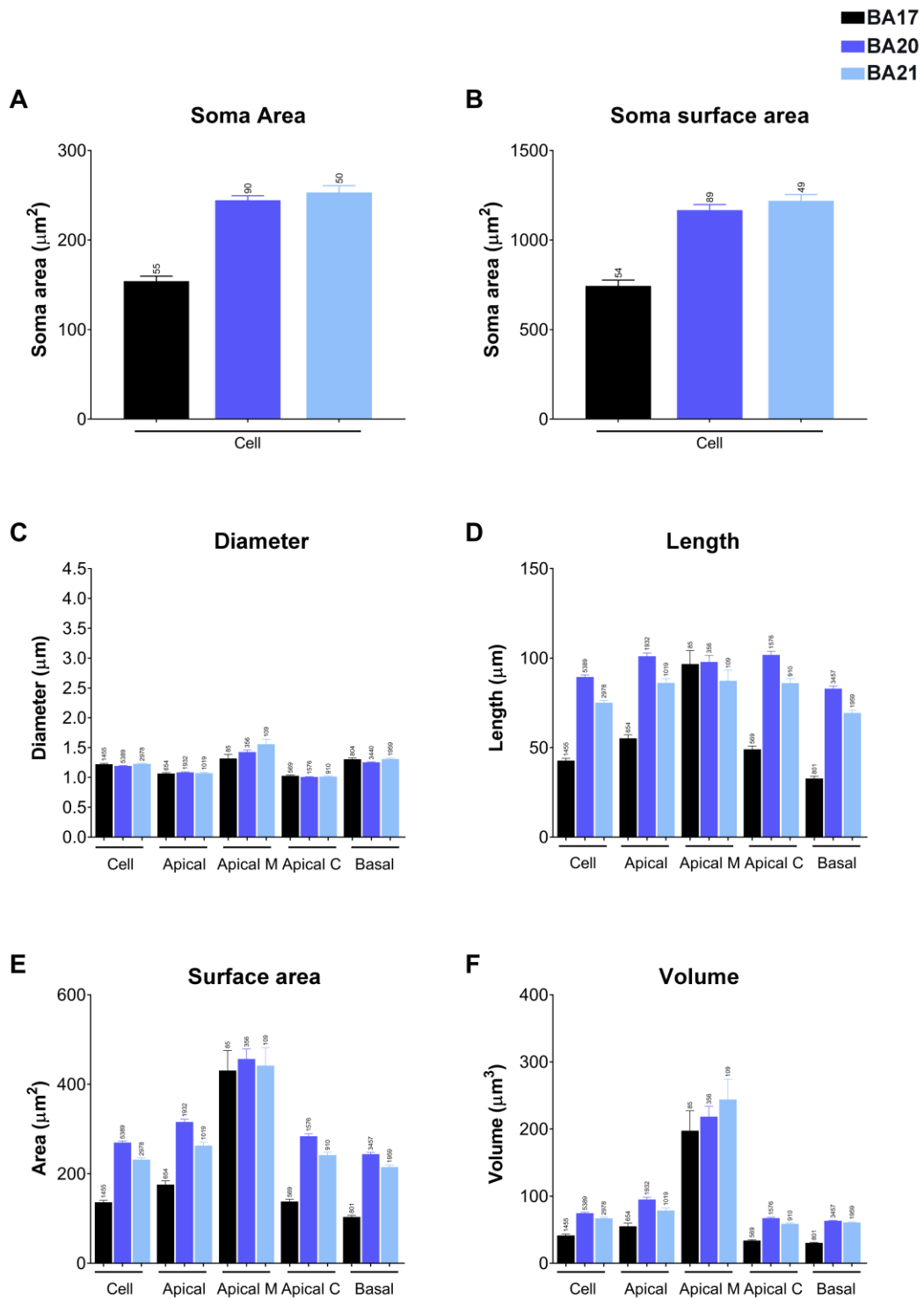


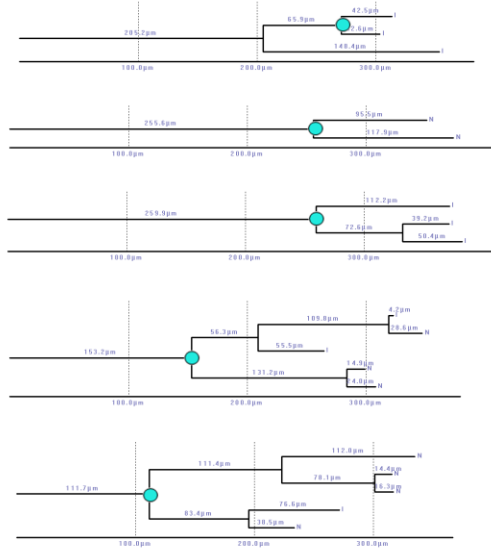
## **SUPPLEMENTARY FIGURES AND TABLES**



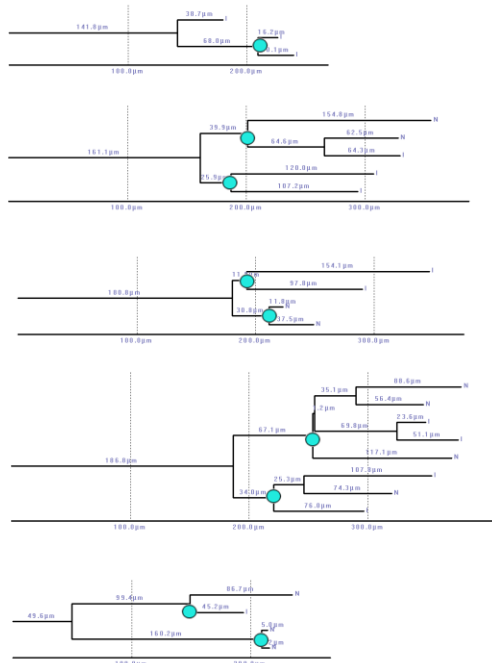
**Supplementary Figure 1.** Graphs showing soma cross-sectional area (A), soma surface area (B), dendritic segment average diameter (C), segment length (D), segment surface area (E), and segment volume (F), expressed per cell and per dendritic compartment: apical arbor (including main apical dendrite and apical collateral dendrites together); main apical dendrite alone (Apical M); apical collateral dendrites alone (Apical C); and basal dendritic arbor. Measurements are reported as mean  $\pm$  SEM. Only dendritic segments that were complete, and thus excluding incomplete endings, were included in this analysis. The statistical significance of the differences is shown in Supplementary Table 1.

## BA17 main apical dendrite dendrogram examples

### 0 branching



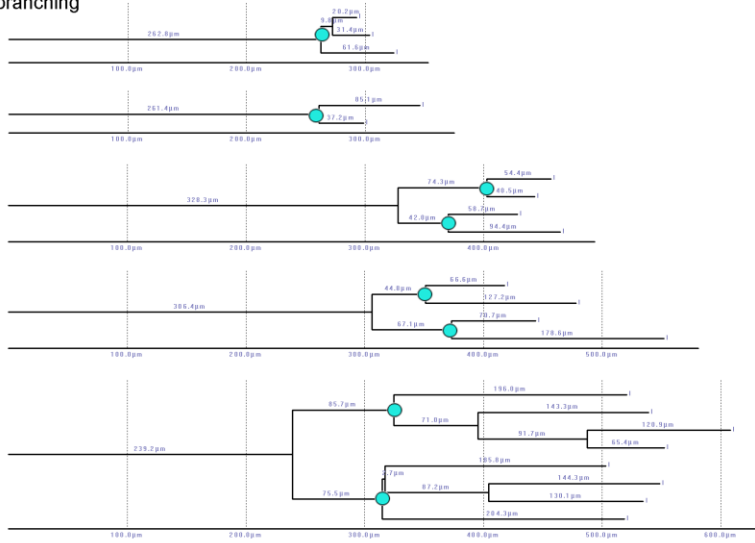
### 1 branching



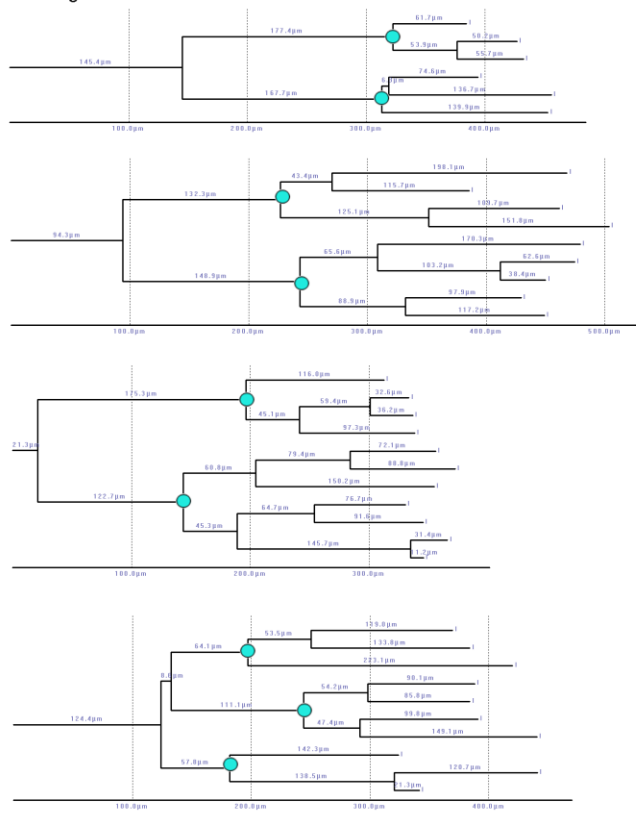
**Supplementary Figure 2.** Dendrogram examples of main apical dendrites that had 0 bifurcations and 1 bifurcation (within the first 200 μm) from the 3D reconstructed dataset of human BA17 pyramidal neurons. Two and three bifurcations were absent.

## BA20/21 main apical dendrite dendrogram examples

### 0 branching



### 1 branching

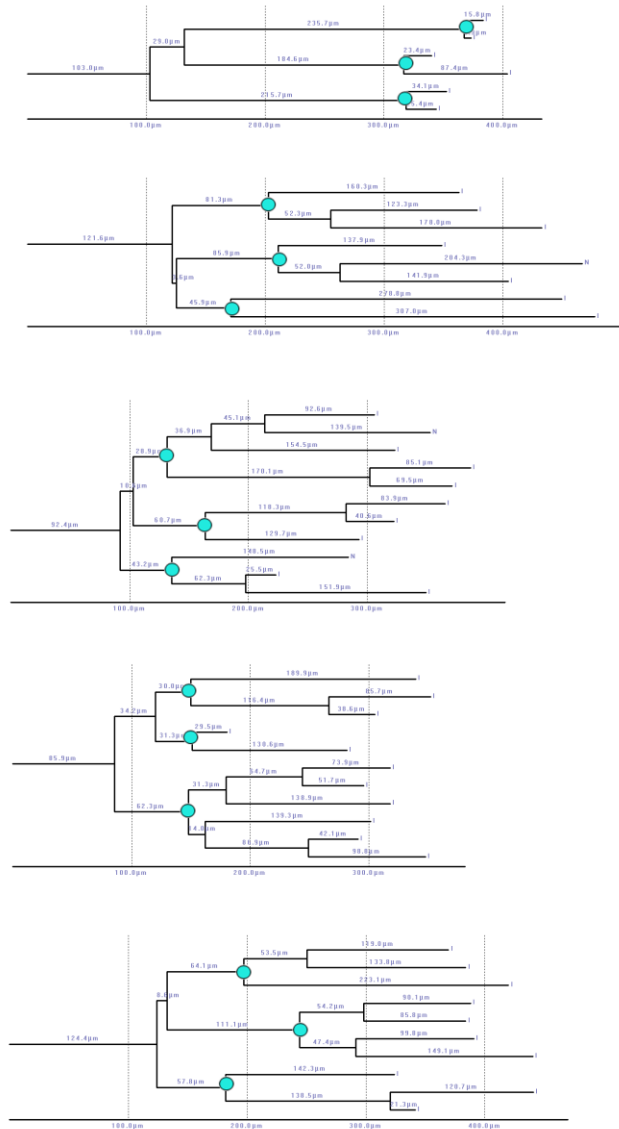


Cont.

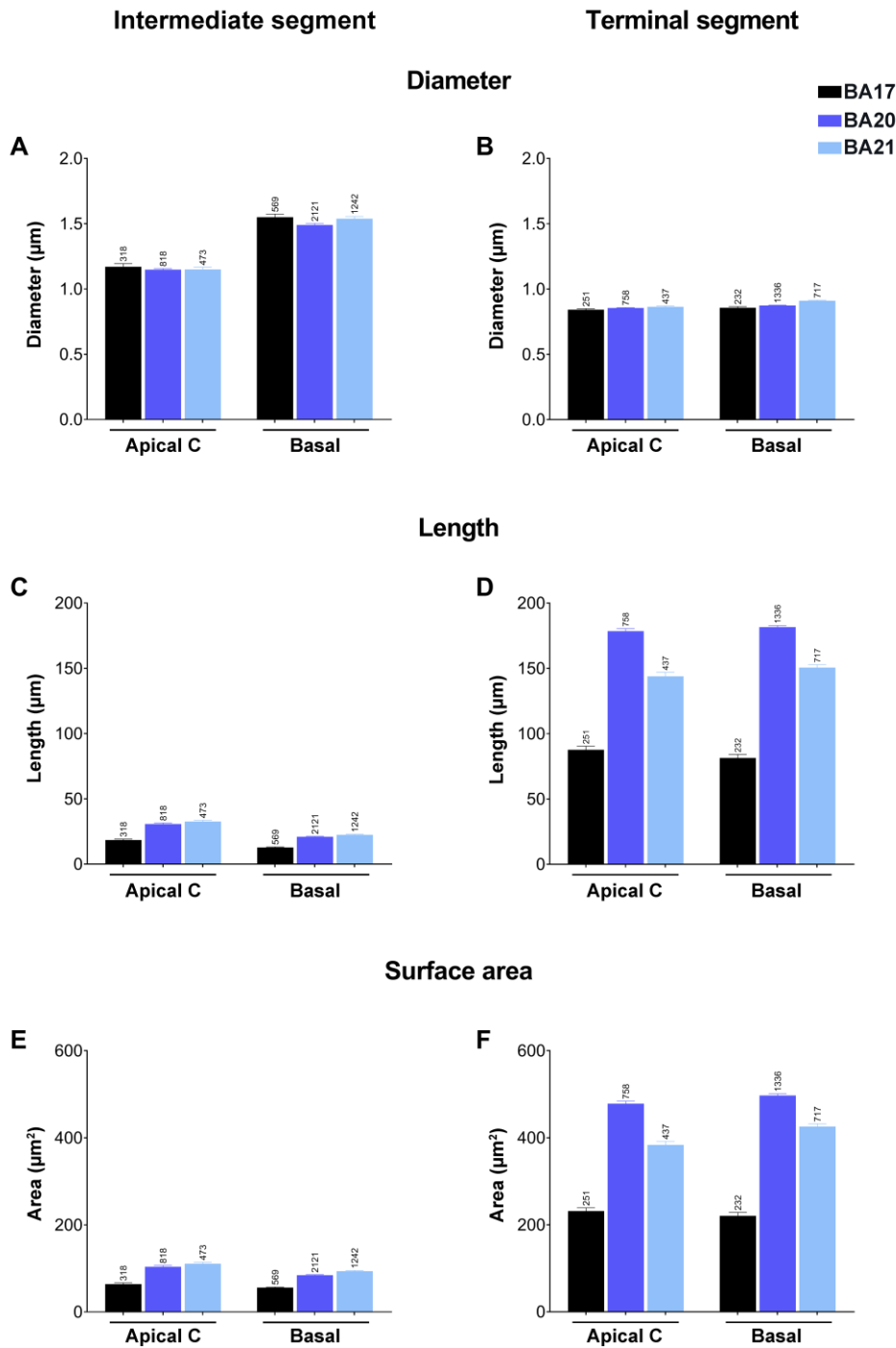
Cont.

BA20/21 main apical dendrite dendrogram examples

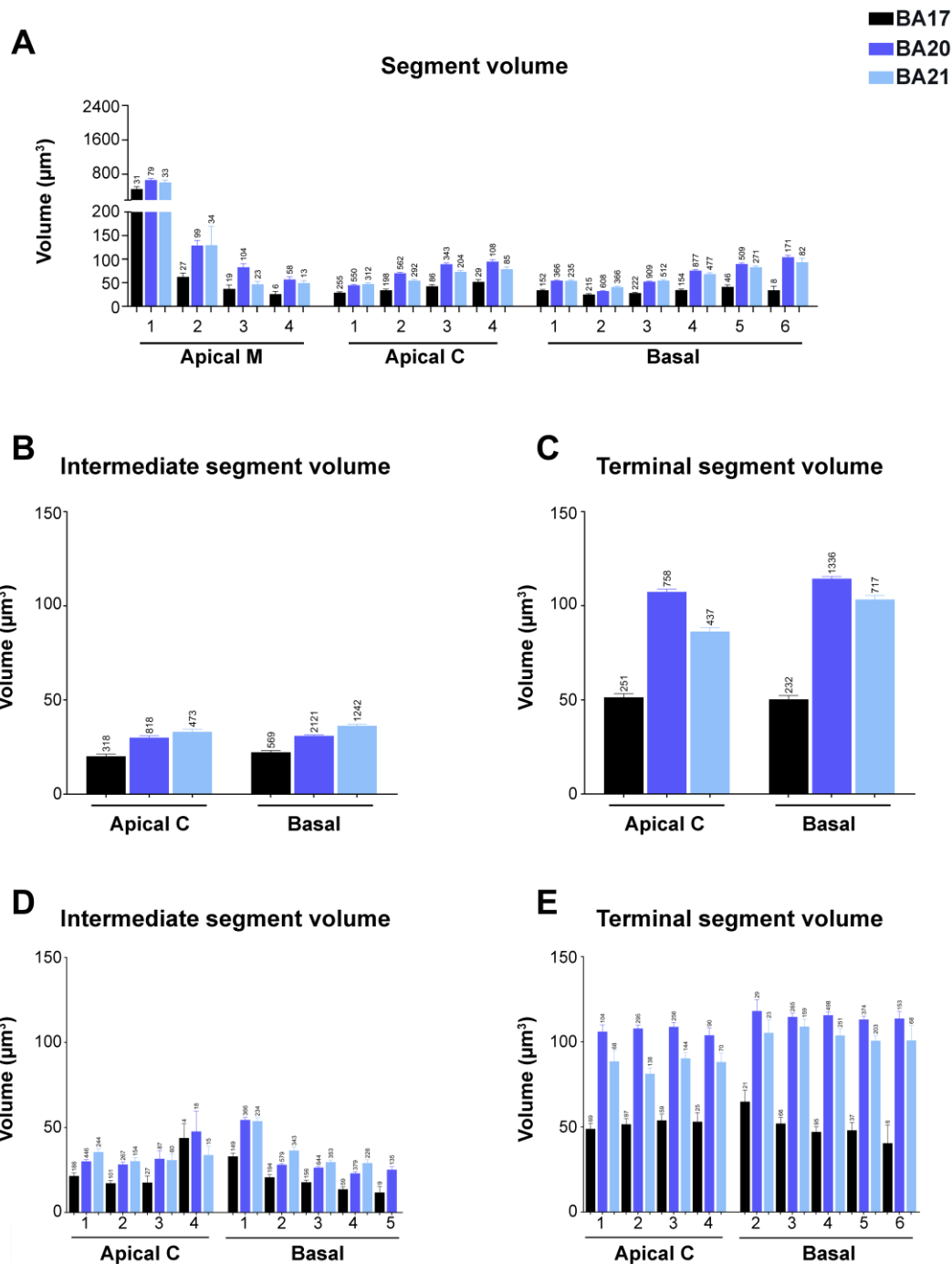
2 branching



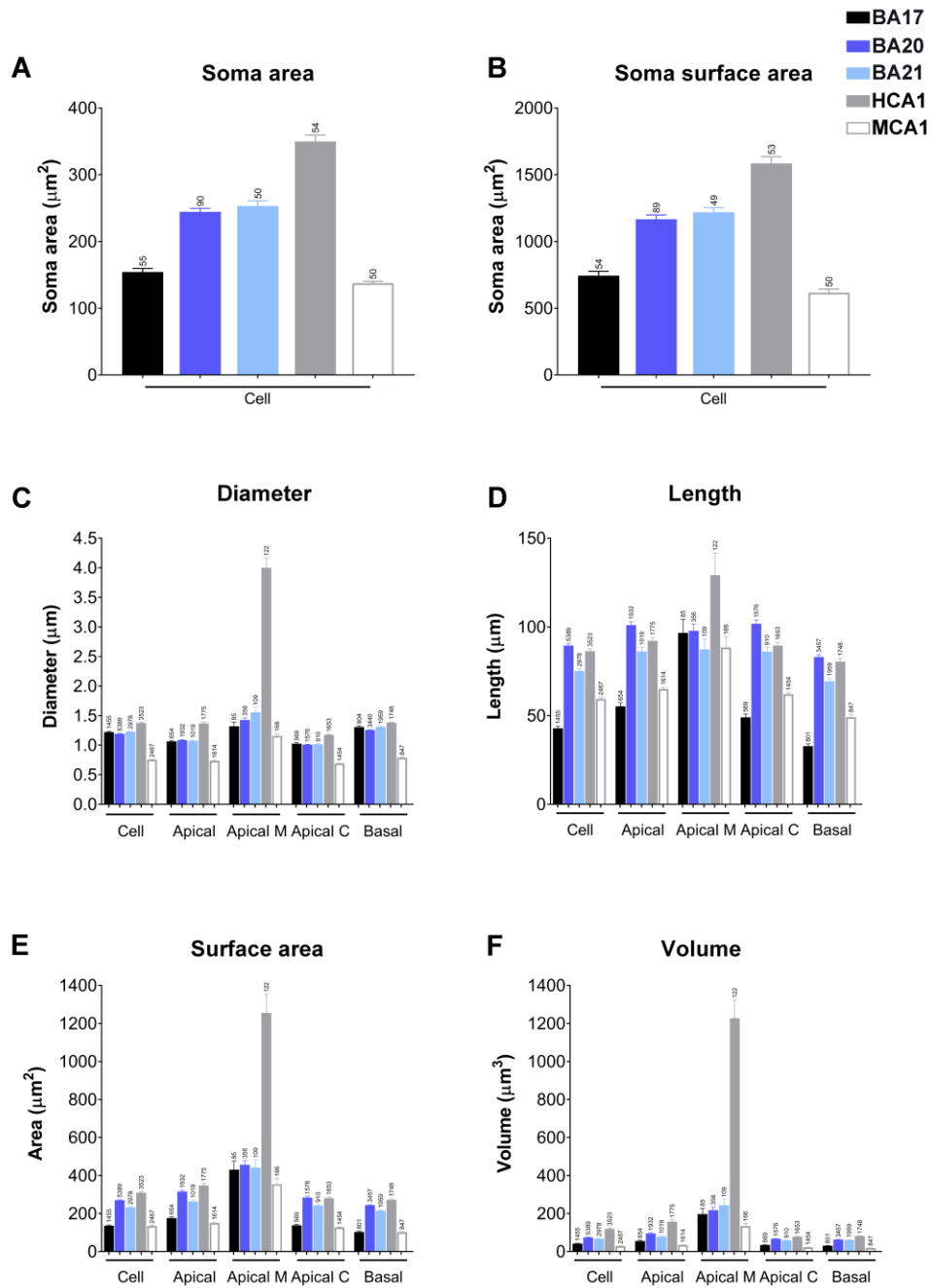
**Supplementary Figure 3.** Dendrogram examples of main apical dendrites that had 0 bifurcations, 1 bifurcation and 2 bifurcations (within the first 200 µm) from the 3D reconstructed dataset of human BA20 and BA21 pyramidal neurons.



**Supplementary Figure 4.** Graphs showing intermediate (A, C, E) versus terminal segment (B, D, F) diameters (A, B), lengths (C, D) and surface area (E, F) for apical collateral (apical C) and basal dendrites from human BA17 (black), BA20 (dark blue) and BA21 (light blue) cortical areas. Measurements are reported as mean ± SEM. Only dendritic segments that were complete, and thus excluding incomplete endings, were included in this analysis. Additional graphs showing intermediate and terminal segment volume are shown in Supplementary Figure 5B, C. The statistical significance of the differences is shown in Supplementary Table 4.

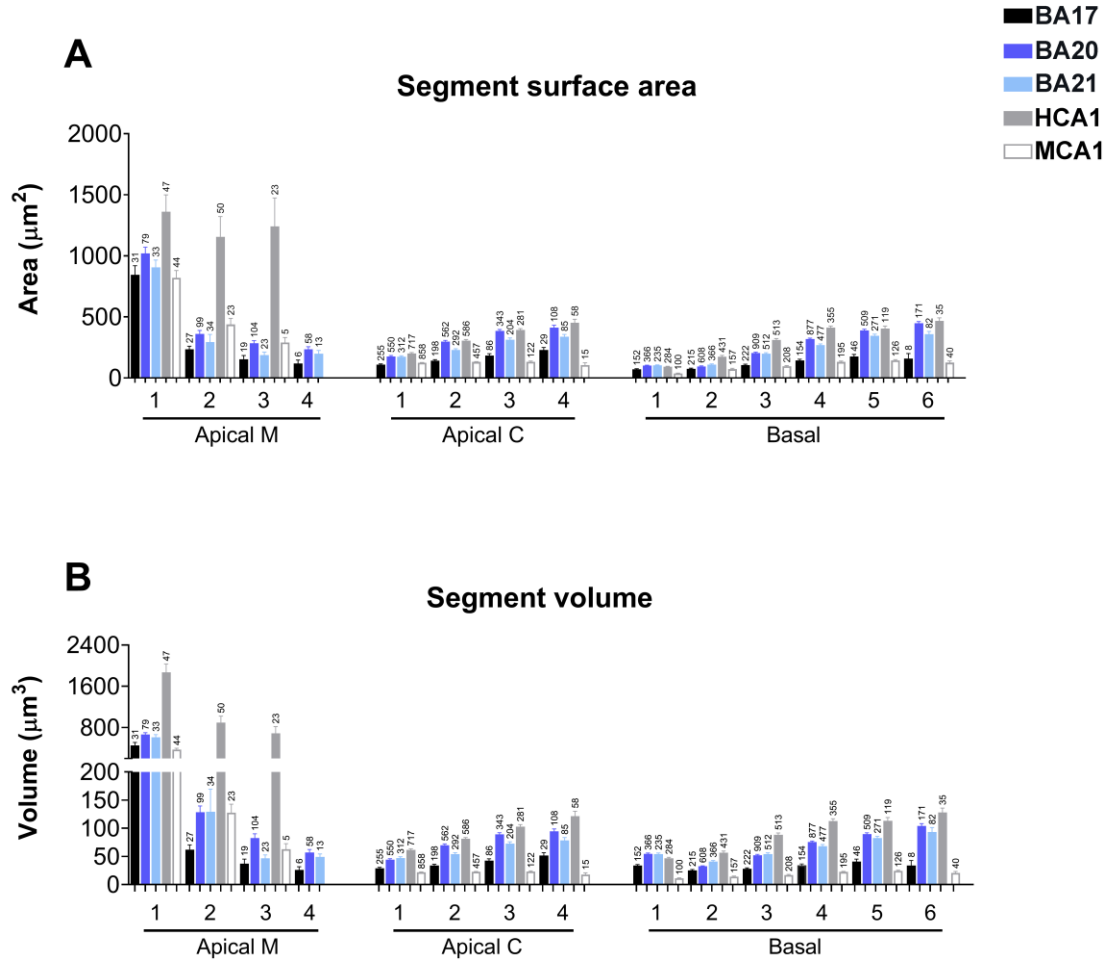


**Supplementary Figure 5.** (A) Graph showing dendritic segment volume, expressed per branch order (1, 2, 3, etc.) and per dendritic compartment: main apical dendrite (Apical M), apical collateral dendrites (Apical C), and basal arbor (Basal) from human BA17 (black), BA20 (dark blue) and BA21 (light blue) cortical areas. (B, C) Graphs showing intermediate (B) versus terminal segment (C) volume for apical C and basal dendrites from the same 3 cortical areas as in A. (D, E) Graphs showing —per branch order— intermediate (D) versus terminal (E) segment volume for the same compartments and cortical areas as in the previous graphs. Measurements are reported as mean  $\pm$  SEM. Only dendritic segments that were complete, and thus excluding incomplete endings, were included in this analysis. The statistical significance of the differences is shown in Supplementary Tables 3, 4.

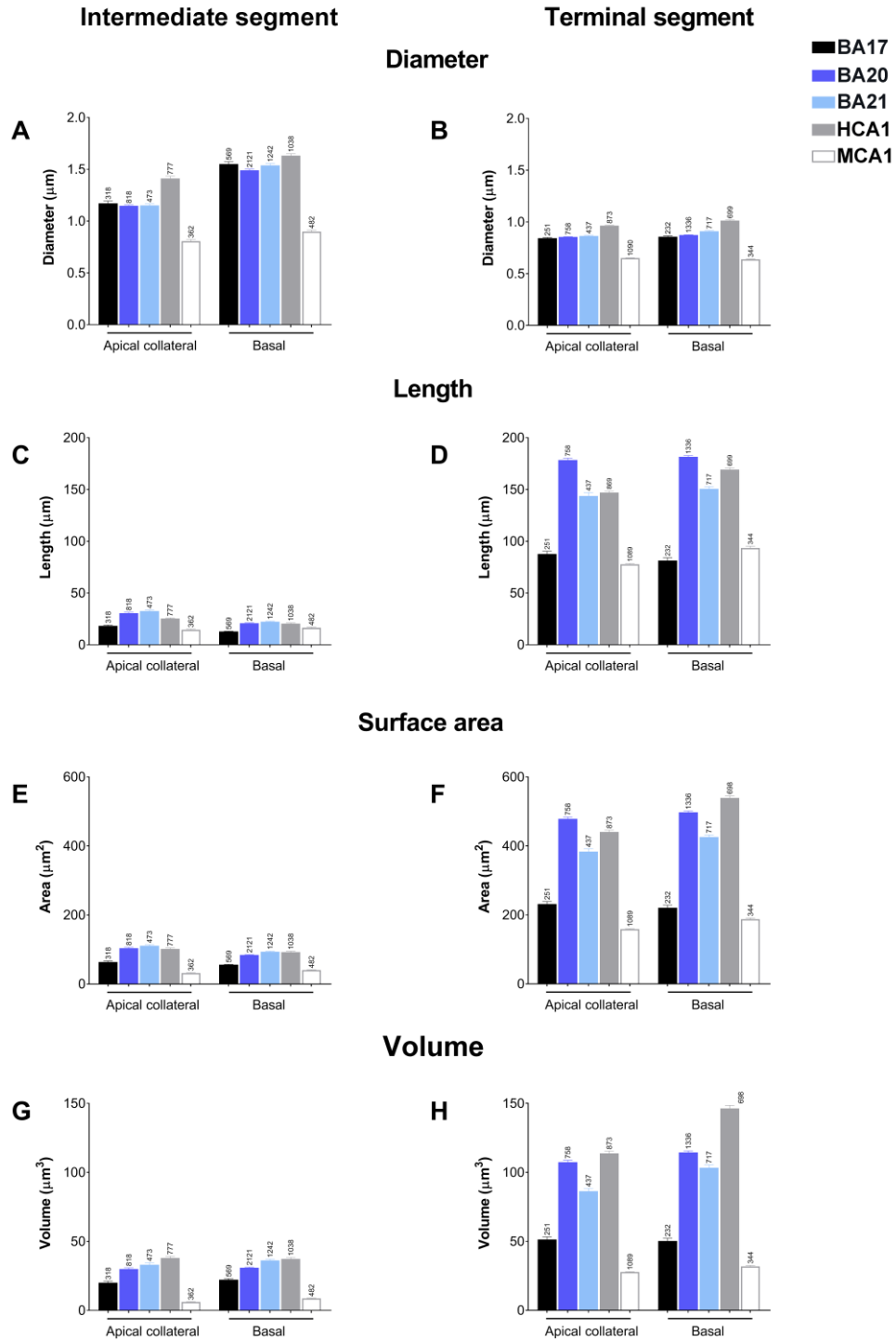


**Supplementary Figure 6.** Graphs showing soma area (A), soma surface area (B), dendritic segment average diameter (C), segment length (D), segment surface area (E), and segment volume (F), expressed per cell and per dendritic compartment: apical arbor (including main apical dendrite and apical collateral dendrites together); main apical dendrite alone (Apical M); apical collateral dendrites alone (Apical C); and basal dendritic arbor from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas and human CA1 (grey) and mouse CA1 (white) regions. Measurements are reported as mean  $\pm$  SEM. Only dendritic segments that were complete, and thus excluding incomplete endings, were included in this analysis. The statistical significance of the differences is shown in Supplementary Tables 1, 6.

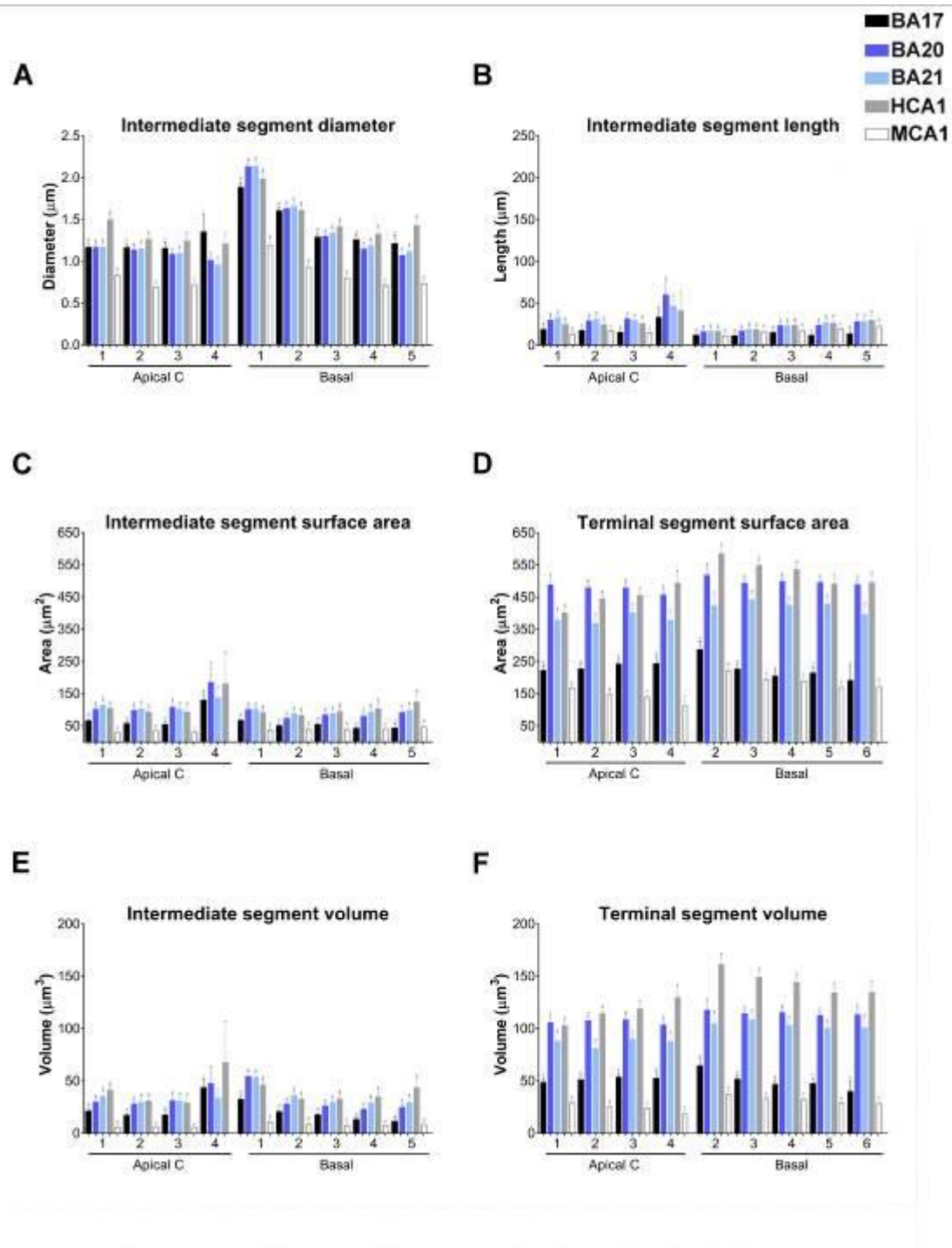




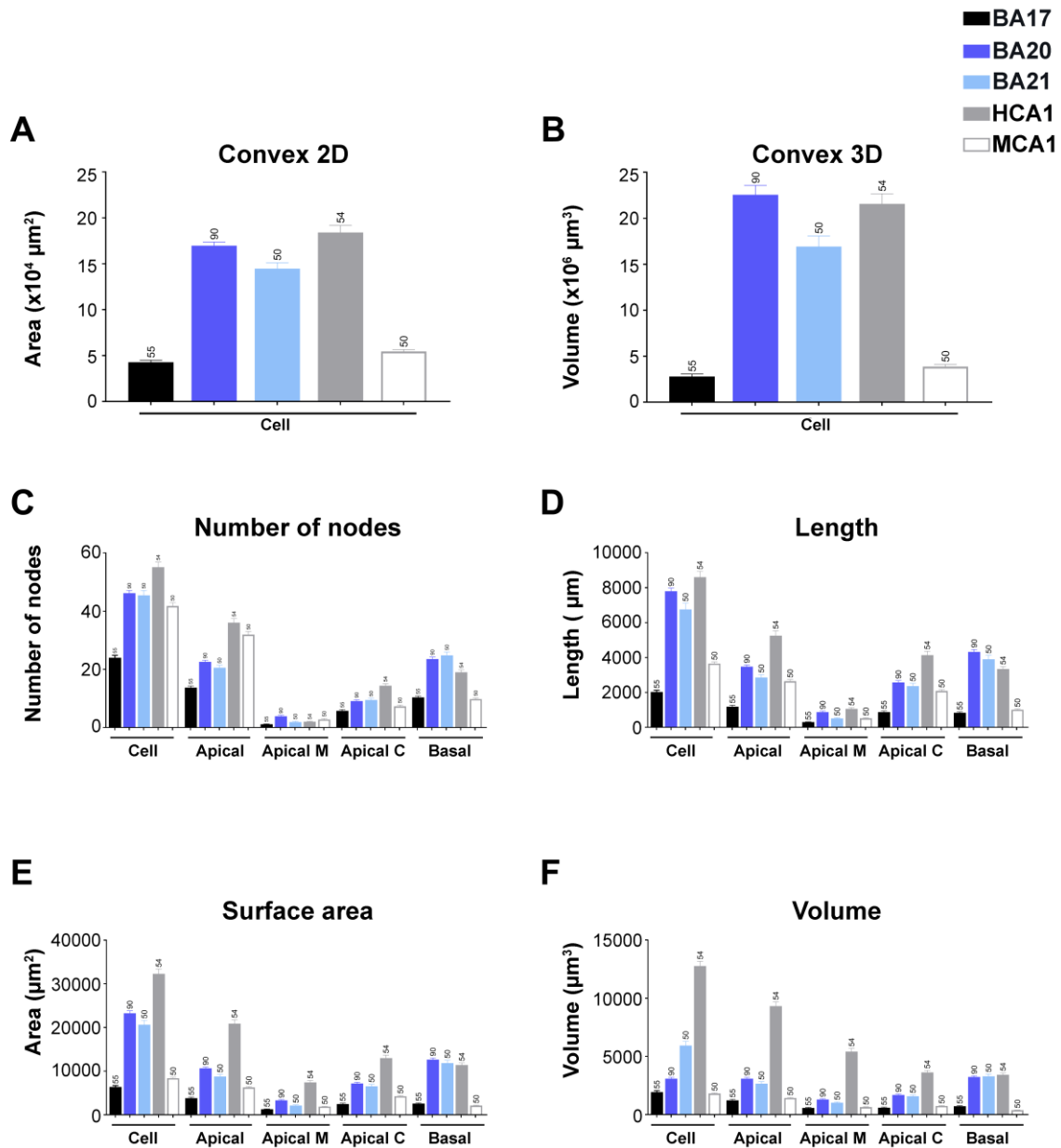
**Supplementary Figure 7.** Graphs —per branch order— showing dendritic segment average surface area (A) and volume (B) per dendritic compartment: main apical dendrite (Apical M), apical collateral dendrites (Apical C), and basal arbor (Basal) from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas and human CA1 (grey) and mouse CA1 (white) regions. Measurements are reported as mean  $\pm$  SEM. Only dendritic segments that were complete, and thus excluding incomplete endings, were included in this analysis. The statistical significance of the differences is shown in Supplementary Table 8.



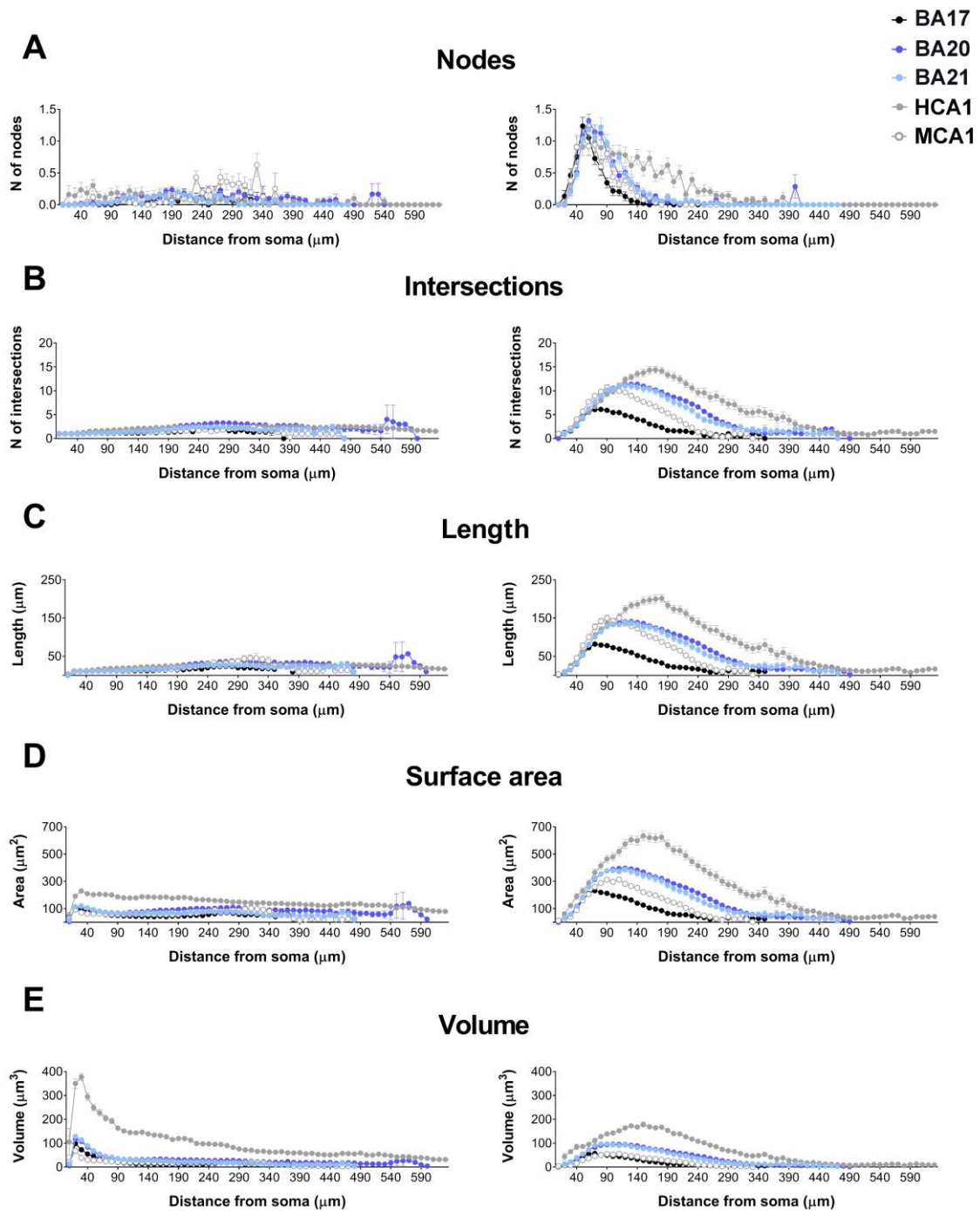
**Supplementary Figure 8.** Graphs showing intermediate (A, C, E, G) versus terminal segment (B, D, F, H) diameters (A, B), lengths (C, D), surface area (E, F) and volume (G, H) for apical collateral (apical C) and basal dendrites from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas and human CA1 (grey) and mouse CA1 (white) regions. Measurements are reported as mean  $\pm$  SEM. Only dendritic segments that were complete, and thus excluding incomplete endings, were included in this analysis.



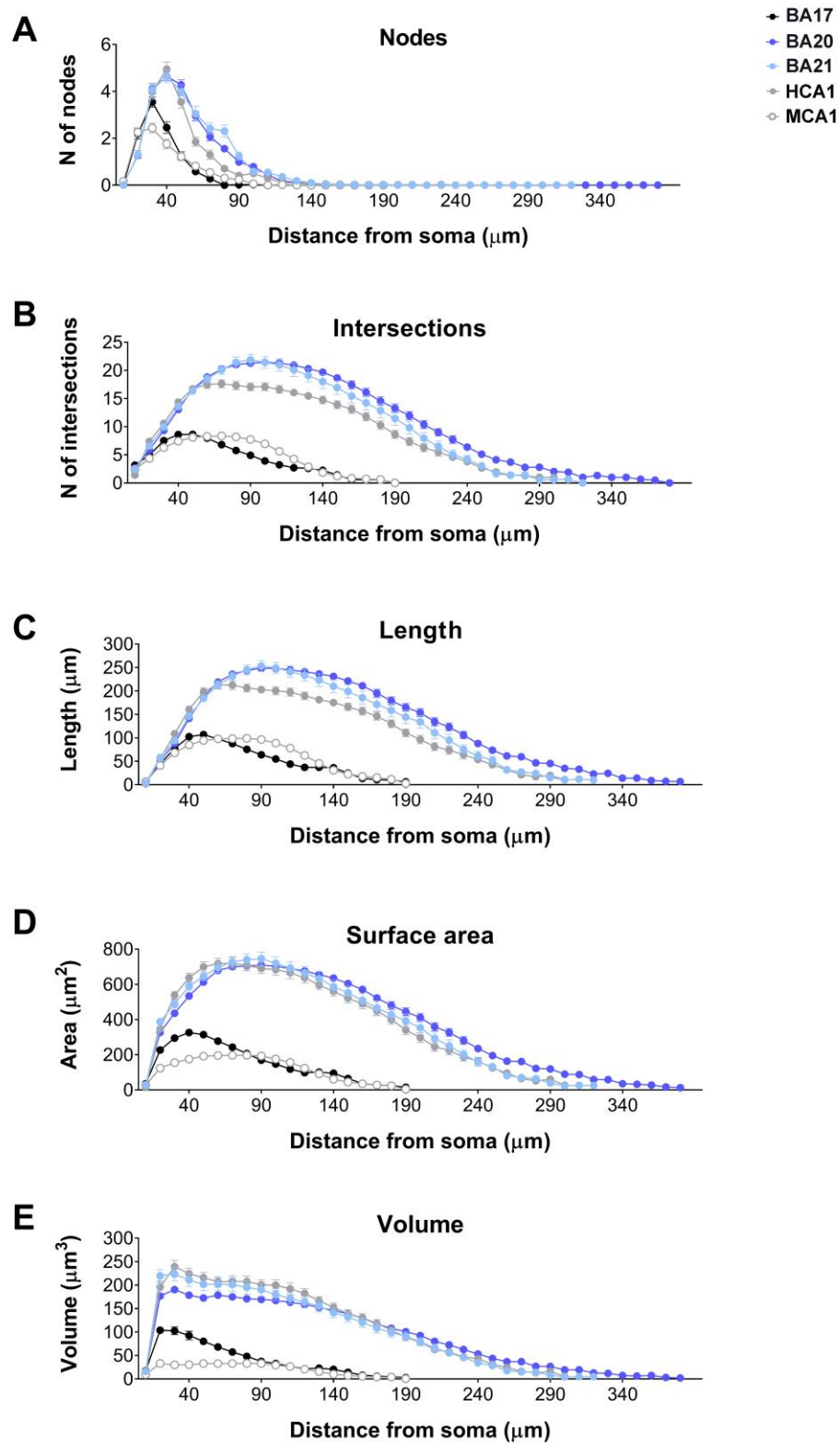
**Supplementary Figure 9.** (A, B) Graphs showing —per branch order— intermediate segment diameter (A) and length (B) for apical collateral (apical C) and basal dendrites from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas and human CA1 (grey) and mouse CA1 (white) regions. (C–F) Graphs showing —per branch order— intermediate (C, E) versus terminal (D, F) segment surface area (C, D) and volume (E, F) for the same compartments and regions as above. Measurements are reported as mean  $\pm$  SEM. Only dendritic segments that were complete, and thus excluding incomplete endings, were included in this analysis.



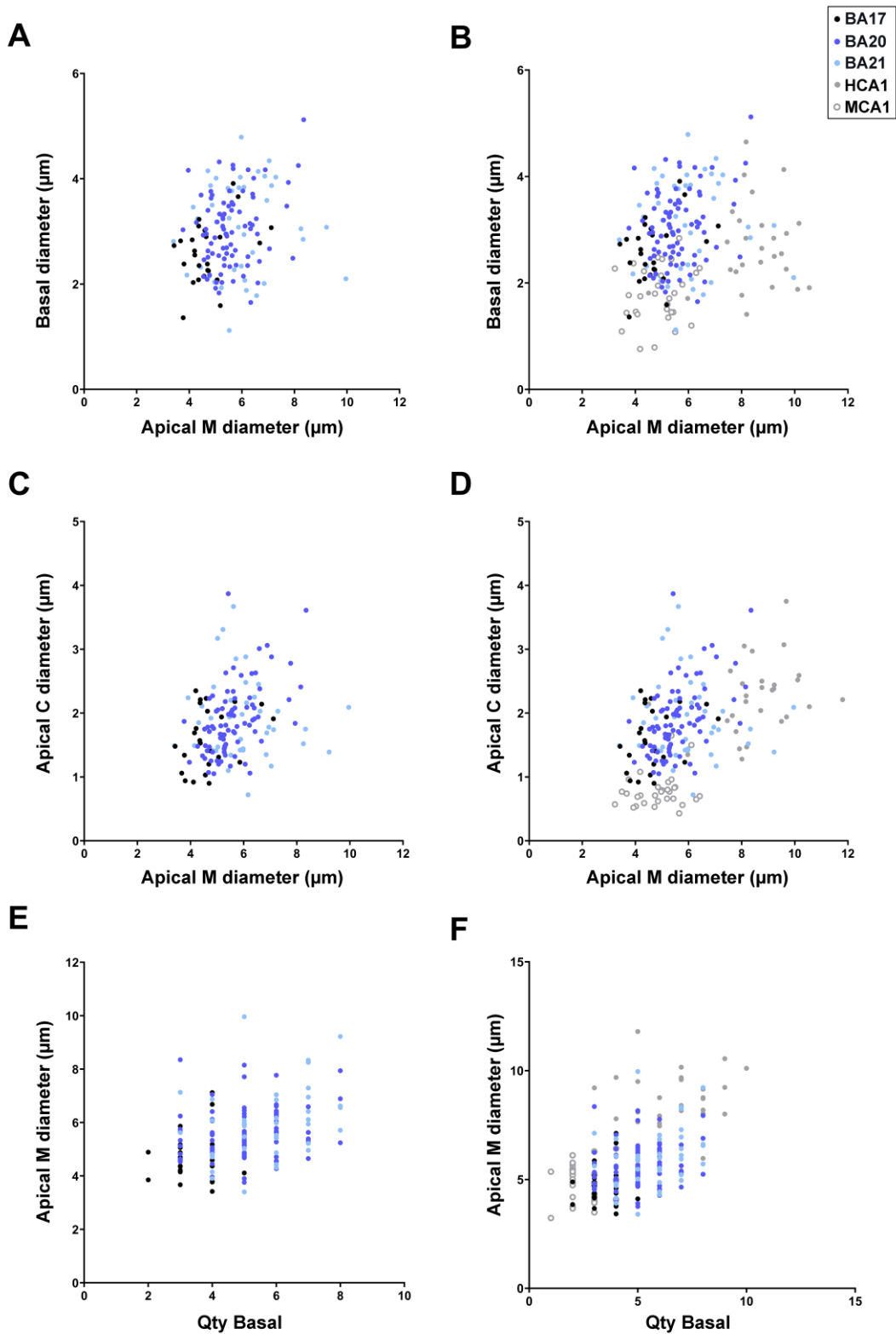
**Supplementary Figure 10.** Graphs showing non-full measurements: convex 2D (A), convex 3D (B), number of nodes (C), dendritic length (D), dendritic surface area (E) and dendritic volume (F) from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas and human CA1 (grey) and mouse CA1 (white) regions.



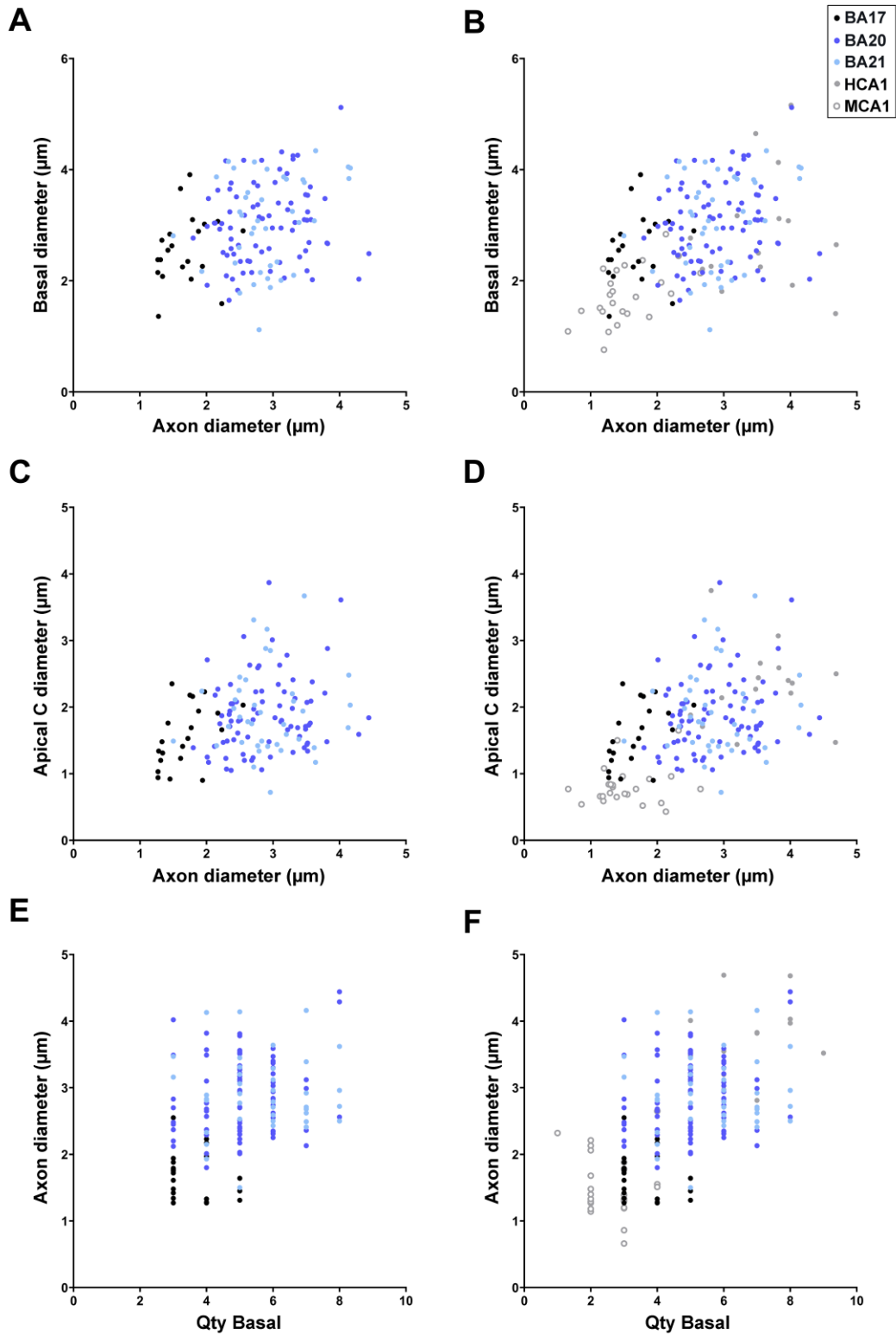
**Supplementary Figure 11.** Graphs showing the number of nodes (A), dendritic intersections (B), dendritic length (C), dendritic surface area (D), and dendritic volume (E) distribution as a function of the distance from the soma in Apical M and Apical C compartments from human BA17 (black), BA20 (dark blue), BA21 (light blue), CA1human (grey) and CA1mouse (white) pyramidal neurons. Measurements are reported as mean  $\pm$  SEM.



**Supplementary Figure 12.** Graphs showing the number of nodes (A), dendritic intersections (B), dendritic length (C), dendritic surface area (D), and dendritic volume (E) distribution as a function of the distance from soma in basal compartments from human BA17 (black), BA20 (dark blue), BA21 (light blue), CA1human (grey) and CA1mouse (white) pyramidal neurons. Measurements are reported as mean  $\pm$  SEM.

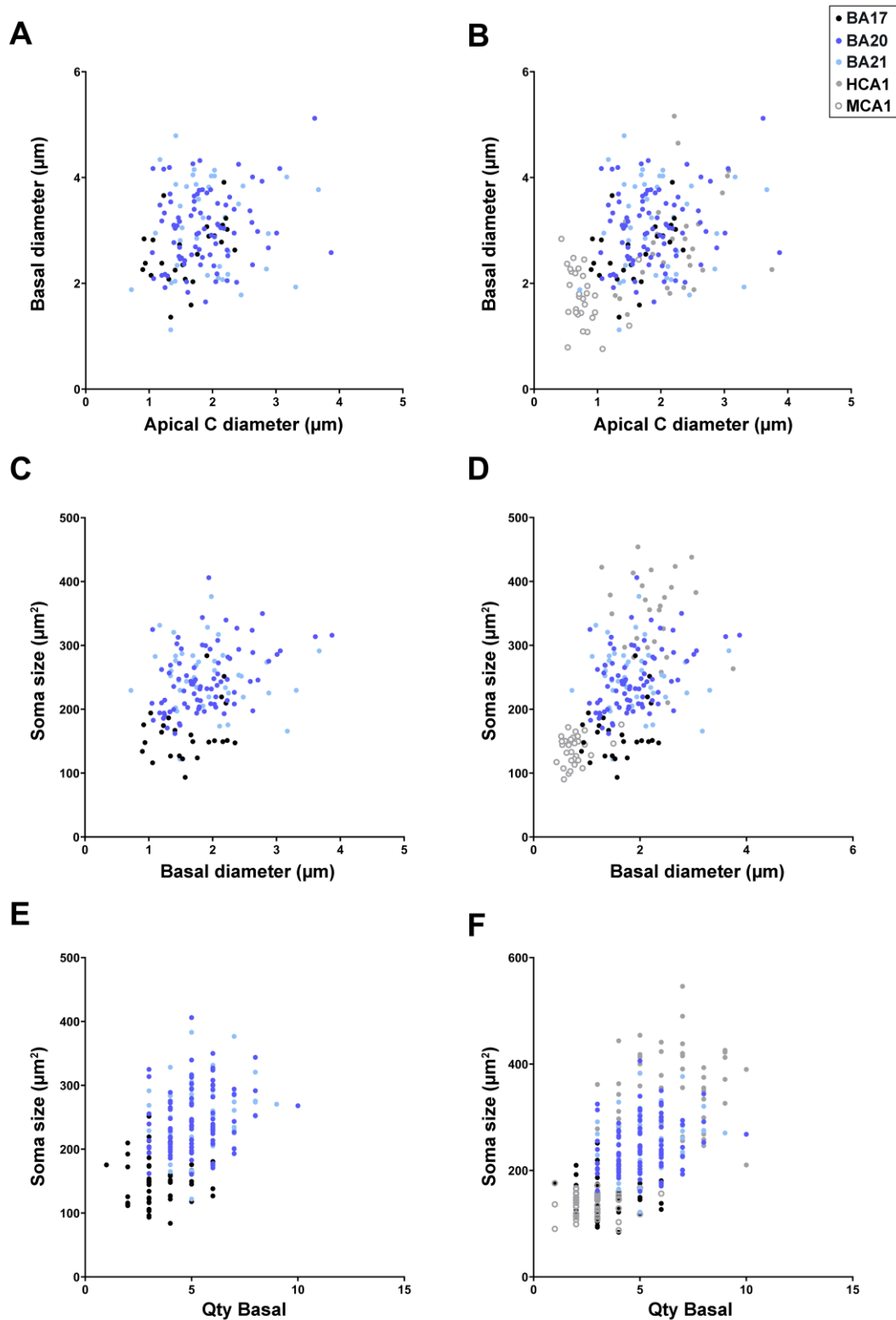


**Supplementary Figure 13.** Correlation analyses between various morphological parameters analyzed. Each point represents the values obtained in one cell from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas (A, C, E; left column). Additional correlations, including human CA1 (grey) and mouse CA1 (open circles) regions, are shown (B, D, F; right column). Qty Basal = n° primary basal dendrites. Significant correlations were classified as weak [Spearman's rho ( $r$ ) value lower than 0.40], moderate ( $0.4 < r < 0.7$ ), and strong ( $r > 0.7$ ). See also Supplementary Table 11.

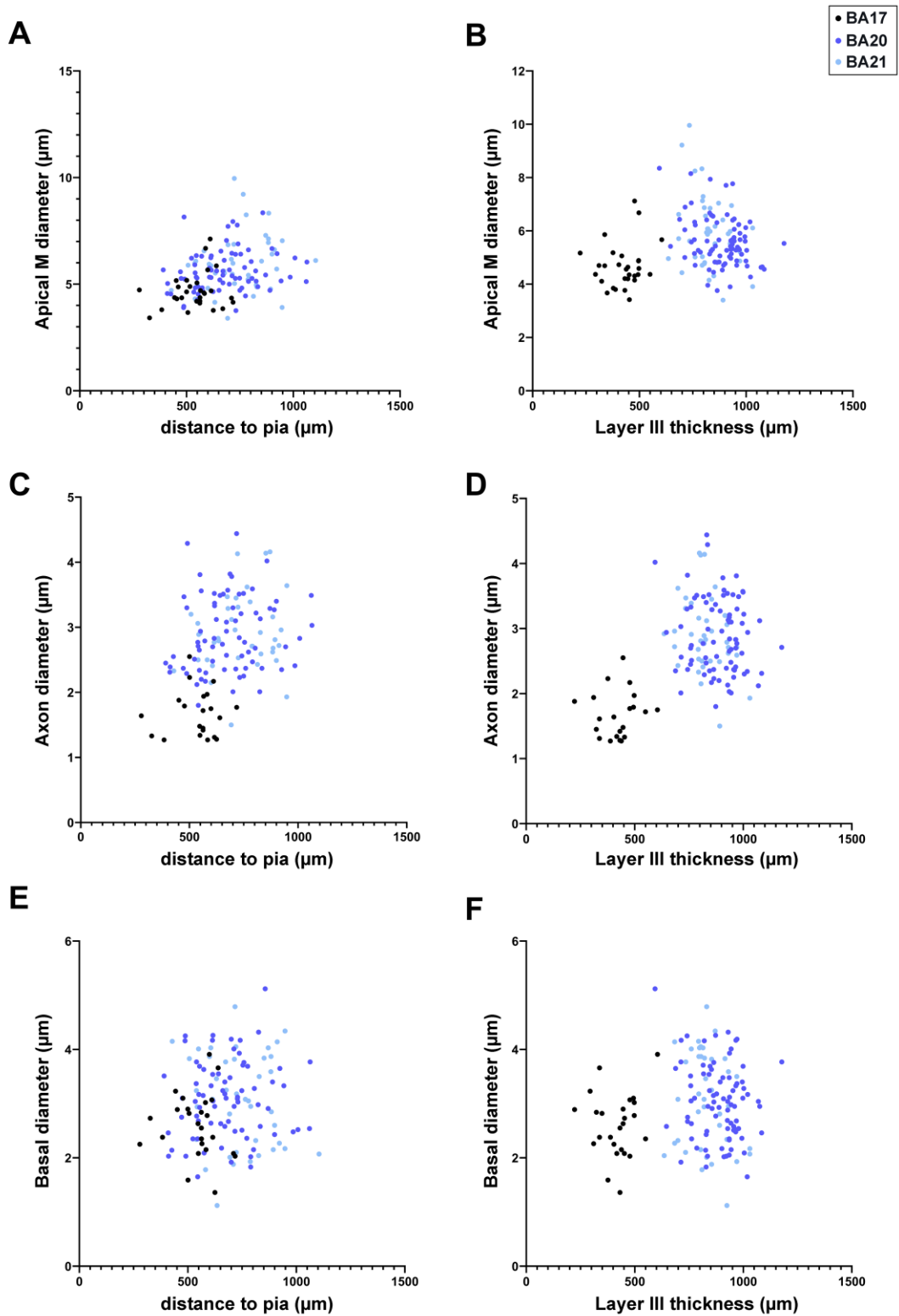


**Supplementary Figure 14.** Correlation analyses between various morphological parameters analyzed. Each point represents the values obtained in one cell from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas (A, C, E; left column). Additional correlations, including human CA1 (grey) and mouse CA1 (open circles) regions, are shown (B, D, F; right column). Qty Basal = n° primary basal dendrites. Significant correlations were classified as weak [Spearman's rho ( $r$ ) value lower than 0.40], moderate ( $0.4 < r < 0.7$ ), and strong ( $r > 0.7$ ). See also Supplementary Table 11.

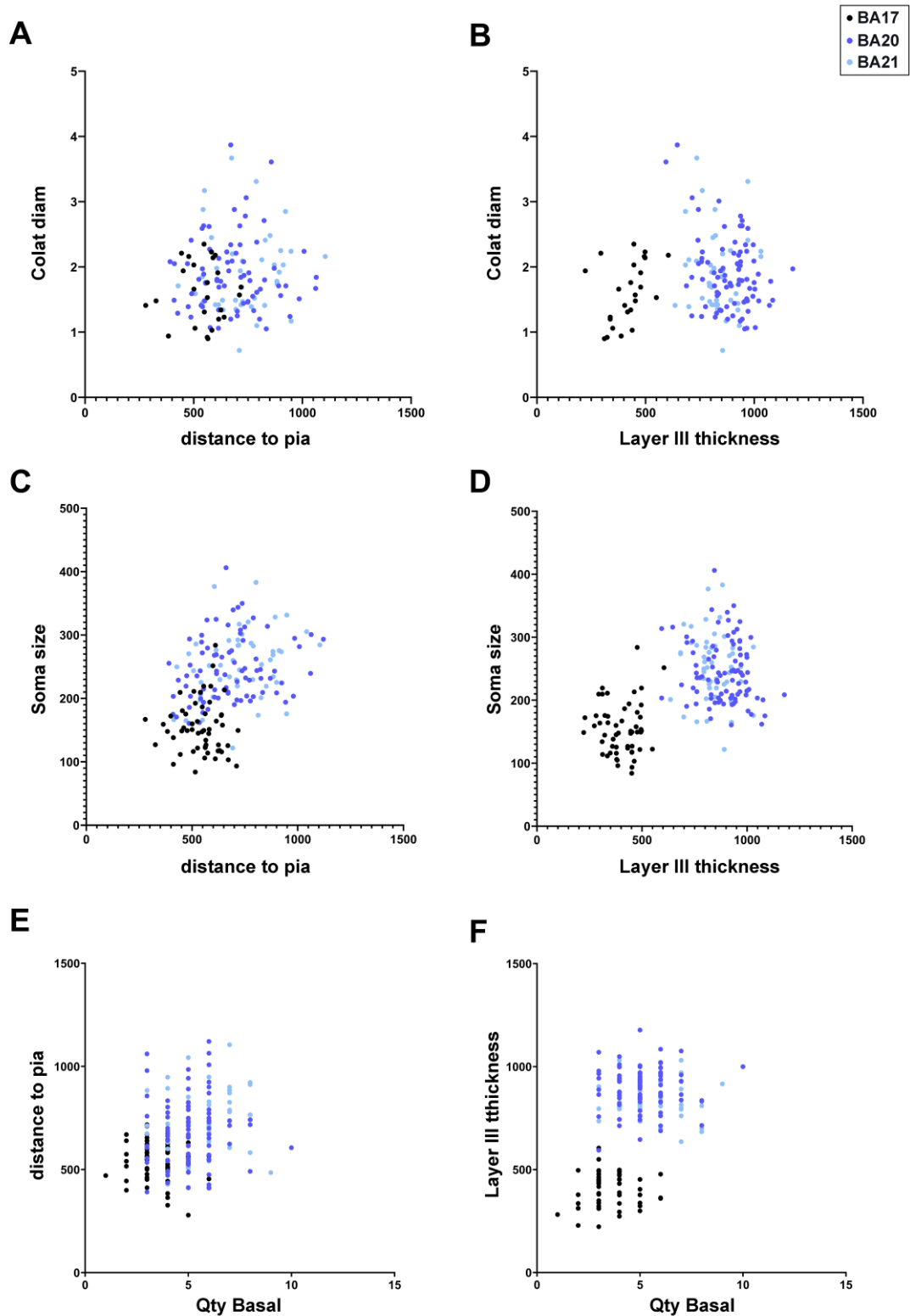




**Supplementary Figure 15.** Correlation analyses between various morphological parameters analyzed. Each point represents the values obtained in one cell from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas (A, C, E; left column). Additional correlations, including human CA1 (grey) and mouse CA1 (open circles) regions, are shown (B, D, F; right column). Qty Basal =  $n^\circ$  primary basal dendrites. Significant correlations were classified as weak [Spearman's rho ( $r$ ) value lower than 0.40], moderate ( $0.4 < r < 0.7$ ), and strong ( $r > 0.7$ ). See also Supplementary Table 11.



**Supplementary Figure 16.** Correlation analyses (A-F) between various morphological parameters analyzed. Each point represents the values obtained in one cell from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas and human CA1 (grey) and mouse CA1 (open circles) regions. Significant correlations were classified as weak [Spearman's rho ( $r$ ) value lower than 0.40], moderate ( $0.4 < r < 0.7$ ), and strong ( $r > 0.7$ ). See also Supplementary Table 11.



**Supplementary Figure 17.** Correlation analyses (A-F) between various morphological parameters analyzed. Each point represents the values obtained in one cell from human BA17 (black), BA20 (dark blue), BA21 (light blue) cortical areas and human CA1 (grey) and mouse CA1 (open circles) regions. Qty Basal = n° primary basal dendrites. Significant correlations were classified as weak [Spearman's rho (r) value lower than 0.40], moderate (0.4<r<0.7), and strong (r>0.7). See also Supplementary Table 11.

**Supplementary Table 1:** Statistical comparisons (Kruskal-Wallis test) of mean values of morphological variables per region shown in Figure 3 A, B (a) and Supplementary figure 1 (a, b).

**a.**

	BA17 vs BA20	BA17 vs BA21	BA20 vs BA21
Soma volume (Fig. 3A)	****	****	ns
Number of primary basal dendrites (Fig. 3B)	****	****	ns
Soma area(Supl. fig 1A)	****	****	ns
Soma surface area (Supl. fig 1B)	****	****	ns

**b.**

	Segment diameter			Segment length			Segment surface area			Segment volume		
	BA17 vs BA20	BA17 vs BA21	BA20 vs BA21	BA17 vs BA20	BA17 vs BA21	BA20 vs BA21	BA17 vs BA20	BA17 vs BA21	BA20 vs BA21	BA17 vs BA20	BA17 vs BA21	BA20 vs BA21
Cell	ns	ns	ns	****	****	****	****	****	***	****	****	***
Apical (M+C)	***	ns	**	****	****	**	****	****	***	****	****	****
Apical M	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Apical C	*	ns	ns	****	****	*	****	****	**	****	****	**
Basal	ns	ns	**	****	****	*	****	****	ns	****	****	ns

**Supplementary Table 2:** Statistical comparisons of dendritic diameter values per distance from soma from Fig 3 C-F.

	μm	Apical M			Apical C			Basal			Axon		
		BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21
Dendritic Diameter	20	****	****	ns	ns	ns	ns	***	****	ns	****	****	ns
	30	****	****	ns	ns	ns	ns	***	****	ns	****	****	ns
	40	****	****	ns	ns	ns	ns	**	****	ns	*	**	ns
	50	***	**	ns	*	ns	ns	***	****	ns	ns	ns	ns
	60	***	***	ns	*	*	ns	***	***	ns	ns	ns	ns
	70	****	****	ns	***	**	ns	**	***	ns	ns	ns	ns
	80	****	****	ns	**	**	ns	**	**	ns	ns	ns	ns
	90	****	***	ns	***	*	ns	***	***	ns	-	-	-
	100	****	**	ns	**	ns	ns	****	**	ns	-	-	-
	110	****	***	ns	*	ns	ns	****	**	ns	-	-	-
	120	****	***	ns	ns	ns	ns	***	**	ns	-	-	-
	130	****	**	ns	ns	ns	ns	*	ns	ns	-	-	-
	140	****	**	ns	ns	ns	ns	**	*	ns	-	-	-
	150	****	**	ns	ns	ns	ns	**	ns	ns	-	-	-
	160	****	**	ns	ns	ns	ns	ns	ns	ns	-	-	-
	170	****	**	ns	ns	ns	ns	-	-	-	-	-	-
	180	****	**	ns	ns	ns	ns	-	-	-	-	-	-
	190	***	ns	ns	ns	ns	ns	-	-	-	-	-	-
	200	**	ns	ns	ns	ns	ns	-	-	-	-	-	-
	210	***	ns	*	ns	ns	ns	-	-	-	-	-	-
220	***	ns	ns	ns	ns	ns	-	-	-	-	-	-	
230	*	ns	ns	ns	ns	ns	-	-	-	-	-	-	
240	*	ns	ns	ns	ns	ns	-	-	-	-	-	-	
250	ns	ns	ns	ns	ns	ns	-	-	-	-	-	-	
260	ns	ns	ns	ns	ns	ns	-	-	-	-	-	-	
270	ns	ns	ns	ns	ns	ns	-	-	-	-	-	-	

**Supplementary Table 3:** Statistical comparisons of segment diameter, length, surface area and volume values per branch order, between compartments (a) and orders (b) from graphs shown in Figure 4 and Supplementary Figure 5A.

a.

		Segment diameter			Segment length			Segment area			Segment volume		
		BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21
Apical M	Order 1	****	**	ns	ns	ns	ns	ns	ns	ns	***	*	ns
	Order 2	****	***	ns	ns	ns	ns	ns	ns	ns	**	ns	*
	Order 3	***	ns	*	*	ns	ns	*	ns	ns	**	ns	ns
	Order 4	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Apical C	Order 1	**	ns	ns	****	****	ns	****	****	ns	****	****	ns
	Order 2	ns	ns	ns	****	****	**	****	****	**	****	****	***
	Order 3	ns	ns	ns	****	****	**	****	****	**	****	****	**
	Order 4	ns	ns	ns	****	*	*	****	*	*	****	*	*
Basal	Order 1	****	****	ns	****	****	ns	****	****	ns	****	****	ns
	Order 2	ns	ns	ns	**	****	*	****	****	**	****	****	**
	Order 3	ns	ns	ns	****	****	ns	****	****	ns	****	****	ns
	Order 4	ns	*	ns	****	****	***	****	****	**	****	****	ns
	Order 5	ns	ns	ns	****	****	**	****	****	*	****	****	ns
	Order 6	ns	ns	*	***	ns	****	***	*	***	***	*	*







b.

Length		Intermediate segment						Terminal segment					
		Apical C BA17	Basal BA17	Apical C BA20	Basal BA20	Apical C BA21	Basal BA21	Apical C BA17	Basal BA17	Apical C BA20	Basal BA20	Apical C BA21	Basal BA21
Intermediate segment	Apical C BA17		*	****	ns	****	ns	****	****	****	****	****	****
	Basal BA17			****	****	****	****	****	****	****	****	****	****
	Apical C BA20				****	ns	****	****	****	****	****	****	****
	Basal BA20					****	ns	****	****	****	****	****	****
	Apical C BA21						****	****	****	****	****	****	****
	Basal BA21							****	****	****	****	****	****
Terminal segment	Apical C BA17								ns	****	****	****	****
	Basal BA17									****	****	****	****
	Apical C BA20										ns	***	**
	Basal BA20											****	****
	Apical C BA21												ns
	Basal BA21												

c.





**Supplementary Table 5:** Statistical comparisons of segment diameters/length/surface area and volume values per branch order and dendritic segment type (intermediate/terminal), between compartments (a) and orders (b) from graphs shown in Figure 5, Supplementary Figure 5 D, E.

**a.**

		Segment diameter			Segment length			Segment surface area			Segment volume		
		BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21	BA17 vs. BA20	BA17 vs. BA21	BA20 vs. BA21
Intermediate Apical C	Order 1	ns	ns	ns	****	****	ns	****	****	ns	ns	ns	ns
	Order 2	ns	ns	ns	****	****	ns	****	****	ns	ns	ns	ns
	Order 3	ns	ns	ns	***	***	ns	***	***	ns	ns	ns	ns
	Order 4	ns	*	ns	ns	ns	ns	ns	ns	ns	ns	*	ns
Intermediate basal	Order 1	****	****	ns	****	****	ns	****	****	ns	****	****	ns
	Order 2	ns	ns	ns	****	****	*	****	****	**	ns	ns	ns
	Order 3	ns	ns	ns	****	****	ns	****	****	ns	ns	ns	ns
	Order 4	ns	ns	ns	****	****	ns	****	****	ns	ns	ns	ns
	Order 5	ns	ns	ns	*	*	ns	*	*	ns	ns	ns	ns
Terminal Apical C	Order 1	ns	ns	*	****	****	****	****	****	***	****	****	*
	Order 2	ns	ns	ns	****	****	****	****	****	****	****	****	****
	Order 3	ns	ns	ns	****	****	***	****	****	***	****	****	***
	Order 4	ns	*	ns	****	**	*	****	***	*	****	***	*
Terminal Basal	Order 2	ns	ns	ns	****	ns	**	****	*	ns	****	**	ns
	Order 3	ns	*	ns	****	****	**	****	****	*	****	****	ns
	Order 4	ns	**	ns	****	****	****	****	****	****	****	****	***
	Order 5	ns	ns	ns	****	****	****	****	****	****	****	****	***
	Order 6	ns	ns	ns	***	ns	****	***	*	***	***	*	*





**Supplementary Table 6:** Statistical comparisons (Kruskal-Wallis test) of mean values of morphological variables per region shown in Figure 7 A, B (a) and Supplementary figures 6 and 10 A, B (a, b).

**a.**

	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Soma volume (Fig. 7A)	****	****	****	ns	ns	***	****	*	****	****
Number of primary basal dendrites (Fig. 7B)	****	****	****	ns	ns	*	****	ns	****	****
Soma area (Supl. Fig. 6A)	****	****	****	ns	ns	****	****	***	****	****
Soma surface area (Supl. Fig. 6B)	****	****	****	ns	ns	****	****	*	****	****
Cell area (Convex 2D) (Supl. Fig. 10A)	****	****	****	ns	ns	ns	****	ns	****	****
Cell volume (Convex 3D) (Supl. Fig. 10B)	****	****	****	ns	ns	ns	****	ns	****	****

**b.**

Segment diameter	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Cell	ns	ns	****	****	ns	****	****	****	****	****
Apical (M+C)	*	ns	****	****	ns	****	****	****	****	****
Apical M	ns	ns	****	ns	ns	****	****	****	***	****
Apical C	ns	ns	****	****	ns	****	****	****	****	****
Basal	ns	ns	****	****	*	****	****	****	****	****

Segment length	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Cell	****	****	****	****	****	ns	****	**	**	****
Apical (M+C)	****	****	****	****	**	**	****	ns	****	****
Apical M	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Apical C	****	****	****	****	*	*	****	ns	****	****
Basal	****	****	****	****	ns	ns	****	ns	****	****

Segment surface area	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Cell	****	****	****	**	***	**	****	****	****	****
Apical (M+C)	****	****	****	ns	***	ns	****	***	****	****
Apical M	ns	ns	****	ns	ns	****	**	****	ns	****
Apical C	****	****	****	ns	*	ns	****	*	****	****
Basal	****	****	****	ns	ns	ns	****	***	****	****

Segment volume	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Cell	****	****	****	****	*	****	****	****	****	****
Apical (M+C)	****	****	****	****	***	***	****	****	****	****
Apical M	ns	ns	****	ns	ns	****	****	****	*	****
Apical C	****	****	****	****	ns	***	****	****	****	****
Basal	****	****	****	****	ns	****	****	****	****	****



**Supplementary Table 7:** Statistical comparisons of dendritic diameter values per distance from soma between regions in the apical M (a), apical C (b), basal (c) and axonal (d) compartments from graphs shown in Figure 7 C- F.

a.

$\mu\text{m}$	Apical M dendritic diameter									
	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
20	-	-	-	-	-	-	-	-	-	-
30	****	***	****	****	ns	****	****	****	****	****
40	****	***	****	***	ns	****	****	****	****	****
50	***	**	****	*	ns	****	****	****	****	****
60	***	**	****	ns	ns	****	****	****	****	****
70	****	****	****	ns	ns	****	****	****	****	****
80	****	***	****	ns	ns	****	****	****	****	****
90	****	**	****	ns	ns	****	****	****	***	****
100	****	**	****	ns	ns	****	****	****	***	****
110	****	**	****	ns	ns	****	****	****	**	****
120	****	***	****	ns	ns	****	****	****	*	****
130	****	*	****	ns	ns	****	****	****	ns	****
140	****	*	****	ns	ns	****	****	****	ns	****
150	****	**	****	*	ns	****	**	****	ns	****
160	****	*	****	*	ns	****	**	****	ns	****
170	****	**	****	**	ns	****	*	****	ns	****
180	****	*	****	**	ns	****	*	****	ns	****
190	**	ns	****	ns	ns	****	ns	****	ns	****
200	**	ns	****	ns	ns	****	ns	****	ns	****
210	***	ns	****	ns	ns	****	ns	****	ns	****
220	***	ns	****	*	ns	****	ns	****	ns	****
230	*	ns	****	ns	ns	****	ns	****	ns	****
240	ns	ns	****	ns	ns	****	ns	****	ns	****
250	ns	ns	****	ns	ns	****	*	****	ns	****
260	ns	ns	****	ns	ns	****	*	****	ns	****
270	ns	ns	****	ns	ns	****	**	****	ns	****

b.

μm	Apical C dendritic diameter									
	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
20	ns	ns	ns	**	ns	ns	****	ns	**	*
30	ns	ns	ns	****	ns	ns	****	ns	****	***
40	ns	ns	ns	****	ns	ns	****	ns	****	****
50	*	ns	**	****	ns	ns	****	ns	****	****
60	ns	ns	**	****	ns	ns	****	ns	****	****
70	***	**	****	****	ns	ns	****	ns	****	****
80	**	*	****	****	ns	***	****	ns	****	****
90	**	ns	****	****	ns	****	****	**	****	****
100	**	ns	****	****	ns	****	****	****	****	****
110	ns	ns	****	****	ns	****	****	****	****	****
120	ns	ns	****	****	ns	****	****	****	****	****
130	ns	ns	****	****	ns	****	****	****	****	****
140	ns	ns	****	****	ns	****	****	****	****	****
150	ns	ns	****	****	ns	****	****	****	****	****
160	ns	ns	****	**	ns	****	****	****	****	****
170	ns	ns	****	****	ns	****	****	****	****	****
180	ns	ns	****	****	ns	****	****	****	****	****
190	ns	ns	***	***	ns	****	****	****	****	****
200	ns	ns	***	****	ns	****	****	****	****	****
210	ns	ns	*	****	ns	***	****	****	****	****
220	ns	ns	ns	****	ns	**	****	****	****	****
230	ns	ns	ns	**	ns	***	****	****	****	****
240	ns	ns	*	*	ns	**	****	****	****	****
250	ns	ns	ns	ns	ns	****	****	****	***	****
260	ns	ns	ns	ns	ns	****	****	****	****	****
270	ns	ns	ns	ns	ns	***	**	***	**	****

C.

μm	Basal dendritic diameter									
	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
20	**	****	**	****	ns	ns	****	ns	****	****
30	***	****	****	****	ns	ns	****	ns	****	****
40	**	****	****	****	ns	ns	****	ns	****	****
50	**	****	****	****	ns	ns	****	ns	****	****
60	**	***	****	****	ns	ns	****	ns	****	****
70	*	**	****	****	ns	***	****	ns	****	****
80	**	*	****	****	ns	****	****	***	****	****
90	***	**	****	****	ns	****	****	****	****	****
100	***	*	****	****	ns	***	****	****	****	****
110	***	*	****	****	ns	***	****	****	****	****
120	**	**	****	****	ns	****	****	****	****	****
130	*	ns	****	****	ns	****	****	****	****	****
140	*	ns	****	****	ns	***	****	****	****	****
150	*	ns	****	****	ns	**	****	****	****	****
160	ns	ns	****	****	ns	***	****	****	****	****

d.

μm	Axon diameter									
	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
20	****	****	****	*	ns	***	****	**	****	****
30	****	****	****	ns	ns	****	****	****	****	****
40	*	*	****	ns	ns	****	****	****	****	****
50	ns	ns	***	ns	ns	****	****	****	****	****
60	ns	ns	****	ns	ns	****	****	****	**	****
70	ns	ns	ns	ns	ns	****	****	****	****	****
80	ns	ns	ns	ns	ns	***	****	**	****	****

**Supplementary Table 8:** Statistical comparisons of segment diameter/length/surface area and volume values per branch order in the different dendritic compartments, from graphs shown in Figure 8 A, B and Supplementary Figure 7.

		Segment diameter										Segment length									
		BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Apical M	O1	**	*	****	ns	ns	****	****	****	**	****	ns	ns	***	ns	ns	****	ns	*	****	ns
	O2	***	*	****	ns	ns	****	ns	****	ns	****	ns	ns	ns	ns	ns	ns	ns	ns	ns	*
	O3	**	ns	****	ns	ns	****	*	****	ns	****	ns	ns	***	ns	ns	*	ns	*	ns	ns
Apical C	O1	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	****	ns	ns	****	ns	*	***
	O2	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	***	**	ns	****	*	ns	****
	O3	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	ns	**	ns	****	ns	****	****
	O4	ns	ns	***	***	ns	****	****	**	****	****	****	ns	***	ns	ns	ns	****	ns	**	****
Basal	O1	****	***	ns	****	ns	***	****	**	****	****	****	****	**	ns	ns	ns	****	ns	****	****
	O2	ns	ns	ns	****	ns	**	****	*	****	****	*	****	****	**	ns	****	ns	ns	ns	ns
	O3	ns	ns	**	****	ns	ns	****	ns	****	****	****	****	****	ns	ns	****	**	***	**	****
	O4	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	ns	**	**	****	****	***	****
	O5	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	ns	*	ns	****	ns	****	****
	O6	ns	ns	**	ns	ns	****	****	**	****	****	***	ns	*	ns	****	ns	****	ns	***	****

		Segment area										Segment volume									
		BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Apical M	O1	ns	ns	ns	ns	ns	ns	ns	ns	ns	*	*	ns	****	ns	ns	****	****	****	**	****
	O2	ns	ns	****	ns	ns	****	ns	****	ns	ns	ns	ns	****	ns	ns	****	ns	****	ns	***
	O3	ns	ns	****	ns	ns	****	ns	****	ns	ns	*	ns	****	ns	ns	****	ns	****	ns	*
Apical C	O1	****	****	****	****	ns	*	ns	ns	ns	****	****	****	****	ns	ns	****	****	***	****	****
	O2	****	****	****	ns	**	ns	****	***	****	****	****	****	****	ns	*	ns	****	****	****	****
	O3	****	****	****	ns	**	ns	****	**	****	****	****	****	****	ns	*	ns	****	****	****	****
	O4	***	ns	****	ns	ns	ns	****	*	***	****	***	ns	****	ns	ns	ns	****	***	****	****
Basal	O1	****	****	****	****	ns	*	****	*	****	****	****	****	****	****	ns	***	****	**	****	****
	O2	***	****	****	ns	*	****	****	ns	****	****	****	****	****	****	*	***	****	ns	****	****
	O3	****	****	****	ns	ns	****	****	****	****	****	****	****	****	***	ns	****	****	****	****	****
	O4	****	****	****	ns	*	****	****	****	****	****	****	****	****	ns	ns	****	****	****	****	****
	O5	****	****	****	ns	ns	ns	****	ns	****	****	****	****	****	ns	ns	*	****	***	****	****
	O6	***	ns	***	ns	**	ns	****	*	****	****	**	ns	****	ns	ns	ns	****	**	****	****

**Supplementary Table 9:** Statistical comparisons of segment diameters and length values per branch order and dendritic segment type (intermediate/terminal), from graphs shown in Figure 8 C-D.

		Terminal segment diameter										Terminal segment length									
		BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
Terminal Apical C	O1	ns	ns	****	****	ns	****	****	ns	****	****	****	****	****	ns	****	****	****	ns	****	****
	O2	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	ns	****	****	****	ns	****	****
	O3	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	ns	***	****	****	ns	****	****
	O4	ns	ns	****	**	ns	****	****	**	****	****	****	**	****	ns	ns	ns	****	ns	***	****
Terminal Basal	O2	ns	ns	***	**	ns	****	**	ns	****	****	****	ns	****	ns	*	ns	****	*	ns	****
	O3	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	ns	**	ns	****	ns	****	****
	O4	ns	*	****	****	ns	****	****	****	****	****	****	****	****	ns	****	ns	****	**	****	****
	O5	ns	ns	****	****	ns	****	****	****	****	****	****	****	****	ns	****	****	****	ns	****	****
	O6	ns	ns	**	ns	ns	****	****	***	****	****	***	ns	ns	ns	****	ns	****	ns	**	***

**Supplementary Table 10:** Statistical comparisons of basal spine density values per distance from soma from graph shown in Figure 9C.

$\mu\text{m}$	Basal spine density									
	BA17 vs BA20	BA17 vs BA21	BA17 vs HCA1	BA17 vs MCA1	BA20 vs BA21	BA20 vs HCA1	BA20 vs MCA1	BA21 vs HCA1	BA21 vs MCA1	HCA1 vs MCA1
10	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
20	ns	ns	ns	ns	ns	ns	**	ns	*	ns
30	ns	ns	ns	ns	ns	ns	***	ns	***	ns
40	ns	ns	ns	**	ns	ns	***	ns	***	ns
50	ns	ns	*	****	ns	ns	****	*	****	**
60	ns	ns	***	****	ns	**	****	**	****	*
70	*	ns	****	****	ns	****	****	****	****	ns
80	ns	ns	****	****	ns	****	****	****	****	ns
90	ns	ns	***	****	ns	**	****	***	****	ns
100	ns	ns	****	****	ns	****	****	****	****	ns
110	*	ns	****	****	ns	****	****	****	****	*
120	ns	ns	****	****	ns	***	****	****	****	ns
130	*	ns	****	****	ns	****	****	****	****	ns
140	ns	ns	***	**	ns	***	*	****	**	ns





