

JCI Ref: 28769-RG-RV-2

Dias-Santagata *et al.* Oxidative stress mediates tau-induced neurodegeneration in *Drosophila*

SUPPLEMENTAL DATA

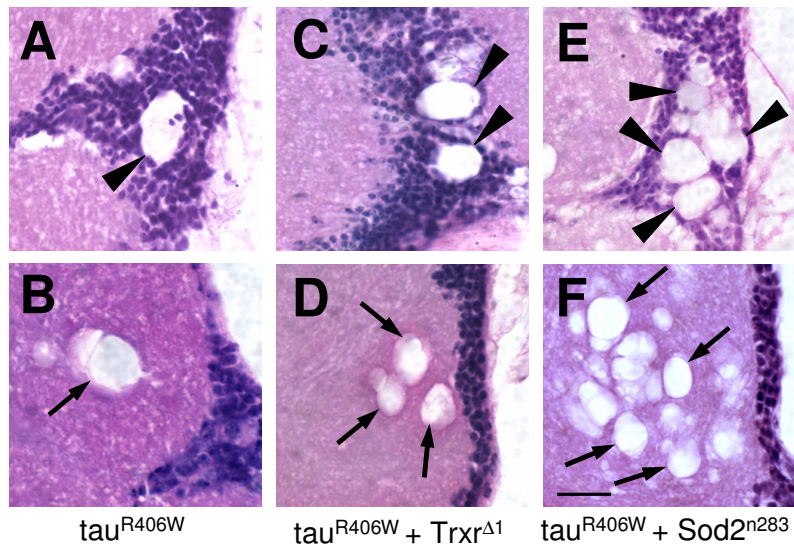
Figure Legends

Supplemental Figure S1. Brain vacuolization is present both in the cortex and in the neuropil of tau^{R406W}-expressing flies. Frontal brain sections of 10-day-old flies were stained with H&E. High power magnification photomicrographs highlight regions of vacuolization in the cortex (A, C and E, arrowheads) and in the neuropil (B, D and F, arrows), in tau^{R406W}-expressing flies (A and B), and in tau^{R406W} transgenic animals heterozygous for either the *Trxr*^{Δ1} (C and D) or the *Sod2*ⁿ²⁸³ (E and F) null alleles. Partial inactivation of Trxr and Sod2 antioxidant activities enhanced tau-induced neurotoxicity. Scale bar, 10 μm. Genotypes: *elav-GAL4/+; UAS-tau^{R406W}/+*, *elav-GAL4/Trxr^{Δ1}; UAS-tau^{R406W}/+*, *elav-GAL4/+; Sod2ⁿ²⁸³/+*; *UAS-tau^{R406W}/+*.

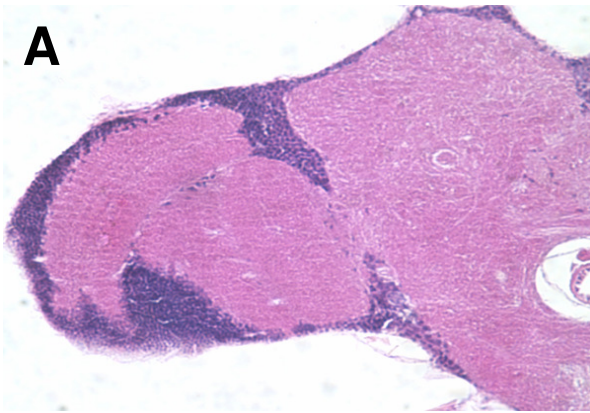
Supplemental Figure S2. Heterozygosity for *Sod2*ⁿ²⁸³ or for *Trxr*^{Δ1} is not associated with neurodegeneration. (A and B) Frontal brain sections of 10-day-old flies heterozygous for the *Trxr*^{Δ1} (A) or for the *Sod2*ⁿ²⁸³ (B) null alleles were stained with H&E. Scale bar, 20 μm. (C and D) Neurotoxicity in 20-day-old flies was evaluated by quantification of brain vacuolization (C) and TUNEL-positive neurons (D). Expression of

τ^{R406W} in the fly brain resulted in significant neurodegeneration when compared to controls, as assessed by brain vacuolization ($p < 0.001$) (C) and by neuronal cell death ($p < 0.001$) (D). By contrast, neurotoxicity in 20-day-old flies heterozygous for *Sod2*ⁿ²⁸³ or for *Trxr* ^{$\Delta 1$} was not significantly different from that of age-matched controls. Genotypes: *elav-GAL4/+*, *elav-GAL4/Trxr* ^{$\Delta 1$} , *elav-GAL4/+; Sod2*^{n283/+} and *elav-GAL4/+; UAS- $\tau^{R406W}/+$* .

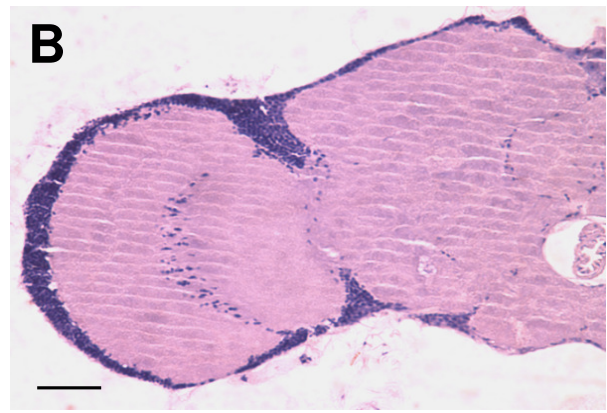
Supplemental Figure S1 (Dias-Santagata *et al.*)



Supplemental Figure S2 (Dias-Santagata *et al.*)



Trxr Δ 1



Sod2ⁿ²⁸³

