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Supplemental Information

Pathogenic Tau Causes a Toxic Depletion of Nuclear Calcium

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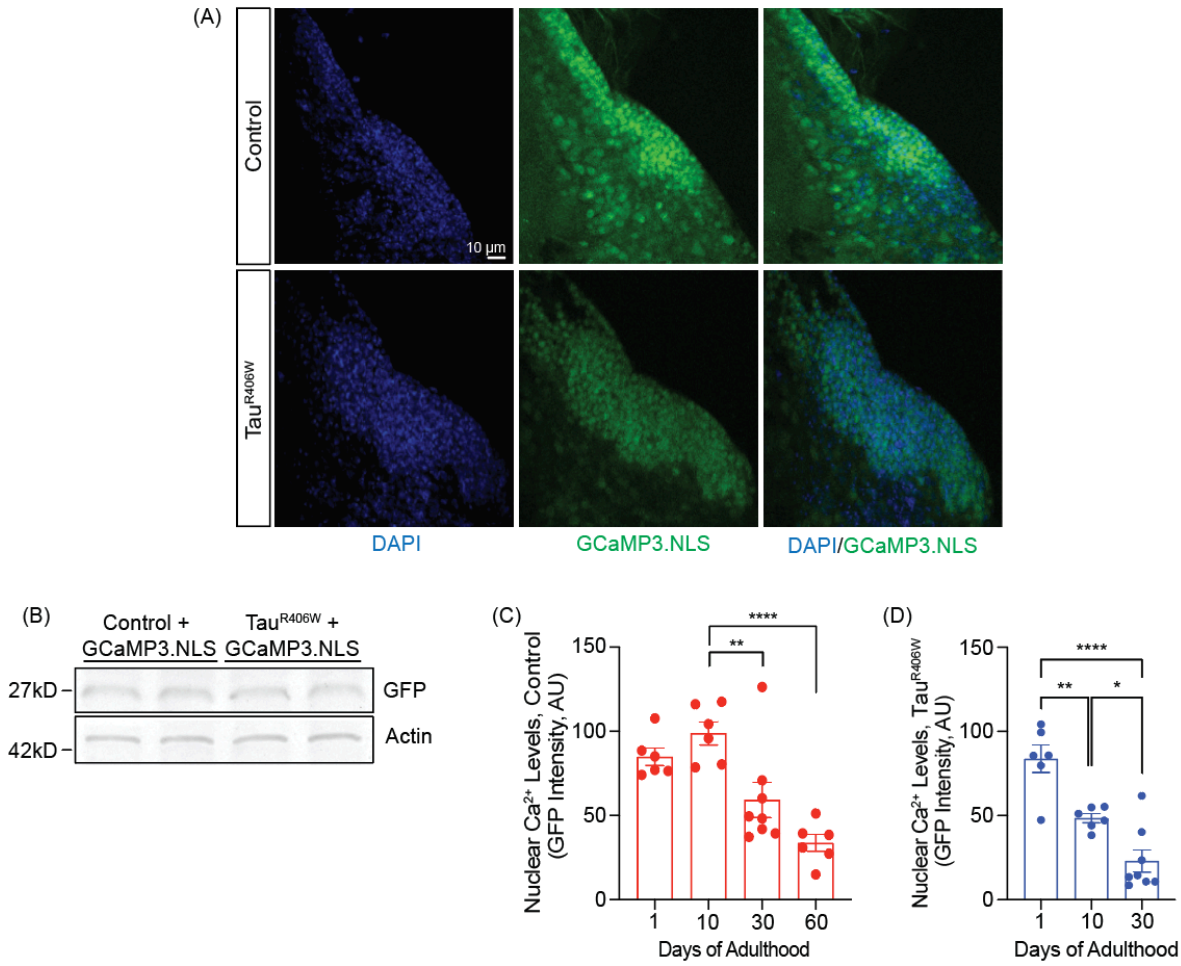
SUPPLEMENTAL FIGURES



Supplemental Figure 1| GCaMP3.NLS controls and age-dependent reduction in nuclear Ca^{2+}. Related to Figure 2.

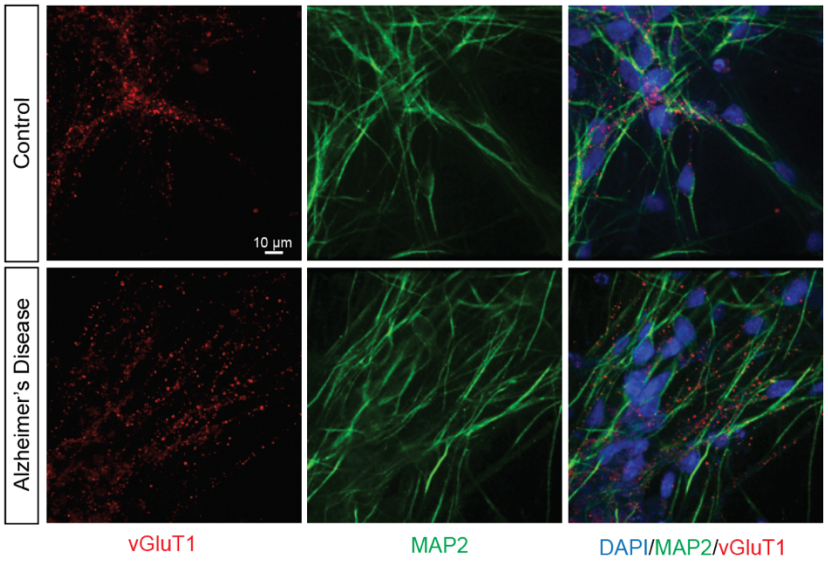
(A) Visualization of nuclear Ca^{2+} via GCaMP3.NLS in cells of the mushroom body of dissected brains from control and tau^{R406W} transgenic *Drosophila* at day 10 of adulthood. Images are a single focal plane.

(B) GFP levels are unchanged between control and tau^{R406W} transgenic *Drosophila* harboring the GCaMP3.NLS Ca^{2+} indicator at day 10 of adulthood.

(C) Quantification of nuclear Ca^{2+} in control *Drosophila* based on GCaMP3.NLS at the indicated age, n=6 per genotype, per age.

(D) Quantification of nuclear Ca^{2+} in tau^{R406W} transgenic *Drosophila* based on GCaMP3.NLS at the indicated age, n=6 per genotype, per age.

Data presented as mean ± SEM; one-way ANOVA with Tukey's multiple comparison test; *$p < 0.05$, **$p < 0.01$, ****$p < 0.0001$.



Supplemental Figure 2 | iPSC-derived neurons from control and sporadic Alzheimer's disease express markers of neuronal differentiation. Related to Figure 3.

iPSCs from control patients and patients with sporadic Alzheimer's disease were differentiated into excitatory forebrain neurons and stained with antibodies detecting vGluT1 and MAP2.