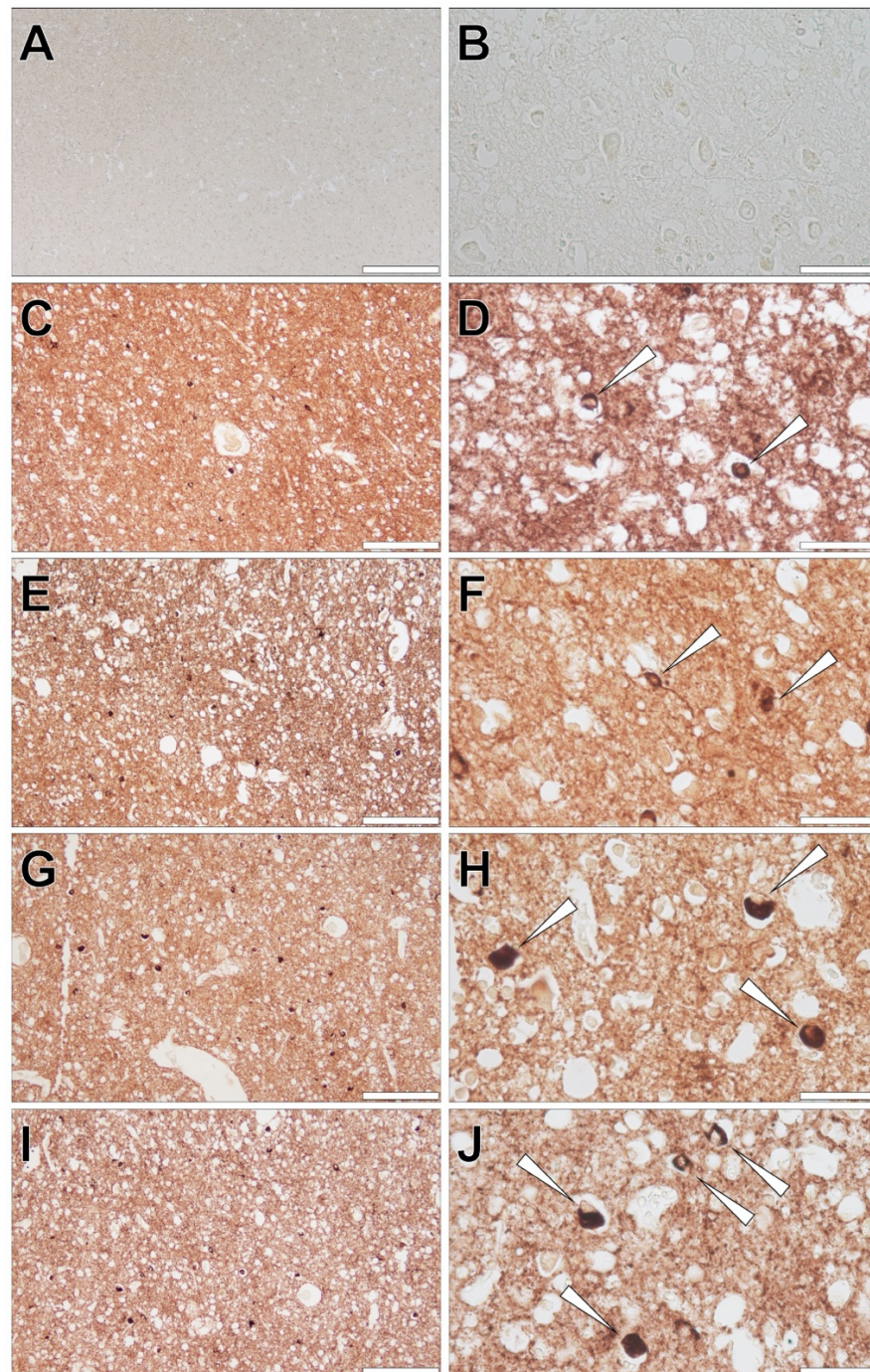
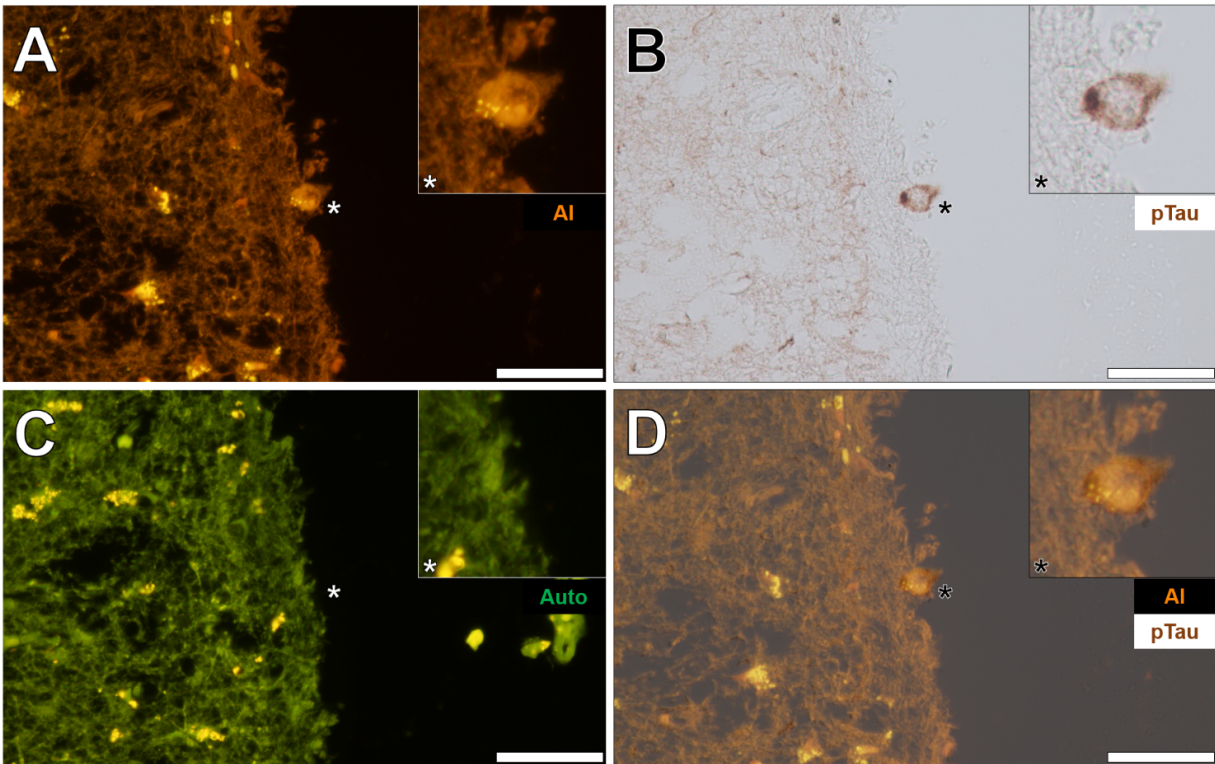


Supplementary Material

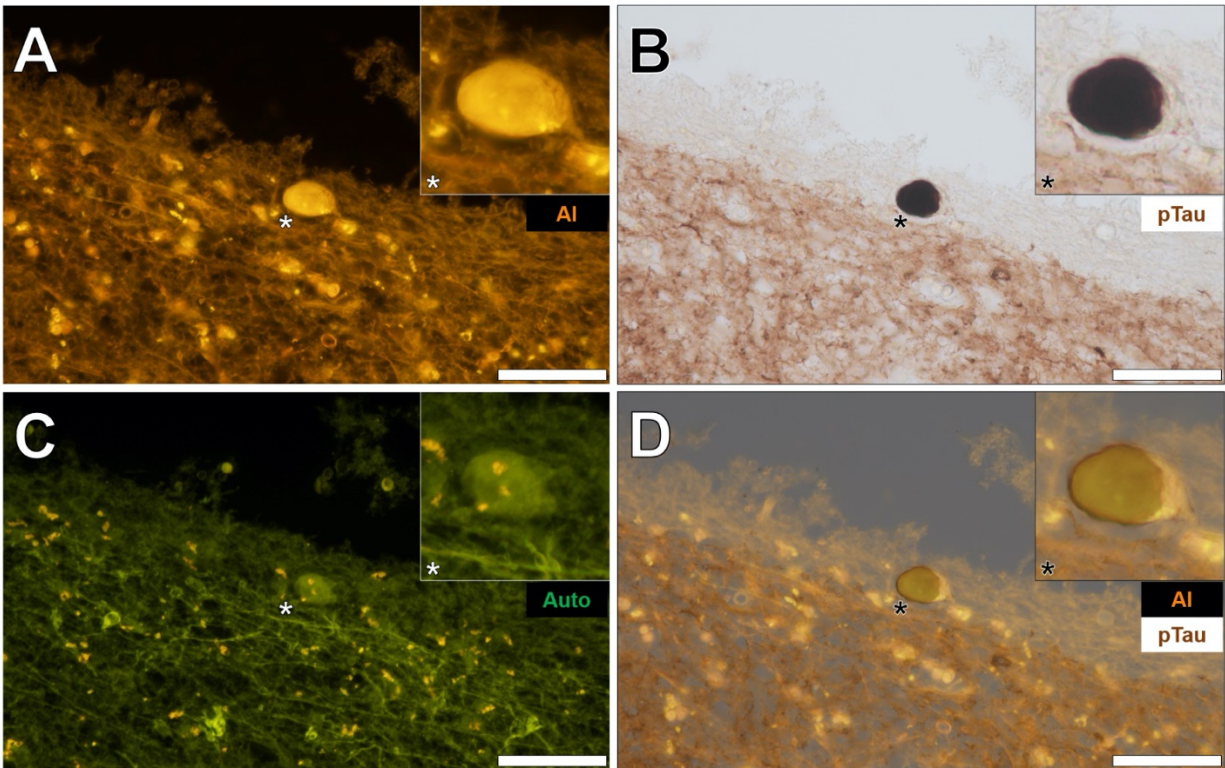
Aluminum and Tau in Neurofibrillary Tangles in Familial Alzheimer's Disease



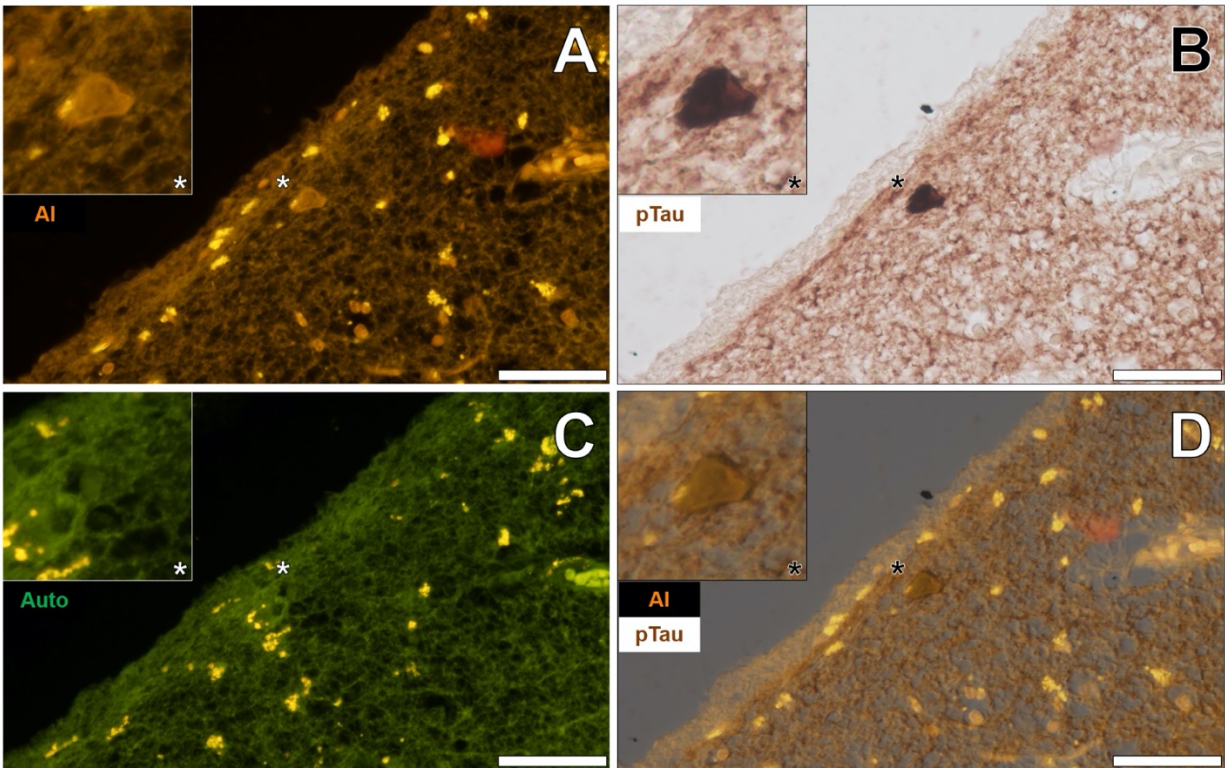
Supplementary Figure 1. Optimization of AT8 immunolabelling against phosphorylated tau (S202 and T205) using serially diluted AT8 in 1% BSA in TBS of the parietal cortex of a 60-year-old male Colombian donor. A, B) No primary antibody (1% BSA in TBS only); C, D) 1:40 dilution; E, F) 1:80 dilution; G, H) 1:200 dilution; I, J) 1:1,000 dilution. White arrows indicate clear HRP-DAB ABC labelled NFTs. Magnification and scale bars: A, C, E, G & I) X 100, 200 μ m; B, D, F, H & J) X 400, 50 μ m, respectively.



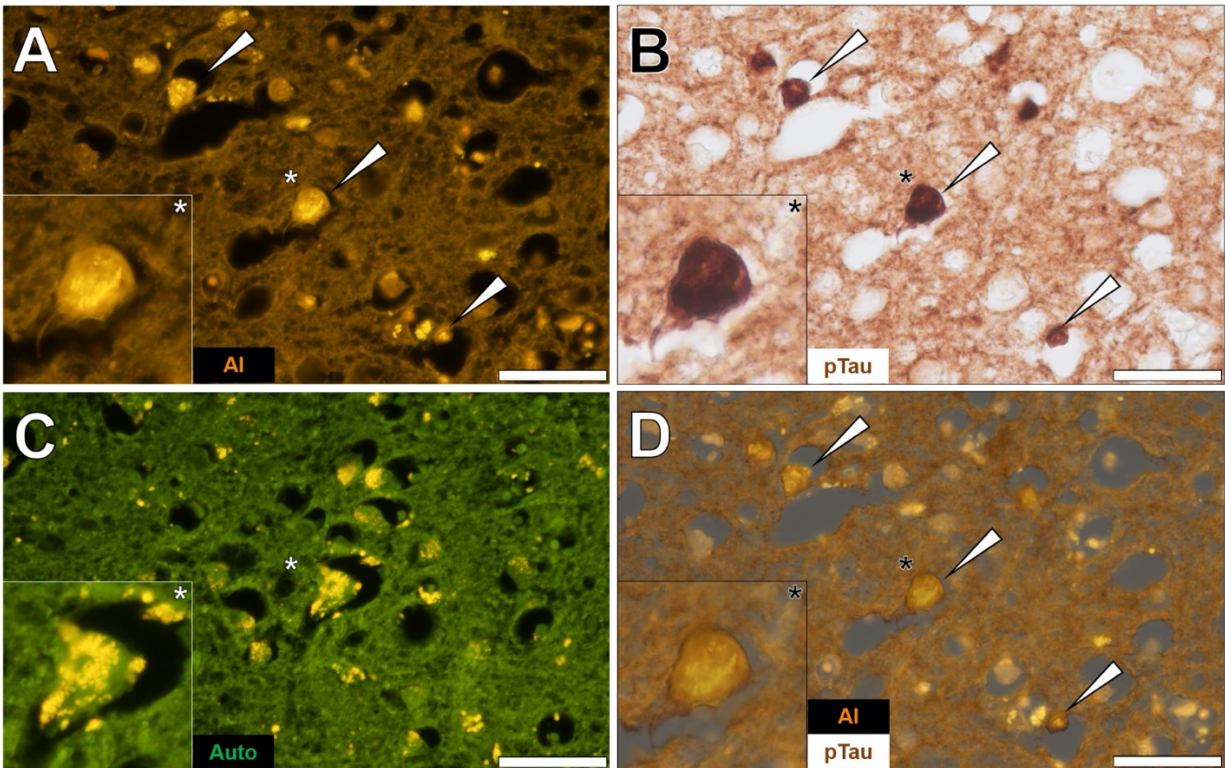
Supplementary Figure 2. Intracellular aluminum in a neuronal cell in the temporal cortex of a 45-year-old female Colombian donor with familial Alzheimer's disease. A) Intracellular aluminum (Al) located in a neuronal cell (orange). B) AT8 immunoreactive phosphorylated tau (pTau) located via DAB staining (brown) in the identical neuron. C). Autofluorescence (green) of the non-stained adjacent section highlighting occasional deposits of intracellular lipofuscin (yellow). D) Merging of lumogallion and brightfield channels depicting aluminum and pTau in the identical neuron. Asterisks denote magnified inserts. Magnification: X 400, scale bars: 50 μ m.



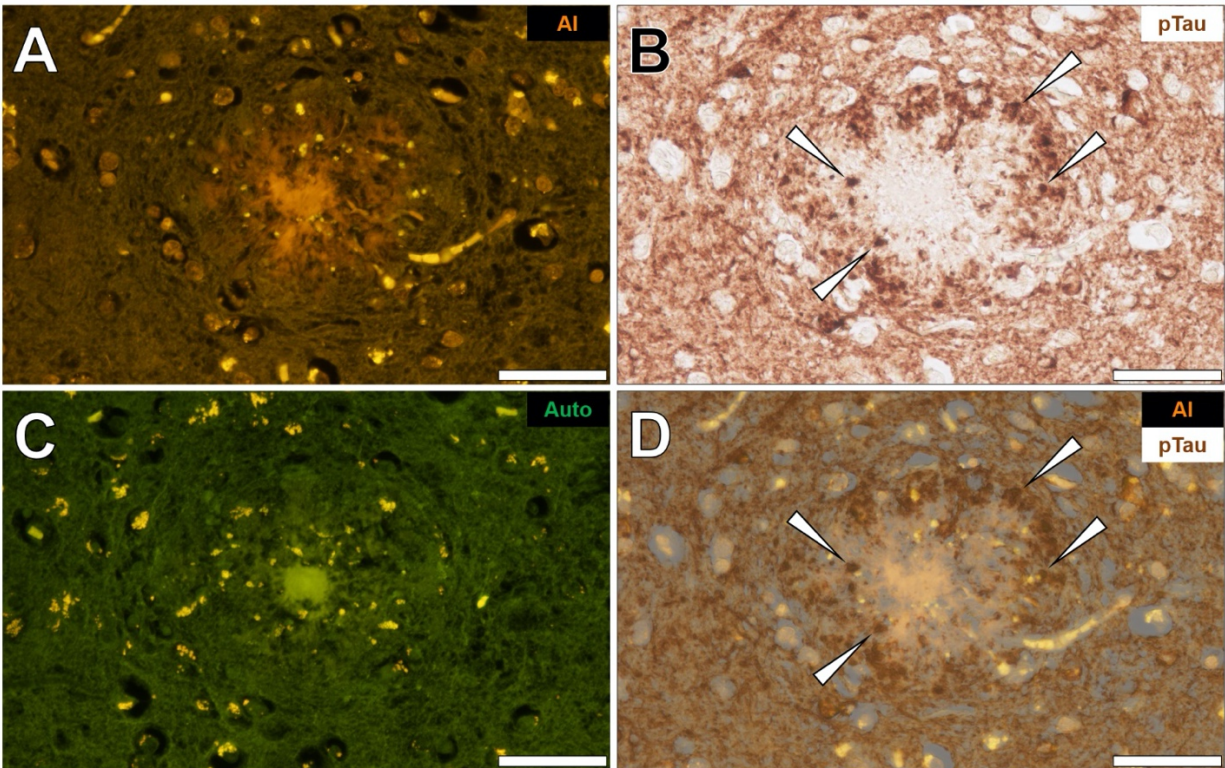
Supplementary Figure 3. Intracellular aluminum in a neuronal cell in the parietal cortex of a 57-year-old female Colombian donor with familial Alzheimer's disease. A) Intracellular aluminum (Al) located in a neuronal cell (orange). B) AT8 immunoreactive phosphorylated tau (pTau) located via DAB staining (brown) in the identical neuron. C). Autofluorescence (green) of the non-stained adjacent section highlighting occasional deposits of intracellular lipofuscin (yellow). D) Merging of lumogallion and brightfield channels depicting aluminum and pTau in the identical neuron. Asterisks denote magnified inserts. Magnification: X 400, scale bars: 50 μm .



Supplementary Figure 4. Intracellular aluminum in a neuronal cell in the frontal cortex of a 57-year-old female Colombian donor with familial Alzheimer’s disease. A) Intracellular aluminum (Al) located in a neuronal cell, producing a weak orange fluorescence emission. B) AT8 immunoreactive phosphorylated tau (pTau) located via DAB staining (brown) in the identical neuron. C). Autofluorescence (green) of the non-stained adjacent section highlighting occasional deposits of intracellular lipofuscin (yellow). D) Merging of lumogallion and brightfield channels depicting aluminum and pTau in the identical neuron. Asterisks denote magnified inserts. Magnification: X 400, scale bars: 50 μ m.



Supplementary Figure 5. Intraneuronal aluminum in the temporal cortex of a 60-year-old male Colombian donor with familial Alzheimer's disease. A) Intracellular aluminum (Al) located in neuronal cells (orange, white arrows). B) AT8 immunoreactive phosphorylated tau (pTau) located via DAB staining (brown) in the identical neurons (arrows). C). Autofluorescence (green) of the non-stained adjacent section highlighting occasional deposits of intracellular lipofuscin (yellow). D) Merging of lumogallion and brightfield channels depicting aluminum and pTau in the identical neurons (arrows). Asterisks denote magnified inserts. Magnification: X 400, scale bars: 50 μm



Supplementary Figure 6. Aluminum in a large senile plaque ($>50\ \mu\text{m}$) in the frontal cortex of a 57-year-old female Colombian donor with familial Alzheimer's disease. A) Aluminum (Al) staining of a senile plaque (orange). B) AT8 immunoreactive phosphorylated tau (pTau) located via DAB staining (brown) in dystrophic neurites at the periphery of the identical senile plaque (arrows) C). Autofluorescence (green) of the non-stained adjacent section highlighting occasional deposits of intracellular lipofuscin (yellow). D) Merging of lumogallion and brightfield channels depicting aluminum and pTau (arrows) in the identical senile plaque. Asterisks denote magnified inserts. Magnification: X 400, scale bars: $50\ \mu\text{m}$.