistical tests

C57BL/6J		**Length**	**Branches**
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	0.2027	0.5157
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	>0.9999	>0.9999
WT/+ PLX5622	TG/+ Control	0.2292	>0.9999
WT/+ PLX5622	TG/+ PLX5622	0.0124	0.0587
TG/+ Control	TG/+ PLX5622	>0.9999	0.9119
Two-way ANOVA (p-values):		Treatment: 0.5187 Genotype: 0.0595 Interaction: 0.0674	Treatment: 0.7450 Genotype: 0.1511 Interaction: 0.0885

S3C. PWK dendrite statistical tests

PWK/PhJ		**Length**	**Branches**
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	0.2705	>0.9999
WT/+ Control	TG/+ Control	0.1902	>0.9999
WT/+ Control	TG/+ PLX5622	0.0008	0.7707
WT/+ PLX5622	TG/+ Control	>0.9999	>0.9999
WT/+ PLX5622	TG/+ PLX5622	0.2311	>0.9999
TG/+ Control	TG/+ PLX5622	0.5378	>0.9999
Two-way ANOVA (p-values):		Treatment: 0.0073 Genotype: 0.0076 Interaction: 0.6187	Treatment: 0.2693 Genotype: 0.7940 Interaction: 0.4755

S3D. Dendrite Sholl analysis

	Dendrite length: Two-way ANOVA					
	C57BL/6J			PWK/PhJ		
Distance from Soma (um)	Treatment p-value	Genotype p-value	Interaction p-value	Treatment p-value	Genotype p-value	Interaction p-value
20	0.3456	0.3120	0.5651	0.8721	0.9152	0.6875
40	0.3219	0.1775	0.3319	0.1582	0.2316	0.4282
60	0.0531	0.3126	0.3475	0.8697	0.0889	0.1597
80	0.2128	0.2247	0.4634	0.9184	0.7417	0.1087
100	0.1609	0.1354	0.7559	0.7745	0.8581	0.0196
120	0.1627	0.0206	0.9197	0.2812	0.8742	0.1881
140	0.1614	0.0502	0.9051	0.2757	0.5355	0.1353
160	0.7261	0.0316	0.4177	0.0925	0.2613	0.1962
180	0.7880	0.0448	0.8301	0.0623	0.0948	0.6075
200	0.9352	0.0287	0.5504	0.1507	0.0668	0.6441
220	0.9831	0.3360	0.6409	0.0375	0.0011	0.9724
240	0.6179	0.3423	0.3160	0.0594	<0.0001	0.5475
260	0.4599	0.1797	0.0576	0.0534	<0.0001	0.6876
280	0.4914	0.5131	0.0289	0.0707	<0.0001	0.6897
300	0.7015	0.5893	0.0588	0.0144	<0.0001	0.7756
320	0.4877	0.5533	0.0761	0.0318	0.0005	0.9032
340	0.1274	0.9745	0.0628	0.0200	0.0009	0.8915
360	0.4618	0.7213	0.1308	0.2116	0.0007	0.1505
380	0.3599	0.8126	0.5485	0.4468	0.0084	0.0224
400	0.6704	0.8113	0.3342	0.2260	0.0786	0.1599
420	0.6122	0.3768	0.2728	0.2654	0.1559	0.2570
440	0.9248	0.3012	0.2804	0.3052	0.5369	0.1961
460	0.6785	0.7177	0.1980	0.2755	0.8535	0.2831
480	0.9641	0.2899	0.3110	0.3222	0.5885	0.0896
500	0.1968	0.8605	0.8605	0.3711	0.7670	0.0427
520	0.2660	0.5813	0.5813	0.6999	0.6784	0.0373
540	0.5470	0.5470	0.5470	0.5453	0.8895	0.1056
560	NA	NA	NA	0.4470	0.4470	0.0828
580	NA	NA	NA	0.5691	0.5691	0.0773
600	NA	NA	NA	0.3793	0.3793	0.2981
620	NA	NA	NA	0.3360	0.3360	0.3360
640	NA	NA	NA	0.3360	0.3360	0.3360

S3E. B6 dendrite Sholl analysis post-hoc tests

C57BL/6J	Bonferroni multiple comparison, adjusted p-value					
Distance from Soma (um)	WT/+ Control vs. WT/+ PLX5622	WT/+ Control vs. TG/+ Control	WT/+ Control vs. TG/+ PLX5622	WT/+ PLX5622 vs. TG/+ Control	WT/+ PLX5622 vs. TG/+ PLX5622	TG/+ Control vs. TG/+ PLX5622
120	0.5535	0.0109	>0.9999	0.0001	0.1200	0.7413
160	0.9781	0.6374	0.3329	0.0441	0.0247	>0.9999
180	>0.9999	0.3796	0.2227	0.6359	0.3727	>0.9999
200	>0.9999	0.6993	0.2906	0.3804	0.1607	>0.9999

S3F. PWK dendrite Sholl analysis post-hoc tests

PWK/PhJ	Bonferroni multiple comparison, adjusted p-value					
Distance from Soma (um)	WT/+ Control vs. WT/+ PLX5622	WT/+ Control vs. TG/+ Control	WT/+ Control vs. TG/+ PLX5622	WT/+ PLX5622 vs. TG/+ Control	WT/+ PLX5622 vs. TG/+ PLX5622	TG/+ Control vs. TG/+ PLX5622
100	0.1117	0.0394	>0.9999	>0.9999	0.1220	0.0450
220	0.1691	0.0059	<0.0001	>0.9999	0.0082	0.3494
240	0.0648	<0.0001	<0.0001	0.2129	0.0040	>0.9999
260	0.1307	<0.0001	<0.0001	0.1173	0.0008	>0.9999
280	0.9478	0.0033	<0.0001	0.2429	0.0002	0.2973
300	0.2062	0.0029	<0.0001	0.8976	0.0004	0.1056
320	0.3070	0.0102	<0.0001	>0.9999	0.0052	0.3110
340	0.1961	0.0240	<0.0001	>0.9999	0.0501	0.5383
360	0.3727	0.0077	0.0085	0.9534	>0.9999	>0.9999
380	0.2957	0.0152	0.1912	>0.9999	>0.9999	>0.9999
500	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999
520	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999

S3G. B6 spine density & head diameter statistical tests

C57BL/6J		Density	Head Diameter	
Group A	Group B	Bonferroni post-hoc adj. p-value	Kolmogorov-Smirnov p-value	Kolmogorov-Smirnov Bonferroni adjusted p-value
WT/+ Control	WT/+ PLX5622	>0.9999	2.63e-11	1.58e-10
WT/+ Control	TG/+ Control	<0.0001	1.958e-13	1.17e-12
WT/+ Control	TG/+ PLX5622	>0.9999	2.2e-16	1.32e-15
WT/+ PLX5622	TG/+ Control	<0.0001	2.2e-16	1.32e-15
WT/+ PLX5622	TG/+ PLX5622	>0.9999	2.2e-16	1.32e-15
TG/+ Control	TG/+ PLX5622	<0.0001	4.135e-5	2.48e-4
Two-way ANOVA (p-values):		Treatment: 0.0002 Genotype: 0.0006 Interaction: 0.0021		

S3H. PWK spine density & head diameter statistical tests

PWK/PhJ		Density	Head Diameter	
Group A	Group B	Bonferroni post-hoc adj. p-value	Kolmogorov - Smirnov p-value	Kolmogorov-Smirnov Bonferroni adjusted p-value
WT/+ Control	WT/+ PLX5622	0.0860	0.04846	0.291
WT/+ Control	TG/+ Control	0.1646	1.796e-7	1.08e-6
WT/+ Control	TG/+ PLX5622	>0.9999	6.651e-9	3.99e-8
WT/+ PLX5622	TG/+ Control	>0.9999	3.287e-11	1.97e-10
WT/+ PLX5622	TG/+ PLX5622	>0.9999	7.355e-13	4.41e-12
TG/+ Control	TG/+ PLX5622	>0.9999	0.6598	1.0
Two-way ANOVA (p-values):		Treatment: 0.2766 Genotype: 0.4333 Interaction: 0.0164		

S3I. Comparison to AT and ssEM datasets

Heuer vs. Bloss Comparisons		Density
Group A	Group B	Bonferroni post-hoc adj. p-value
Heuer B6 WT/+ Control Confocal	Bloss AT	0.1797
Heuer B6 WT/+ Control Confocal	Bloss EM	0.0034
Bloss AT	Bloss EM	0.1003
One-Way ANOVA:		F = 6.578 p-value = 0.0019

S3J. B6 spine head diameter within quartile statistical tests

C57BL/6J		Quartile	
Group A	**Group B**	**Q1 Bonferroni adj. p-value**	**Q4 Bonferroni adj. p-value**
WT/+ Control	WT/+ PLX5622	>0.9999	>0.9999
WT/+ Control	TG/+ Control	0.0004	>0.9999
WT/+ Control	TG/+ PLX5622	0.2039	0.4994
WT/+ PLX5622	TG/+ Control	<0.0001	>0.9999
WT/+ PLX5622	TG/+ PLX5622	0.0013	0.0219
TG/+ Control	TG/+ PLX5622	>0.9999	>0.9999
Two-way ANOVA (p-value):		Treatment: 0.0885 Genotype: <0.0001 Interaction: 0.7323	Treatment: 0.5162 Genotype: 0.0001 Interaction: 0.0027

S3K. PWK spine head diameter within quartile statistical tests

PWK/PhJ		Quartile	
Group A	**Group B**	**Q1 Bonferroni adj. p-value**	**Q4 Bonferroni adj. p-value**
WT/+ Control	WT/+ PLX5622	>0.9999	>0.9999
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	>0.9999	>0.9999
WT/+ PLX5622	TG/+ Control	>0.9999	>0.9999
WT/+ PLX5622	TG/+ PLX5622	0.2133	>0.9999
TG/+ Control	TG/+ PLX5622	>0.9999	>0.9999
Two-way ANOVA (p-value):		Treatment: 0.4410 Genotype: 0.0924 Interaction: 0.1469	Treatment: 0.9811 Genotype: 0.1695 Interaction: 0.5977

S3L. B6 spine head diameter between quartiles statistical tests

C57BL/6J	
Group A	**Q1 vs. Q4 Bonferroni adj. p-value**
WT/+ Control	>0.9999
WT/+ PLX5622	0.0004
TG/+ Control	0.0319
TG/+ PLX5622	0.0364
One-way ANOVA Quartile effect	F = 7.582 p-value = <0.0001

S3M. PWK spine head diameter between quartiles statistical tests

PWK/PhJ	
Group A	**Q1 vs. Q4 Bonferroni adj. p-value**
WT/+ Control	>0.9999
WT/+ PLX5622	>0.9999
TG/+ Control	>0.9999
TG/+ PLX5622	>0.9999
One-way ANOVA Quartile effect	F = 1.327 p-value = 0.2347

Table S4- Associated Statistics for Basal Dendrites & Spine Densities, related to Figure S3

S4A. Summary basal statistics for tests associated with Table S4

	N			
Group	**Mice**	**Neurons**	**Branches**	**Spines**
B6 WT/+ Control	7	35	105	8872
B6 WT/+ PLX5622	5	19	70	6079
B6 TG/+ Control	5	21	75	7707
B6 TG/+ PLX5622	4	15	50	4817
PWK WT/+ Control	6	25	78	7322
PWK WT/+ PLX5622	6	22	84	6893
PWK TG/+ Control	6	16	82	7043
PWK TG/+ PLX5622	6	15	85	7528

S4B. B6 dendrites statistical tests

C57BL/6J		**Length**	**Branches**
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	>0.9999	>0.9999
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	0.8467	0.3642
WT/+ PLX5622	TG/+ Control	>0.9999	>0.9999
WT/+ PLX5622	TG/+ PLX5622	>0.9999	>0.9999
TG/+ Control	TG/+ PLX5622	0.8184	0.4025
Two-way ANOVA (p-values):		Treatment: 0.4257 Genotype: 0.8157 Interaction: 0.5642	Treatment: 0.2716 Genotype: 0.7275 Interaction: 0.2858

S4C. PWK dendrites statistical tests

PWK/PhJ		**Length**	**Branches**
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	0.2575	0.6534
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	0.2617	0.3339
WT/+ PLX5622	TG/+ Control	>0.9999	>0.9999
WT/+ PLX5622	TG/+ PLX5622	>0.9999	>0.9999
TG/+ Control	TG/+ PLX5622	>0.9999	>0.9999
Two-way ANOVA (p-values):		Treatment: 0.0425 Genotype: 0.0955 Interaction: 0.6250	Treatment: 0.0966 Genotype: 0.1045 Interaction: 0.9313

S4D. Dendrite Sholl analysis

	Dendrite length: Two-way ANOVA					
	C57BL/6J			PWK/PhJ		
Distance from Soma (um)	Treatment p-value	Genotype p-value	Interaction p-value	Treatment p-value	Genotype p-value	Interaction p-value
20	0.0129	0.0027	0.8502	0.8127	0.0732	0.2580
40	0.1682	0.0064	0.3409	0.5290	0.0908	0.0981
60	0.7205	0.2308	0.3894	0.8439	0.5658	0.0451
80	0.9588	0.9369	0.2163	0.2425	0.1813	0.7775
100	0.9674	0.2872	0.3741	0.1046	0.1441	0.4862
120	0.4708	0.1755	0.8365	0.0181	0.1437	0.6312
140	0.1560	0.2957	0.5433	0.0339	0.0473	0.6161
160	0.1113	0.7140	0.4928	0.0379	0.0238	0.1203
180	0.1127	0.6127	0.1813	0.0124	0.0065	0.0431
200	0.3624	0.5410	0.0903	0.0437	0.0047	0.4834
220	0.1513	0.4361	0.5428	0.8197	0.0232	0.3688
240	0.5390	0.4921	0.3200	0.8427	0.0320	0.7142
260	0.5395	0.2520	0.1899	0.7740	0.1615	0.5358
280	0.4096	0.1646	0.1450	0.9262	0.3359	0.4183
300	0.2670	0.2670	0.1220	0.3904	0.3904	0.3904
320	0.2633	0.2633	0.1461	0.3904	0.3904	0.3904
340	0.2294	0.2294	0.1964	0.3904	0.3904	0.3904
360	0.2577	0.2577	0.2577	0.3904	0.3904	0.3904
380	0.2577	0.2577	0.2577	NA	NA	NA
400	0.2577	0.2577	0.2577	NA	NA	NA

S4E. B6 Sholl analysis post-hoc tests

C57BL/6J	Bonferroni multiple comparison, adjusted p-value					
Distance from Soma (um)	WT/+ Control vs. WT/+ PLX5622	WT/+ Control vs. TG/+ Control	WT/+ Control vs. TG/+ PLX5622	WT/+ PLX5622 vs. TG/+ Control	WT/+ PLX5622 vs. TG/+ PLX5622	TG/+ Control vs. TG/+ PLX5622
20	>0.9999	>0.9999	0.2000	>0.9999	>0.9999	>0.9999
40	0.1060	0.0007	0.0004	>0.9999	0.7128	>0.9999

S4F. PWK Sholl analysis post-hoc tests

PWK/PhJ	Tukey's multiple comparison, adjusted p-value					
Distance from Soma (um)	WT/+ Control vs. WT/+ PLX5622	WT/+ Control vs. TG/+ Control	WT/+ Control vs. TG/+ PLX5622	WT/+ PLX5622 vs. TG/+ Control	WT/+ PLX5622 vs. TG/+ PLX5622	TG/+ Control vs. TG/+ PLX5622
60	0.0432	0.0246	>0.9999	>0.9999	0.7490	0.4303
120	0.0002	0.0664	<0.0001	>0.9999	>0.9999	0.1518
140	0.2987	0.6113	<0.0001	>0.9999	0.0555	0.0622
160	>0.9999	>0.9999	0.0048	>0.9999	0.0244	0.0658
180	>0.9999	>0.9999	0.0537	>0.9999	0.1254	0.2434
200	>0.9999	>0.9999	0.6536	>0.9999	>0.9999	>0.9999
220	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999
240	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999	>0.9999

S4G. B6 spine density & head diameter statistical tests

C57BL/6J		Density	Head Diameter	
Group A	Group B	Bonferroni post-hoc adj. p-value	Kolmogorov-Smirnov p-value	Kolmogorov-Smirnov Bonferroni adjusted p-value
WT/+ Control	WT/+ PLX5622	>0.9999	2.2e-16	1.32e-15
WT/+ Control	TG/+ Control	0.0003	1.265e-8	7.59e-8
WT/+ Control	TG/+ PLX5622	0.0919	2.2e-16	1.32e-15
WT/+ PLX5622	TG/+ Control	0.0005	2.2e-16	1.32e-15
WT/+ PLX5622	TG/+ PLX5622	0.0852	2.2e-16	1.32e-15
TG/+ Control	TG/+ PLX5622	>0.9999	6.78e-13	4.07e-12
Two-way ANOVA (p-values):		Treatment: 0.3085 Genotype: <0.0001 Interaction: 0.4816		

S4H. PWK spine density & head diameter statistical tests

PWK/PhJ		Density	Head Diameter	
Group A	**Group B**	**Bonferroni post-hoc adj. p-value**	**Kolmogorov - Smirnov p-value**	**Kolmogorov-Smirnov Bonferroni adjusted p-value**
WT/+ Control	WT/+ PLX5622	0.0082	3.821e-6	2.29e-5
WT/+ Control	TG/+ Control	0.3521	8.563e-5	5.14e-4
WT/+ Control	TG/+ PLX5622	0.7876	5.252e-5	3.15e-4
WT/+ PLX5622	TG/+ Control	>0.9999	0.1038	0.623
WT/+ PLX5622	TG/+ PLX5622	0.4759	1.675e-12	1.01e-11
TG/+ Control	TG/+ PLX5622	>0.9999	1.03e-11	6.18e-11
Two-way ANOVA (p-values):		Treatment: 0.0445 Genotype: 0.8945 Interaction: 0.0101		

S4I. B6 spine head diameter within quartile statistical tests

C57BL/6J		Quartile (adj. p-value)	
Group A	**Group B**	**Q1**	**Q4**
WT/+ Control	WT/+ PLX5622	0.5102	0.2366
WT/+ Control	TG/+ Control	0.2624	>0.9999
WT/+ Control	TG/+ PLX5622	0.0002	>0.9999
WT/+ PLX5622	TG/+ Control	0.0002	0.5898
WT/+ PLX5622	TG/+ PLX5622	<0.0001	0.0100
TG/+ Control	TG/+ PLX5622	0.8933	>0.9999
Two-way ANOVA (p-value):		Treatment: 0.9268 Genotype: <0.0001 Interaction: 0.0070	Treatment: 0.5053 Genotype: 0.0009 Interaction: 0.0004

S4J. PWK spine head diameter within quartile statistical tests

PWK/PhJ		Quartile (adj. p-value)	
Group A	**Group B**	**Q1**	**Q4**
WT/+ Control	WT/+ PLX5622	>0.9999	>0.9999
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	>0.9999	>0.9999
WT/+ PLX5622	TG/+ Control	>0.9999	>0.9999
WT/+ PLX5622	TG/+ PLX5622	0.7335	>0.9999
TG/+ Control	TG/+ PLX5622	>0.9999	>0.9999
Two-way ANOVA (p-value):		Treatment: 0.8729 Genotype: 0.6014 Interaction: 0.0313	Treatment: 0.2608 Genotype: 0.2125 Interaction: 0.0353

S4K. B6 spine head diameter between quartiles statistical tests

C57BL/6J	
Group A	**Q1 vs. Q4 Adj. p-value**
WT/+ Control	>0.9999
WT/+ PLX5622	<0.0001
TG/+ Control	>0.9999
TG/+ PLX5622	0.0002
One-way ANOVA Quartile effect	F = 8.564 p-value = <0.0001

S4L. PWK spine head diameter between quartiles statistical tests

PWK/PhJ	
Group A	**Q1 vs. Q4 Adj. p-value**
WT/+ Control	>0.9999
WT/+ PLX5622	>0.9999
TG/+ Control	>0.9999
TG/+ PLX5622	0.6132
One-way ANOVA Quartile effect	F = 1.673 p-value = 0.1127

Table S5- Associated Statistics for Tuft Dendrites & Spine Densities, related to Figure 3 and Figure S4

S5A. Summary tuft statistics for tests associated with Table S5

	N			
Group	**Mice**	**Neurons**	**Branches**	**Spines**
B6 WT/+ Control	7	34	98	4466
B6 WT/+ PLX5622	5	18	70	3159
B6 TG/+ Control	5	20	76	3871
B6 TG/+ PLX5622	4	16	44	1989
PWK WT/+ Control	6	26	79	3318
PWK WT/+ PLX5622	6	21	80	3932
PWK TG/+ Control	6	21	84	3374
PWK TG/+ PLX5622	6	24	77	2723

S5B. B6 dendrites statistical tests

C57BL/6J		**Length**	**Branches**
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	0.1012	0.1139
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	>0.9999	>0.9999
WT/+ PLX5622	TG/+ Control	0.1962	0.1367
WT/+ PLX5622	TG/+ PLX5622	0.1949	0.5380
TG/+ Control	TG/+ PLX5622	>0.9999	>0.9999
Two-way ANOVA (p-values):		Treatment: 0.0578 Genotype: 0.0815 Interaction: 0.0784	Treatment: 0.0326 Genotype: 0.1085 Interaction: 0.2338

S5C. PWK dendrites statistical tests

PWK/PhJ		**Length**	**Branches**
Group A	**Group B**	**Adj. p-value**	**Adj. p-value**
WT/+ Control	WT/+ PLX5622	>0.9999	>0.9999
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	>0.9999	>0.9999
WT/+ PLX5622	TG/+ Control	>0.9999	>0.9999
WT/+ PLX5622	TG/+ PLX5622	>0.9999	>0.9999
TG/+ Control	TG/+ PLX5622	>0.9999	>0.9999
Two-way ANOVA (p-values):		Treatment: 0.6461 Genotype: 0.9853 Interaction: 0.8992	Treatment: 0.5874 Genotype: 0.6438 Interaction: 0.5468

S5D. Dendrite Sholl analysis

	Dendrite length: Two-way ANOVA					
	C57BL/6J			PWK/PhJ		
Distance from bifurcation (um)	Treatment p-value	Genotype p-value	Interaction p-value	Treatment p-value	Genotype p-value	Interaction p-value
20	0.6848	0.3022	0.8257	0.8911	0.8219	0.9537
40	0.6356	0.6746	0.7734	0.7241	0.3215	0.8711
60	0.4821	0.8671	0.5285	0.8257	0.6272	0.7505
80	0.6596	0.6562	0.0786	0.3004	0.3683	0.1229
100	0.5167	0.5590	0.1081	0.3966	0.7228	0.1004
120	0.5682	0.9939	0.2387	0.8568	0.9452	0.3271
140	0.9322	0.6785	0.0057	0.7555	0.6157	0.7891
160	0.0864	0.8691	0.0181	0.2237	0.5677	0.9743
180	0.1091	0.3524	0.2096	0.5050	0.6169	0.6371
200	0.0511	0.3618	0.4097	0.6203	0.8432	0.8366
220	0.0317	0.8235	0.6480	0.1913	0.4503	0.5672
240	0.0724	0.4572	0.9554	0.5928	0.3514	0.9265
260	0.0643	0.1469	0.8299	0.5648	0.3673	0.6592
280	0.1217	0.0135	0.2804	0.3738	0.3319	0.1978
300	0.1442	0.0003	0.4607	0.6634	0.3322	0.4537
320	0.2804	0.0001	0.4122	0.8008	0.4458	0.7736
340	0.5166	0.0005	0.4344	0.8163	0.9289	0.8604
360	0.7212	0.0330	0.2931	0.7342	0.6903	0.9751
380	0.8943	0.0343	0.1795	0.6097	0.8302	0.3720
400	0.3782	0.1262	0.0899	0.4735	0.9156	0.2687
420	0.5219	0.1688	0.2269	0.7198	0.9214	0.2660
440	0.7926	0.7366	0.2028	0.8036	0.8761	0.2959
460	0.7043	0.7043	0.4073	0.5752	0.4044	0.2261

S5E. B6 Sholl analysis post-hoc tests

C57BL/6J	Bonferroni multiple comparison, adjusted p-value					
Distance from Bifurcation (um)	WT/+ Control vs. WT/+ PLX5622	WT/+ Control vs. TG/+ Control	WT/+ Control vs. TG/+ PLX5622	WT/+ PLX5622 vs. TG/+ Control	WT/+ PLX5622 vs. TG/+ PLX5622	TG/+ Control vs. TG/+ PLX5622
140	0.0735	0.1907	>0.9999	>0.9999	0.1081	0.2421
160	0.0018	0.2535	>0.9999	0.8152	0.3359	>0.9999
220	0.0125	>0.9999	0.0420	0.2424	>0.9999	0.4826
280	0.2499	0.2424	>0.9999	0.0019	0.0686	>0.9999
300	0.2703	0.0261	0.2640	0.0001	0.0031	>0.9999
320	0.9512	0.0846	0.2166	0.0042	0.0140	>0.9999
340	>0.9999	0.5135	0.5649	0.1472	0.1697	>0.9999
360	>0.9999	>0.9999	>0.9999	0.9265	0.5131	>0.9999
380	>0.9999	>0.9999	>0.9999	>0.9999	0.8210	>0.9999

S5F. B6 spine density & head diameter statistical tests

C57BL/6J		Density	Head Diameter	
Group A	Group B	Tukey's post-hoc adj. p-value	Kolmogorov-Smirnov p-value	Kolmogorov-Smirnov Bonferroni adjusted p-value
WT/+ Control	WT/+ PLX5622	>0.9999	2.2e-16	1.32e-15
WT/+ Control	TG/+ Control	>0.9999	0.006598	0.0396
WT/+ Control	TG/+ PLX5622	>0.9999	0.149	0.894
WT/+ PLX5622	TG/+ Control	0.8848	2.243e-14	1.35e-13
WT/+ PLX5622	TG/+ PLX5622	>0.9999	2.2e-16	1.32e-15
TG/+ Control	TG/+ PLX5622	0.3107	0.0004718	0.00283
Two-way ANOVA (p-values):		Treatment: 0.0812 Genotype: 0.8348 Interaction: 0.2081		

S5G. PWK spine density & head diameter statistical tests

PWK/PhJ		Density	Head Diameter	
Group A	**Group B**	**Tukey's post-hoc adj. p-value**	**Kolmogorov-Smirnov p-value**	**Kolmogorov-Smirnov Bonferroni adjusted p-value**
WT/+ Control	WT/+ PLX5622	>0.9999	0.08547	0.513
WT/+ Control	TG/+ Control	0.9246	0.000226	0.00136
WT/+ Control	TG/+ PLX5622	0.0227	0.04984	0.299
WT/+ PLX5622	TG/+ Control	0.0354	0.01541	0.0925
WT/+ PLX5622	TG/+ PLX5622	0.0002	0.06235	0.374
TG/+ Control	TG/+ PLX5622	0.7437	0.1749	1.0
Two-way ANOVA (p-values):		Treatment: 0.8784 Genotype: <0.0001 Interaction: 0.044		

S5H. Comparisons to AT and ssEM data

Heuer vs. Bloss Comparisons		Density
Group A	**Group B**	**Bonferroni post-hoc adj. p-value**
Heuer B6 WT/+ Control Confocal	Bloss AT	0.9036
Heuer B6 WT/+ Control Confocal	Bloss EM	>0.9999
Bloss AT	Bloss EM	>0.9999
One-Way ANOVA:		F = 0.7564 P = 0.4714

S5I. B6 spine head diameter within quartile statistical tests

C57BL/6J		Quartile (adj. p-value)	
Group A	**Group B**	**Q1**	**Q4**
WT/+ Control	WT/+ PLX5622	0.0211	0.0980
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	>0.9999	>0.9999
WT/+ PLX5622	TG/+ Control	0.0126	>0.9999
WT/+ PLX5622	TG/+ PLX5622	0.2413	0.0122
TG/+ Control	TG/+ PLX5622	>0.9999	0.7056
Two-way ANOVA (p-value):		Treatment: 0.0447 Genotype: 0.0652 Interaction: 0.1331	Treatment: 0.8457 Genotype: 0.0062 Interaction: <0.0001

S5J. B6 spine head diameter within quartile statistical tests

PWK/PhJ		Quartile (adj. p-value)	
Group A	**Group B**	**Q1**	**Q4**
WT/+ Control	WT/+ PLX5622	>0.9999	>0.9999
WT/+ Control	TG/+ Control	>0.9999	>0.9999
WT/+ Control	TG/+ PLX5622	>0.9999	0.8056
WT/+ PLX5622	TG/+ Control	>0.9999	0.1508
WT/+ PLX5622	TG/+ PLX5622	>0.9999	0.0102
TG/+ Control	TG/+ PLX5622	>0.9999	>0.9999
Two-way ANOVA (p-value):		Treatment: 0.9781 Genotype: 0.5826 Interaction: 0.1207	Treatment: 0.6366 Genotype: <0.0001 Interaction: 0.0511

S5K. B6 spine head diameter between quartiles statistical tests

C57BL/6J	
Group A	**Q1 vs. Q4 Adj. p-value**
WT/+ Control	>0.9999
WT/+ PLX5622	0.0005
TG/+ Control	>0.9999
TG/+ PLX5622	0.9558
One-way ANOVA Quartile effect	F = 4.419 p-value = <0.0001

S5L. PWK spine head diameter between quartiles statistical tests

PWK/PhJ	
Group A	**Q1 vs. Q4 Adj. p-value**
WT/+ Control	>0.9999
WT/+ PLX5622	>0.9999
TG/+ Control	>0.9999
TG/+ PLX5622	>0.9999
One-way ANOVA Quartile effect	F = 2.666 p-value = 0.0100

Table S6- Associated Statistics for Oblique Dendrite Microglia Touch Analysis, related to Figure 4 and Figure S5

S6A. Touch+ vs. Touch-: dendrite count

	C57BL/6J		PWK/PhJ	
Group	**Microglia Touch (N)**	**Microglia NO Touch (N)**	**Microglia Touch (N)**	**Microglia NO Touch (N)**
WT/+ Control	42	25	26	29
TG/+ Control	24	27	23	37
WT/+ PLX5622	6	44	3	55
TG/+ PLX5622	1	30	4	56

S6B. B6 Touch+ vs. Touch- spine density & head diameter nonparametric t-tests

C57BL/6J		Density	Head Diameter
Group A	**Group B**	**Two-tailed unpaired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control TOUCH	WT/+ Control NO TOUCH	0.0128	0.0003751
TG/+ Control TOUCH	TG/+ Control NO TOUCH	0.0144	0.0006093
WT/+ Control TOUCH	TG/+ CONTROL TOUCH	NA	0.09955
WT/+ Control NO TOUCH	TG/+ CONTROL NO TOUCH	NA	6.754e-9

S6C. PWK Touch+ vs. Touch- spine density & head diameter nonparametric t-tests

PWK/PhJ		Density	Head Diameter
Group A	**Group B**	**Two-tailed unpaired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control TOUCH	WT/+ Control NO TOUCH	0.1873	0.01979
TG/+ Control TOUCH	TG/+ Control NO TOUCH	0.1412	0.2076
WT/+ Control TOUCH	TG/+ CONTROL TOUCH	NA	0.1071
WT/+ Control NO TOUCH	TG/+ CONTROL NO TOUCH	NA	5.768e-7

S6D. B6 Proximal vs. Distal to Touch: spine density & head diameter statistical tests

C57BL/6J		Density	Head Diameter
Group A	**Group B**	**Two-tailed Paired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control Proximal	WT/+ Control Distal	0.2911	0.6731
TG/+ Control Proximal	TG/+ Control Distal	0.3153	0.443

S6E. PWK Proximal vs. Distal to Touch: spine density & head diameter statistical tests

PWK/PhJ		Density	Head Diameter
Group A	**Group B**	**Two-tailed Paired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control Proximal	WT/+ Control Distal	0.1056	0.07051
TG/+ Control Proximal	TG/+ Control Distal	0.5803	0.853

Table S7- Associated Statistics for Tuft Dendrite Microglia Touch Analysis, related to Figure 4 and Figure S5

S7A. Touch+ vs. Touch-: dendrite count

	C57BL/6J		PWK/PhJ	
Group	**Microglia Touch (N)**	**Microglia NO Touch (N)**	**Microglia Touch (N)**	**Microglia NO Touch (N)**
WT/+ Control	46	17	17	37
TG/+ Control	32	18	31	29
WT/+ PLX5622	12	38	11	44
TG/+ PLX5622	6	24	10	42

S7B. B6 Touch+ vs. Touch- spine density & head diameter nonparametric t-tests

C57BL/6J		Density	Head Diameter
Group A	**Group B**	**Two-tailed Unpaired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control TOUCH	WT/+ Control NO TOUCH	0.1061	0.0004951
TG/+ Control TOUCH	TG/+ Control NO TOUCH	0.0505	0.0002994
WT/+ Control TOUCH	TG/+ CONTROL TOUCH	NA	0.003892
WT/+ Control NO TOUCH	TG/+ CONTROL NO TOUCH	NA	3.043e-5

S7C. PWK Touch+ vs. Touch- spine density & head diameter nonparametric t-tests

PWK/PhJ		Density	Head Diameter
Group A	**Group B**	**Two-tailed Unpaired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control TOUCH	WT/+ Control NO TOUCH	0.5798	0.5203
TG/+ Control TOUCH	TG/+ Control NO TOUCH	0.2327	0.07733
WT/+ Control TOUCH	TG/+ CONTROL TOUCH	NA	0.4683
WT/+ Control NO TOUCH	TG/+ CONTROL NO TOUCH	NA	0.587

S7D. B6 Proximal vs. Distal to Touch: spine density & head diameter statistical tests

C57BL/6J		Density	Head Diameter
Group A	**Group B**	**Two-tailed Paired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control Proximal	WT/+ Control Distal	0.0514	0.8362
TG/+ Control Proximal	TG/+ Control Distal	0.8609	0.06835

S7E. B6 Proximal vs. Distal to Touch: spine density & head diameter statistical tests

PWK/PhJ		Density	Head Diameter
Group A	**Group B**	**Two-tailed Paired t-test p-value**	**Kolmogorov-Smirnov p-value**
WT/+ Control Proximal	WT/+ Control Distal	0.0395	0.2284
TG/+ Control Proximal	TG/+ Control Distal	0.4798	0.01178