

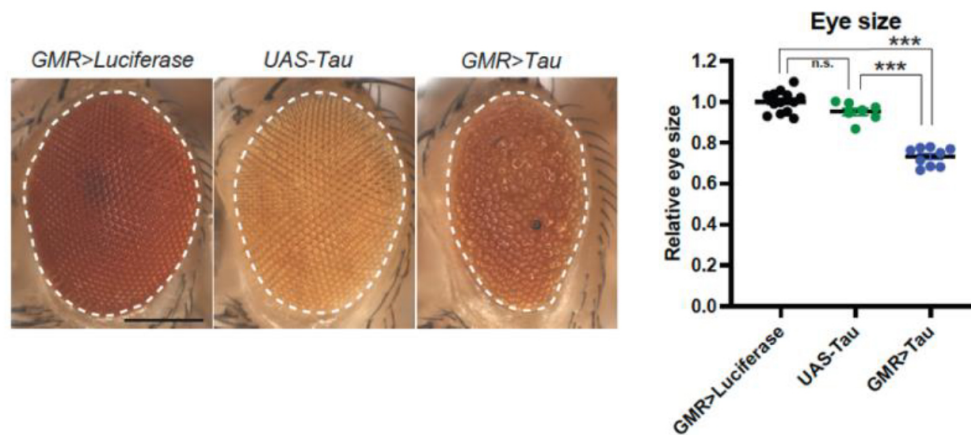


Fig. S1. *UAS-Tau* alone does not reduce eye size. The area of the eyes was similar between *GMR>Luciferase* and *UAS-tau*, and that of *GMR> Tau* was significantly less. Scale bar: 250 μ m. Mean $\pm$ SE, n=7-13, ***; p<0.001, n.s.; p>0.05, One-way ANOVA followed by ~0's HSD Tukey's comparisons test.

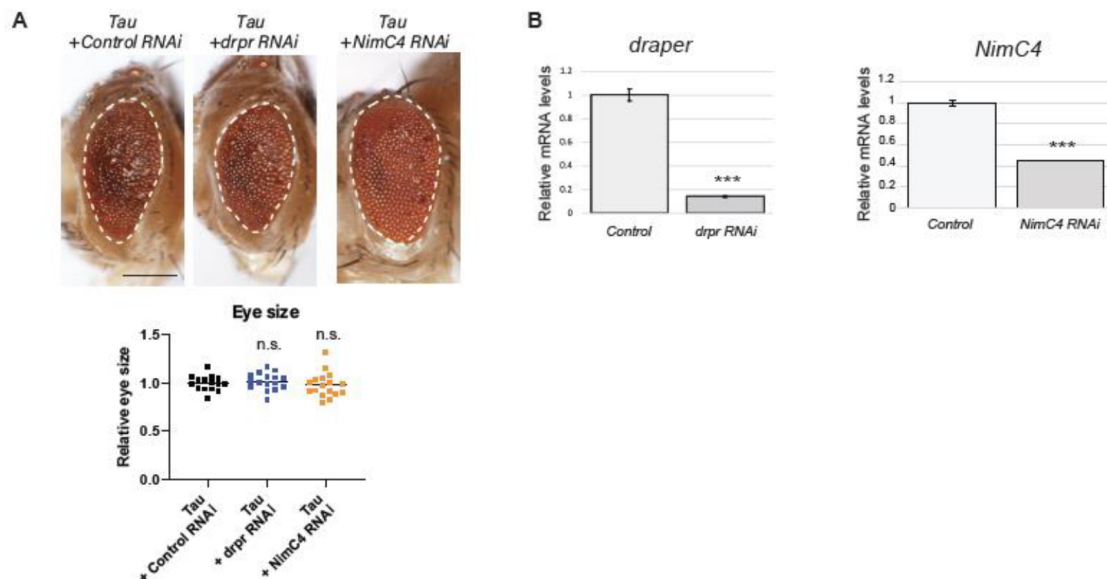


Fig. S2. Knockdown of *drpr* or *NimC4* in tau-expressing retina does not affect eye size. (A) Fly heads expressing *UAS-drpr* RNAi or *UAS-NimC4* RNAi driven by *GMR-GAL4* were subjected to qRT-PCR. Mean $\pm$ SE, n=3, ***; p<0.001, Statistical significance was assessed with unpaired two-tailed t-test. (B) The eyes of flies co-expressing *Tau* and *drpr* RNAi or *NimC4* RNAi. *mCherry* RNAi was used as a control. Scale bar: 250 μ m. Mean $\pm$ SE, n=15-17, n.s.; p>0.05, One-way ANOVA followed by Tukey's HSD multiple comparisons test.

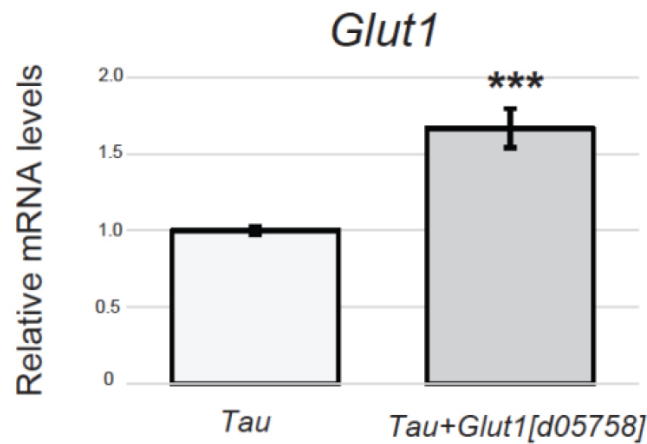


Fig. S3. Overexpression of Glut1 with $UAS-Glut1^{d05758}$ expression driven by *GMR-GAL4*. Heads of the flies with $UAS-Glut1^{d05758}$ expression driven by *GMR-GAL4* were subjected to qRT-PCR. Mean±SE, n=3, ***; $p<0.001$, Statistical significance was assessed with unpaired two-tailed t-test.

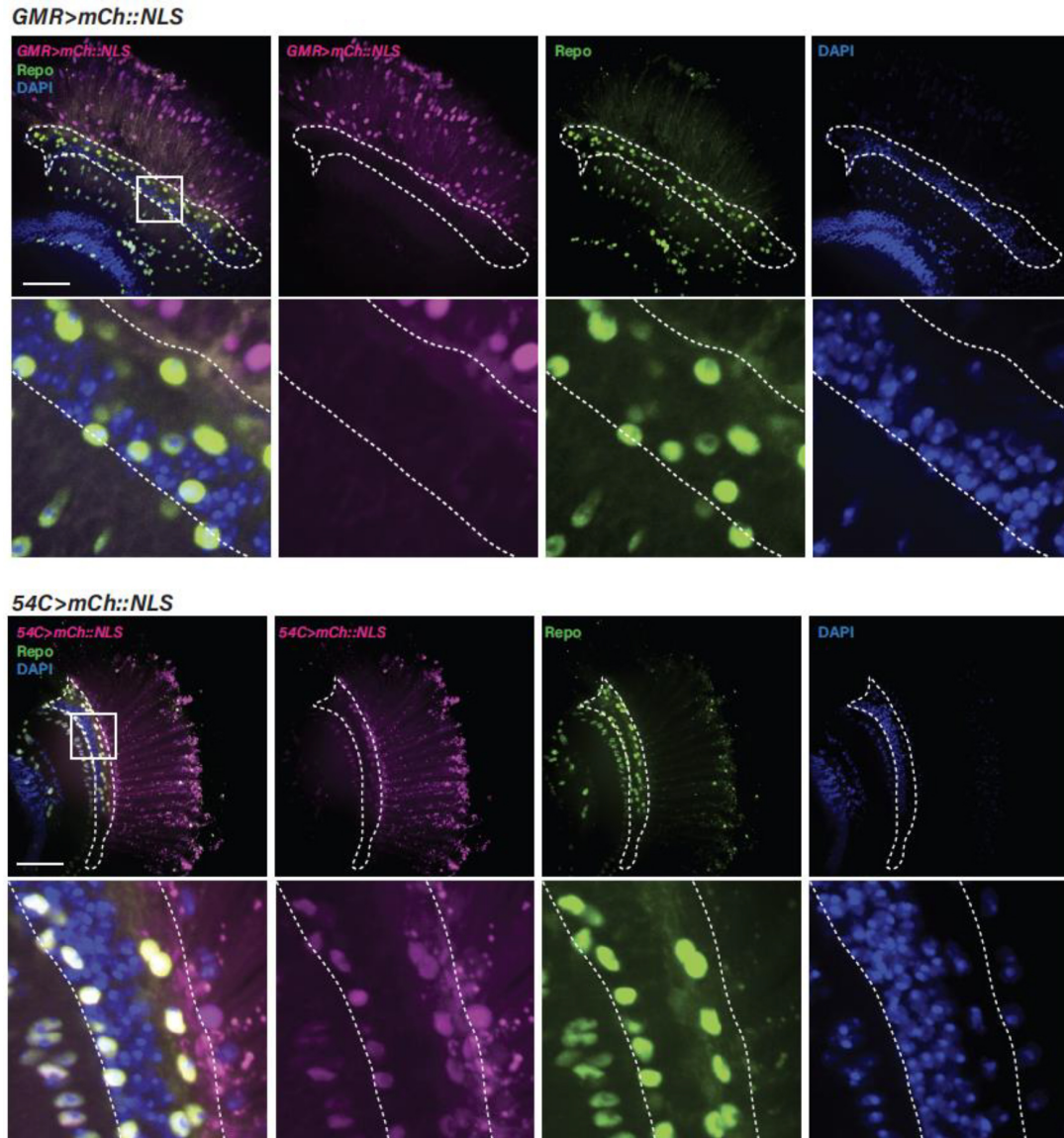


Fig. S4. Expression patterns of *GMR-GAL4* and *54C-GAL4*. *GMR-GAL4*- or *54C-GAL4*-expressing cells are labeled with expression of *UAS-mCh::NLS* (magenta). Glial cells are immunostained by anti-*repo* antibody (green). White dashed lines indicate the laminal cortex. Scale bars: 50 μm.

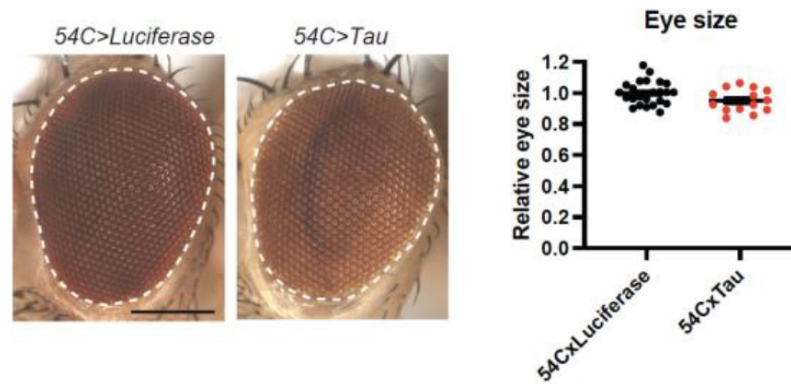


Fig. S5. The eyes with Tau expression driven by 54C-GAL4. Tau expression was driven by 54C-GAL4. Luciferase was used as a control (*54C>Luciferase*). No significant difference was found in the area of the eye. Scale bar: 250 μ m. Mean $\pm$ SE, n=14-24, n.s.; $p>0.05$, Statistical significance was assessed with unpaired two-tailed t-test.

Table S1. The genotypes of flies used in each experiment related to Figures 1-5

Figure	Name	Genotype
Figure 1A-C, 1E-F and G, left	Control	<i>w¹¹¹⁸; GMR-GAL4/+</i>
	Tau	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-tau/+</i>
Figure 1D	Control	<i>w¹¹¹⁸; Repo-GAL4/UAS-mCh::NLS</i>
	Tau	<i>GMR-Tau/+; Repo-GAL4/UAS-mCh::NLS</i>
Figure G, right	Tau	<i>GMR-Tau/+</i>
Figure 2A	Tau+Control RNAi	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-tau/UAS-Luciferase RNAi</i>
	Tau+drpr RNAi	<i>w¹¹¹⁸; GMR-GAL4/UAS-drpr RNAi; UAS-tau/+</i>
	Tau+NimC4 RNAi	<i>w¹¹¹⁸; GMR-GAL4/UAS-NimC4 RNAi; UAS-tau/+</i>
Figure 2B	Control	<i>w¹¹¹⁸; GMR-GAL4/+</i>
	Tau	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-tau/+</i>
Figure 3A	Control	<i>w¹¹¹⁸; GMR-GAL4/+</i>
	Tau	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-tau/+</i>
	Tau+GLUT3	<i>w¹¹¹⁸; GMR-GAL4/UAS-GLUT3; UAS-tau/+</i>
	Tau+CD8::RFP	<i>w¹¹¹⁸; GMR-GAL4/UAS-mCD8::ChRFP; UAS-tau/+</i>
	GLUT3	<i>w¹¹¹⁸; GMR-GAL4/UAS-GLUT3</i>
Figure 3B-F	Control	<i>w¹¹¹⁸; GMR-GAL4/+</i>
	Tau	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-tau/+</i>
	Tau+GLUT3	<i>w¹¹¹⁸; GMR-GAL4/UAS-GLUT3; UAS-tau/+</i>
Figure 3G-I	Control	<i>w¹¹¹⁸; GMR-GAL4/UAS-mCD8::ChRFP</i>
	Tau	<i>w¹¹¹⁸; GMR-GAL4/UAS-mCD8::ChRFP; UAS-tau/+</i>
	Tau+Glut1 ^{d05758}	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-tau/ UAS- Glut1^{d05758}</i>
	Glut1 ^{d05758}	<i>w¹¹¹⁸; GMR-GAL4/+; UAS- Glut1^{d05758}/+</i>
Figure 4	Tau	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-tau/+</i>
	Tau+GLUT3	<i>w¹¹¹⁸; GMR-GAL4/UAS-GLUT3; UAS-tau/+</i>
Figure 5A-D	54C>CD8::GFP	<i>w¹¹¹⁸; 54C-GAL4/ UAS-mCD8::GFP</i>
	GMR-Tau +54C>CD8::GFP	<i>GMR-Tau/+; 54C-GAL4/UAS-mCD8::GFP</i>
	GMR-Tau	<i>GMR-Tau/+; 54C-GAL4/UAS-GLUT3</i>

Figure 5E-G	+54C>GLUT3	
	54C>GLUT3	<i>w¹¹¹⁸; 54C-GAL4/UAS-GLUT3</i>
	Rh1>CD8::GFP	<i>w¹¹¹⁸; UAS-mCD8::GFP/+; Rh1-GAL4/+</i>
	GMR-Tau +Rh1>CD8::GFP	<i>GMR-Tau/+; UAS-mCD8::GFP/+; Rh1-GAL4/+</i>
	GMR-Tau +Rh1>GLUT3	<i>GMR-Tau/+; UAS-GLUT3/+; Rh1-GAL4/+</i>
	Rh1>GLUT3	<i>w¹¹¹⁸; UAS-GLUT3/+; Rh1-GAL4/+</i>

Table S2. The genotypes of flies used in each experiment related to Supplemental Figures 1-5

Figure	Name	Genotype
Supplemental Figure 1	GMR>Luciferase	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-Luciferase/+</i>
	UAS-Tau	<i>w¹¹¹⁸; UAS-Tau/+</i>
	GMR>Tau	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-Tau/+</i>
Supplemental Figure 2	Control	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-Luciferase RNAi/+</i>
	drpr RNAi	<i>w¹¹¹⁸; GMR-GAL4/UAS-drpr RNAi</i>
	NimC4 RNAi	<i>w¹¹¹⁸; GMR-GAL4/UAS-NimC4 RNAi</i>
Supplemental Figure 3	Tau	<i>Elav-GAL4/+; UAS-mCD8::GFP/+; UAS-tau/+</i>
	Tau+Glut1	<i>Elav-GAL4/+; UAS-tau/ UAS- Glut1^{d05758}</i>
Supplemental Figure 4	GMR>mCh::NLS	<i>w¹¹¹⁸; GMR-GAL4/+; UAS-mCh::NLS/+</i>
	54C>mCh::NLS	<i>w¹¹¹⁸; GMR-GAL4/54C-GAL4</i>
Supplemental Figure 5	54C>Luciferase	<i>w¹¹¹⁸; 54C-GAL4/+; UAS-Luciferase/+</i>
	54C>Tau	<i>w¹¹¹⁸; 54C-GAL4/+; UAS-Tau/+</i>