Supplementary information

White matter retention on ^{18}F-florbetapir positron emission tomography independently predicts cognitive decline and response to anti-amyloid therapy in Alzheimer's disease

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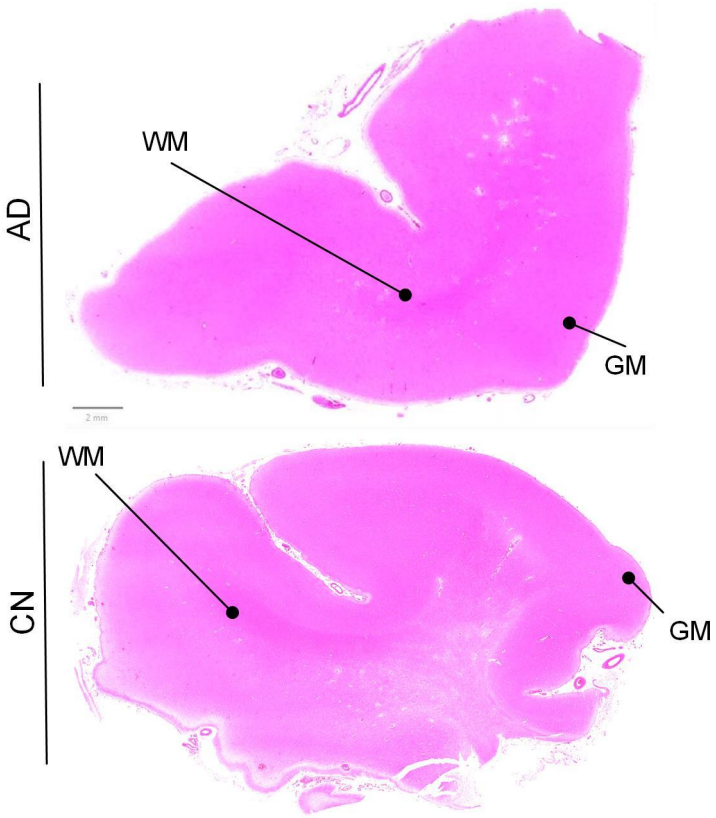
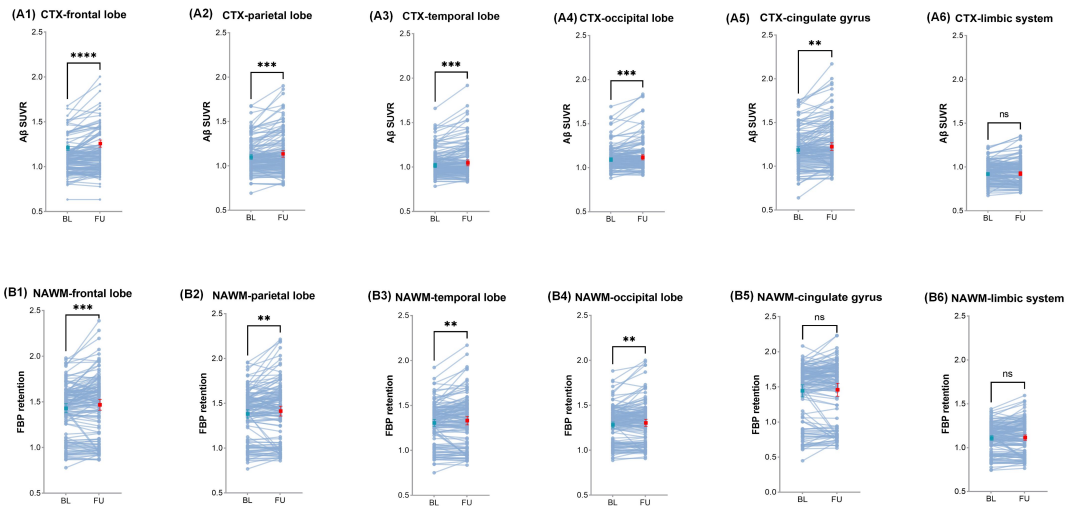
Supplementary Table 1 | Participant demographics and clinical characteristics for post mortem brain tissue analysis

	CN (N=4)	AD (N=9)	*p* value
Age,years	74.2(16.1)	80.1(9.8)	0.4769
Women,n,%	2,50%	9,100%	0.0769
APOE ε4 carriers,n,%	1,25%	5,56%	0.5594

Continuous variables are presented as mean (standard deviation), whereas categorical variables are expressed as proportions (%). AD+, Alzheimer's disease; APOE ε4, apolipoprotein E ε4 allele; CN, cognitively normal.

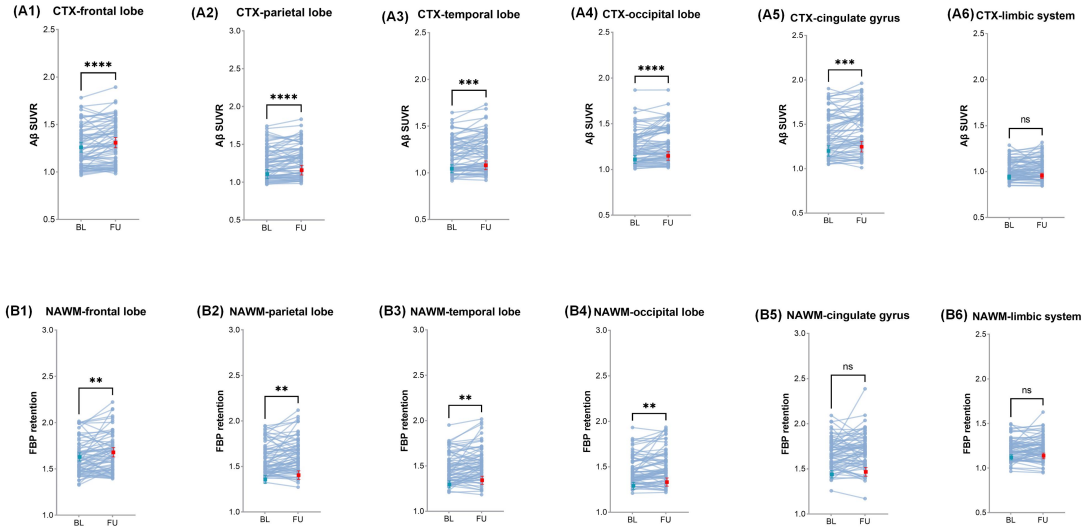


Supplementary Fig. 1 |. Representative hematoxylin and eosin (H&E)-stained sections of gray matter (GM) and white matter (WM) in a cognitively normal (CN) participant and a patient with Alzheimer's disease (AD).



Supplementary Fig. 2 |. Regional progression of Aβ pathology in cognitively unimpaired participants over time. (**A1~A6**) Longitudinal changes in cortical Aβ SUVR showing significant increases from baseline to follow-up in the frontal ($p < 0.0001$), parietal ($p < 0.001$), temporal ($p < 0.001$), occipital ($p < 0.001$)cortices, as well as the cingulate gyrus ($p < 0.01$). No significant differences were observed in the limbic cortex. (**B1~B6**) White matter FBP retention also increased significantly over time in the frontal, parietal, temporal, and occipital regions (all $p <$

0.01), while cingulate and limbic white matter showed no significant changes. Aβ, β-amyloid; BL, baseline; CTX, cortical; CU, cognitively unimpaired; FBP, ^{18}F-florbetapir; FU, follow-up; NAWM, normal-appearing white matter; SUVR, standardized uptake value ratio; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ****$p < 0.0001$; ns, non-significant.



Supplementary Fig. 3 |. Regional progression of Aβ pathology in cognitively impaired participants over time. (**A1~A6**) Cortical Aβ burden showed significant longitudinal increases in all cortical regions except the limbic system (all $p < 0.001$) during the follow-up period. (**B1~B6**) White matter FBP retention increased significantly over time in frontal, parietal, temporal, and occipital regions (all $p < 0.01$), whereas no significant changes were observed in cingulate and limbic white matter. Aβ, β-amyloid; BL, baseline; CI, cognitively impaired; CTX, cortical; FBP, ^{18}F-florbetapir; FU, follow-up; NAWM, normal-appearing white matter; SUVR, standardized uptake value ratio; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ****$p < 0.0001$; ns, non-significant.