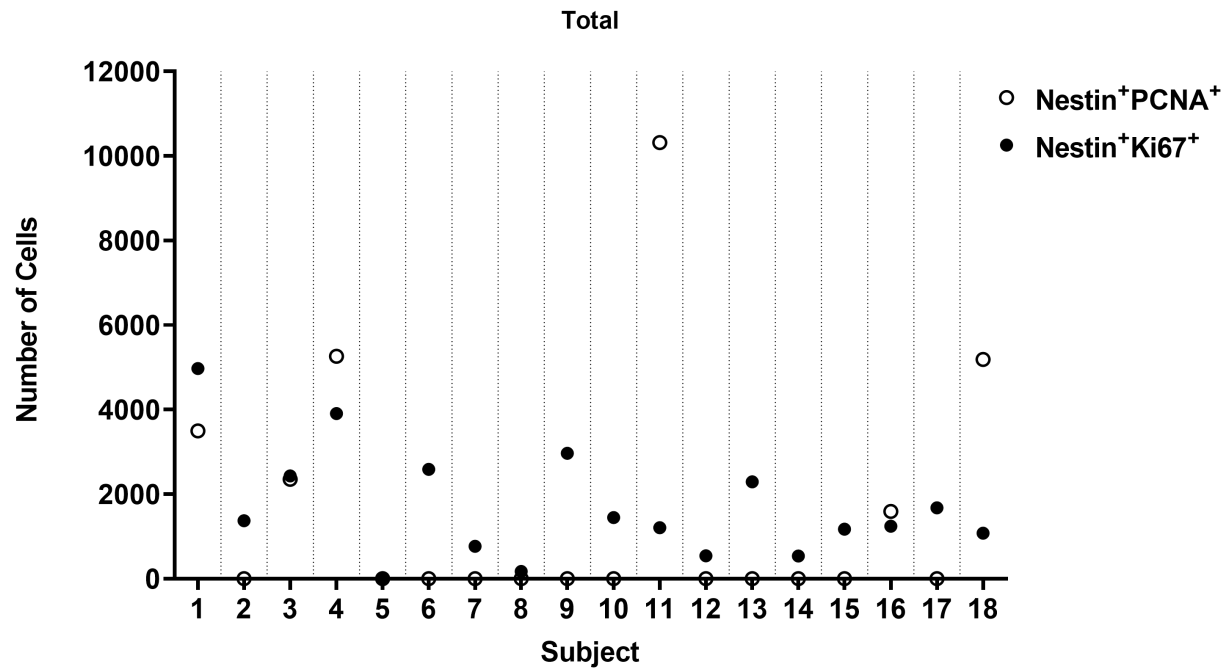
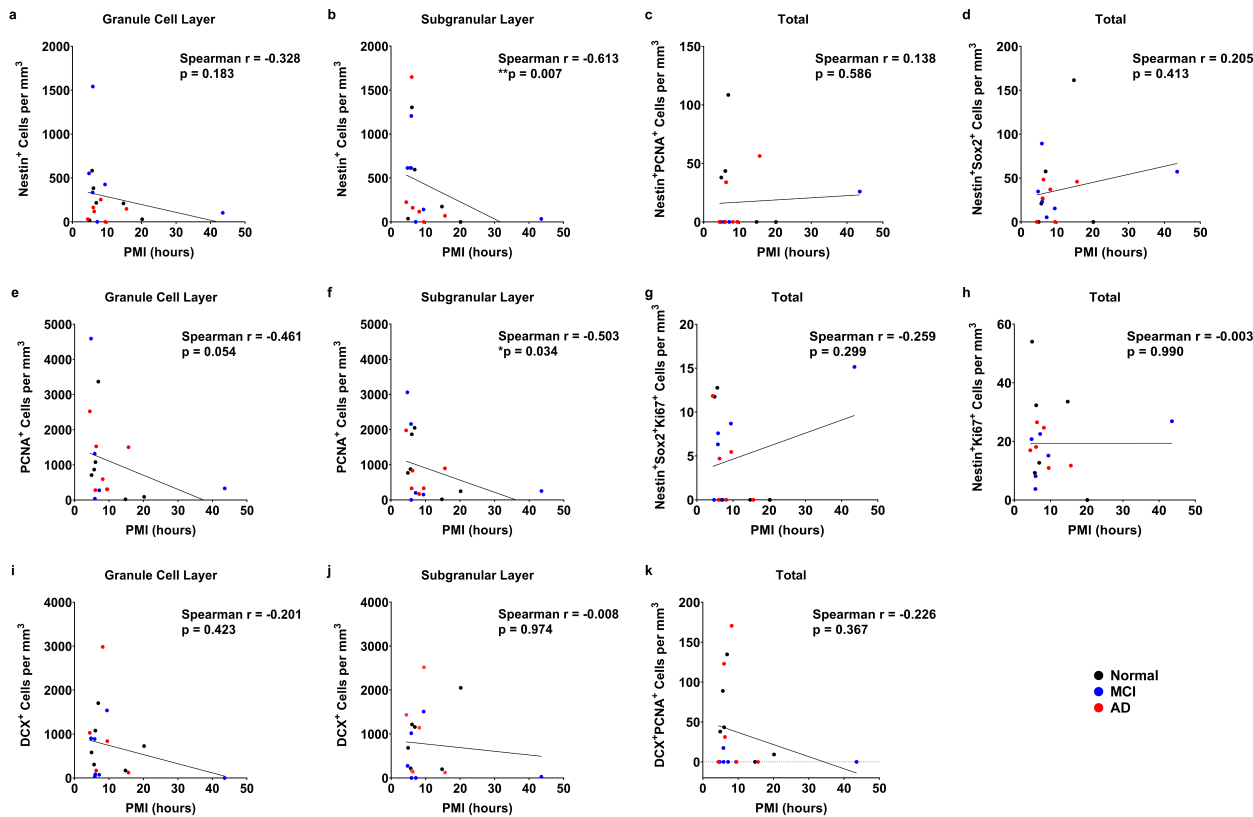


## Supplementary Information

**Supplemental Figure 1. Related to Figure 1. Case-by-case comparison of the number of Nestin<sup>+</sup>Ki67<sup>+</sup> cells and Nestin<sup>+</sup>PCNA<sup>+</sup> cells in all 18 subjects.**

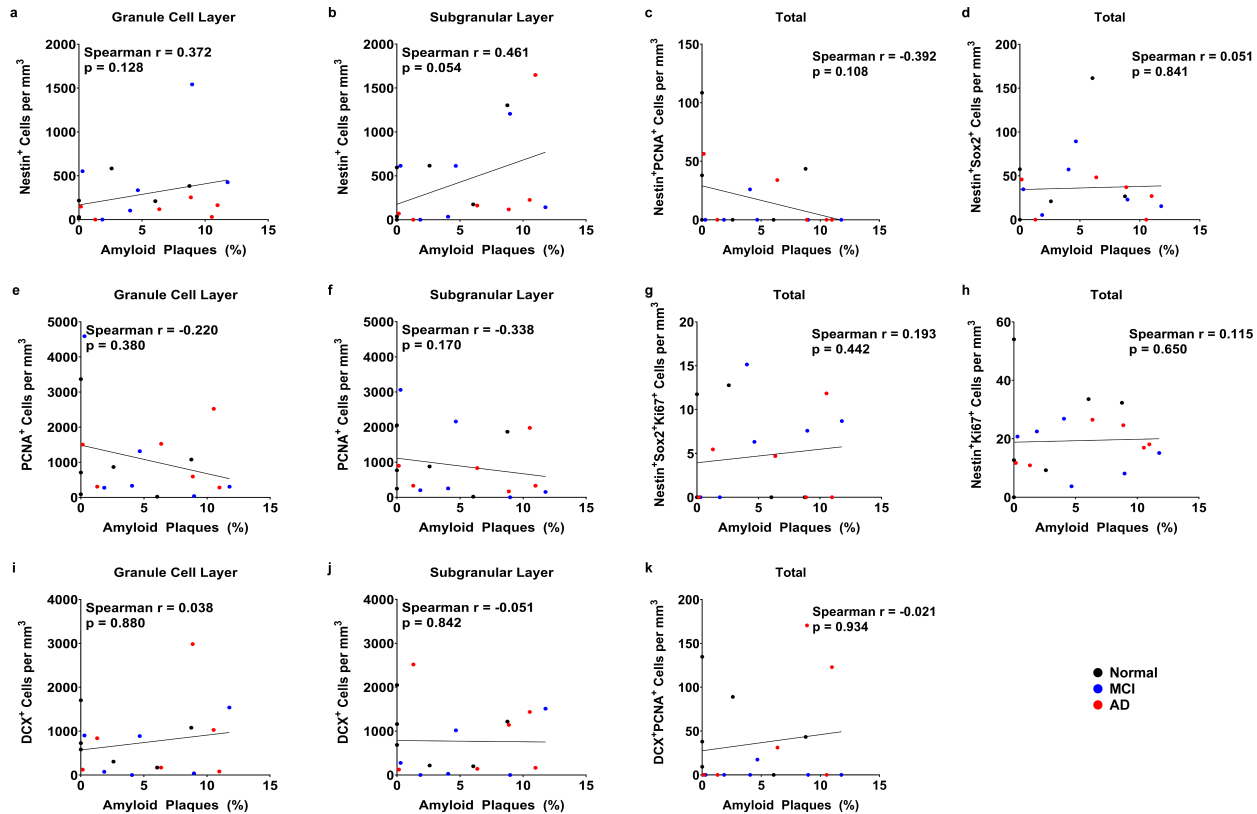


**Supplemental Figure 2. Related to Figure 1, 2. Spearman's rank-order correlation of neurogenic proxy markers with postmortem interval.** **a.** Nestin<sup>+</sup> cells in the GCL (Spearman  $r = -0.328$ ,  $p = 0.183$ ). **b.** Nestin<sup>+</sup> cells in the SGL (Spearman  $r = -0.613$ ,  $p = 0.007$ ). **c.** Nestin<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = 0.138$ ,  $p = 0.586$ ). **d.** Nestin<sup>+</sup>Sox2<sup>+</sup> cells in the DG (Spearman  $r = 0.205$ ,  $p = 0.413$ ). **e.** PCNA<sup>+</sup> cells in the GCL (Spearman  $r = -0.461$ ,  $p = 0.054$ ). **f.** PCNA<sup>+</sup> cells in the SGL (Spearman  $r = -0.503$ ,  $p = 0.034$ ). **g.** Nestin<sup>+</sup>Sox2<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = -0.259$ ,  $p = 0.299$ ). **h.** Nestin<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = -0.003$ ,  $p = 0.990$ ).

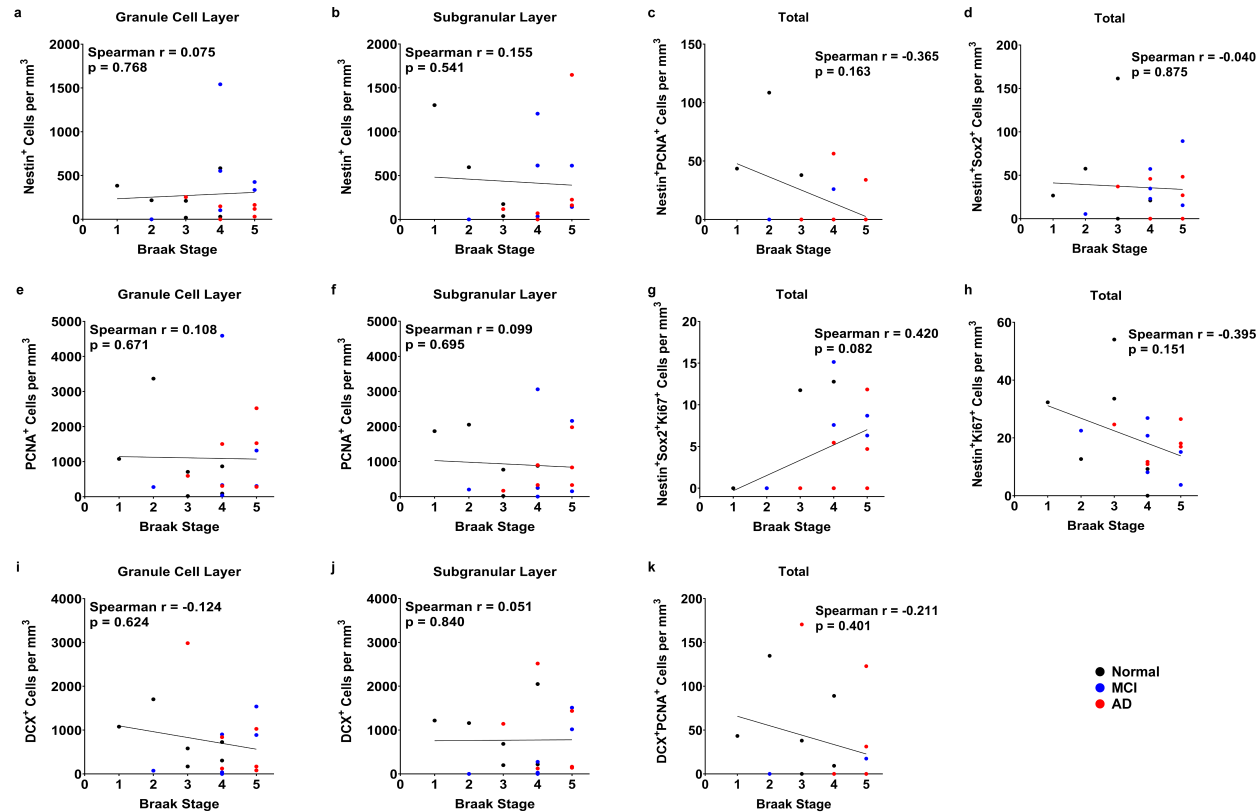


**i.** DCX<sup>+</sup> cells in the GCL (Spearman  $r = -0.201$ ,  $p = 0.423$ ).  
**j.** DCX<sup>+</sup> cells in the SGL (Spearman  $r = -0.008$ ,  $p = 0.974$ ).  
**k.** DCX<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = -0.226$ ,  $p = 0.367$ ).  
Trendlines are based on GLM analysis.

**Supplemental Figure 3. Related to “Immunofluorescence staining” in STAR Methods. Spearman’s rank-order correlation of neurogenic proxy markers with amyloid plaque burden. a.** Nestin<sup>+</sup> cells in the GCL (Spearman  $r = 0.372$ ,  $p = 0.128$ ). **b.** Nestin<sup>+</sup> cells in the SGL (Spearman  $r = 0.461$ ,  $p = 0.054$ ). **c.** Nestin<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = -0.392$ ,  $p = 0.108$ ). **d.** Nestin<sup>+</sup>Sox2<sup>+</sup> cells in the DG (Spearman  $r = 0.051$ ,  $p = 0.841$ ). **e.** PCNA<sup>+</sup> cells in the GCL (Spearman  $r = -0.220$ ,  $p = 0.380$ ). **f.** PCNA<sup>+</sup> cells in the SGL (Spearman  $r = -0.338$ ,  $p = 0.170$ ). **g.** Nestin<sup>+</sup>Sox2<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = 0.193$ ,  $p = 0.442$ ). **h.** Nestin<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = 0.115$ ,  $p = 0.650$ ). **i.** DCX<sup>+</sup> cells in the GCL (Spearman  $r = 0.038$ ,  $p = 0.880$ ). **j.** DCX<sup>+</sup> cells in the SGL (Spearman  $r = -0.021$ ,  $p = 0.934$ ). **k.** DCX<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = -0.021$ ,  $p = 0.934$ ). Trendlines are based on GLM analysis.

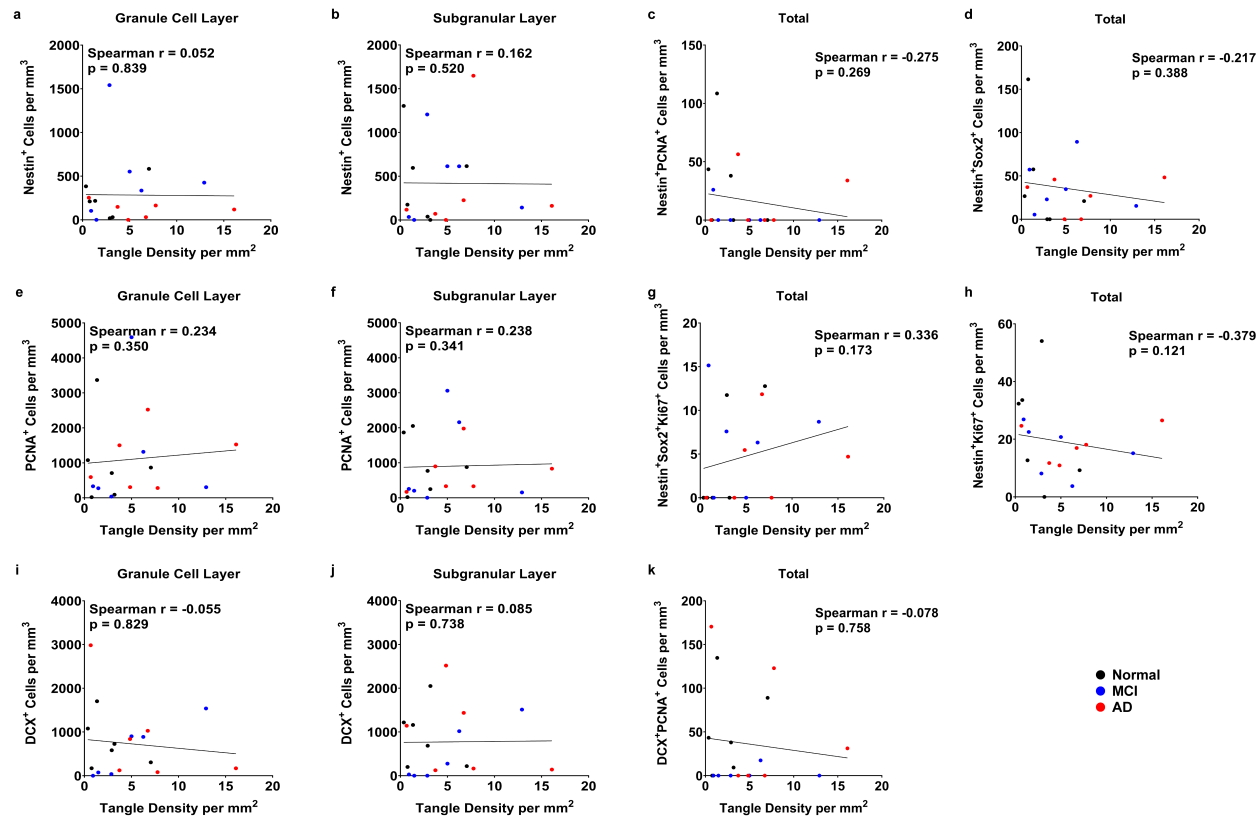


**Supplemental Figure 4. Related to “Immunofluorescence staining” in STAR Methods. Spearman’s rank-order correlation of neurogenic proxy markers with Braak stage.** **a.** Nestin<sup>+</sup> cells in the GCL (Spearman  $r = 0.075$ ,  $p = 0.768$ ). **b.** Nestin<sup>+</sup> cells in the SGL (Spearman  $r = 0.155$ ,  $p = 0.541$ ). **c.** Nestin<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = -0.365$ ,  $p = 0.163$ ). **d.** Nestin<sup>+</sup>Sox2<sup>+</sup> cells in the DG (Spearman  $r = -0.040$ ,  $p = 0.875$ ). **e.** PCNA<sup>+</sup> cells in the GCL (Spearman  $r = 0.108$ ,  $p = 0.671$ ). **f.** PCNA<sup>+</sup> cells in the SGL (Spearman  $r = 0.099$ ,  $p = 0.695$ ). **g.** Nestin<sup>+</sup>Sox2<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = 0.420$ ,  $p = 0.082$ ). **h.** Nestin<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = -0.395$ ,  $p = 0.151$ ). **i.** DCX<sup>+</sup> cells in the GCL (Spearman  $r = -0.124$ ,  $p = 0.624$ ). **j.** DCX<sup>+</sup> cells in the SGL (Spearman  $r = 0.051$ ,  $p = 0.840$ ). **k.** DCX<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = -0.211$ ,  $p = 0.401$ ). Trendlines are based on GLM analysis.



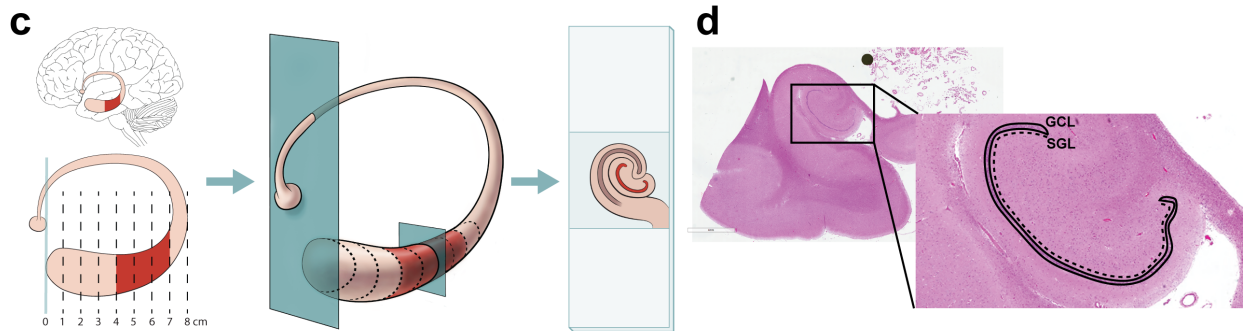
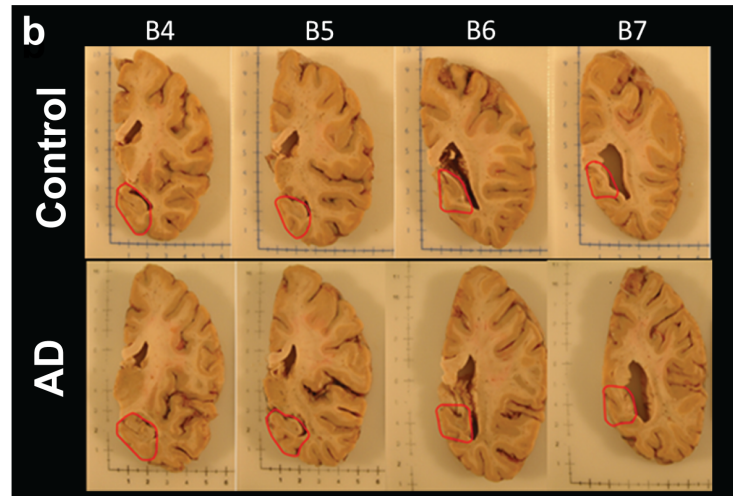
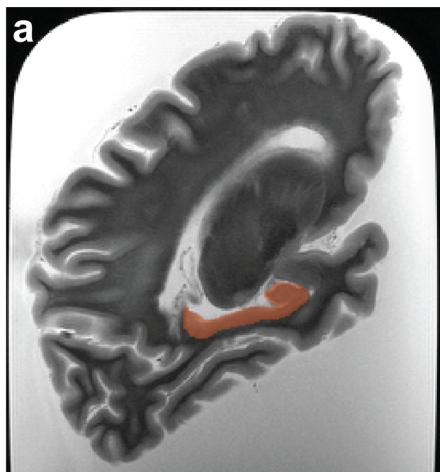


**Supplemental Figure 5. Related to “Immunofluorescence staining” in STAR Methods. Spearman’s rank-order correlation of neurogenic proxy markers with neurofibrillary tangle density. a.** Nestin<sup>+</sup> cells in the GCL (Spearman  $r = 0.052$ ,  $p = 0.839$ ). **b.** Nestin<sup>+</sup> cells in the SGL (Spearman  $r = 0.162$ ,  $p = 0.520$ ). **c.** Nestin<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = -0.275$ ,  $p = 0.269$ ). **d.** Nestin<sup>+</sup>Sox2<sup>+</sup> cells in the DG (Spearman  $r = -0.217$ ,  $p = 0.388$ ). **e.** PCNA<sup>+</sup> cells in the GCL (Spearman  $r = 0.234$ ,  $p = 0.350$ ). **f.** PCNA<sup>+</sup> cells in the SGL (Spearman  $r = 0.238$ ,  $p = 0.341$ ). **g.** Nestin<sup>+</sup>Sox2<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = 0.336$ ,  $p = 0.173$ ). **h.** Nestin<sup>+</sup>Ki67<sup>+</sup> cells in the DG (Spearman  $r = -0.379$ ,  $p = 0.121$ ). **i.** DCX<sup>+</sup> cells in the GCL (Spearman  $r = -0.055$ ,  $p = 0.829$ ). **j.** DCX<sup>+</sup> cells in the SGL (Spearman  $r =$



0.085,  $p = 0.738$ ). **k.** DCX<sup>+</sup>PCNA<sup>+</sup> cells in the DG (Spearman  $r = -0.078$ ,  $p = 0.758$ ). Trendlines are based on GLM analysis.

**Supplemental Figure 6. Related to “Hippocampal volume measurement” in STAR Methods. *Ex vivo* T-2 weighted MRI imaging analysis. a.** Representative sagittal T2-weighted post-mortem MRI with the hippocampus outlined in orange. **b.** Slabs containing hippocampus from two subjects (Top – a control, Bottom – AD) are shown. Blocks numbered B4 through B7 for hippocampus are marked in red from individual slabs. **c.** Schematic presentation of hippocampal regions as a function of the position of the section along the anterior-posterior axis. Block labeling (e.g. B4, B5, etc) denote position, in centimeters, posterior to the mamillary bodies. **d.** H&E section of a representative tissue section outline the GCL of the dentate gyrus (solid line) and the SGL of the dentate gyrus (dashed line).



the anterior-posterior axis. Block labeling (e.g. B4, B5, etc) denote position, in centimeters, posterior to the mamillary bodies. **d.** H&E section of a representative tissue section outline the GCL of the dentate gyrus (solid line) and the SGL of the dentate gyrus (dashed line).

**Supplementary Table 1. Related to Figure 1-4. Patient demographics.**

Subject	PMI (hours)	Age (years)	Gender	Hippocampal Volume (mm <sup>3</sup> )	APOE Genotype	Clinical Diagnosis	Pathologic AD (Y/N)	Braak Stage	Amyloid Plaques (%)	Tangle Density (per mm <sup>3</sup> )
1	4.92	92	M	3017	ε3/ε3	Normal	N	3	0.00	2.90
2	6.00	93	F	2746	ε2/ε3	AD	Y	5	10.98	7.77
3	43.55	86	F	3004	ε3/ε3	MCI	Y	4	4.06	0.91
4	6.05	93	M	3582	ε3/ε3	Normal	N	1	8.76	0.36
5	20.17	79	F	2863	ε3/ε3	Normal	N	4	0.00	3.19
6	7.15	92	F	4117	ε3/ε4	MCI	N	2	1.86	1.47
7	9.50	91	M	2225	ε3/ε3	AD	Y	4	1.30	4.85
8	5.83	93	F	2225	ε3/ε3	MCI	Y	5	4.67	6.25
9	14.77	80	F	3062	ε3/ε3	Normal	N	3	6.05	0.76
10	4.42	93	F	2760	ε3/ε3	AD	Y	5	10.53	6.73
11	6.87	92	M	2529	ε3/ε3	Normal	N	2	0.00	1.34
12	5.88	95	F	2964	ε3/ε3	MCI	Y	4	8.97	2.86
13	8.17	98	F	3366	ε3/ε3	AD	Y	3	8.87	0.67
14	5.67	91	F	2012	ε2/ε3	Normal	N	4	2.59	7.05
15	9.42	88	F	2500	ε3/ε3	MCI	Y	5	11.78	12.92
16	6.27	99	F	2458	ε3/ε4	AD	Y	5	6.37	16.10
17	4.77	93	F	2648	ε2/ε3	MCI	N	4	0.29	5.00
18	15.63	85	F	2912	ε3/ε3	AD	Y	4	0.15	3.72

**Supplementary Table 2. Related to Figure 1-4. Antibodies used in this study.**

<b>Primary Antibody</b>	<b>Species</b>	<b>Dilution</b>	<b>Manufacturer</b>	<b>Catalog No.</b>	<b>Lot No.</b>
Nestin	Rabbit	1:250	EMD Millipore	ABD69	2592765/2986140
PCNA	Mouse	1:500	Santa Cruz	sc-56	H2103
Doublecortin	Goat	1:250	Santa Cruz	sc-8066	C1615/K1215
Doublecortin	Rabbit	1:750	Abcam	ab18723	GR3225952-1
Sox2	Goat	1:500	Santa Cruz	sc-17320	A2215
Ki67	Mouse	1:100	Leica Biosystems	NCL-L-Ki67-MM1	6064465
Syntaxin	Mouse	1:10	In-house	SP7	Monoclonal
SNAP-25	Mouse	1:10	In-house	SP12	Monoclonal
Complexin-II	Mouse	1:10	In-house	LP27	Monoclonal