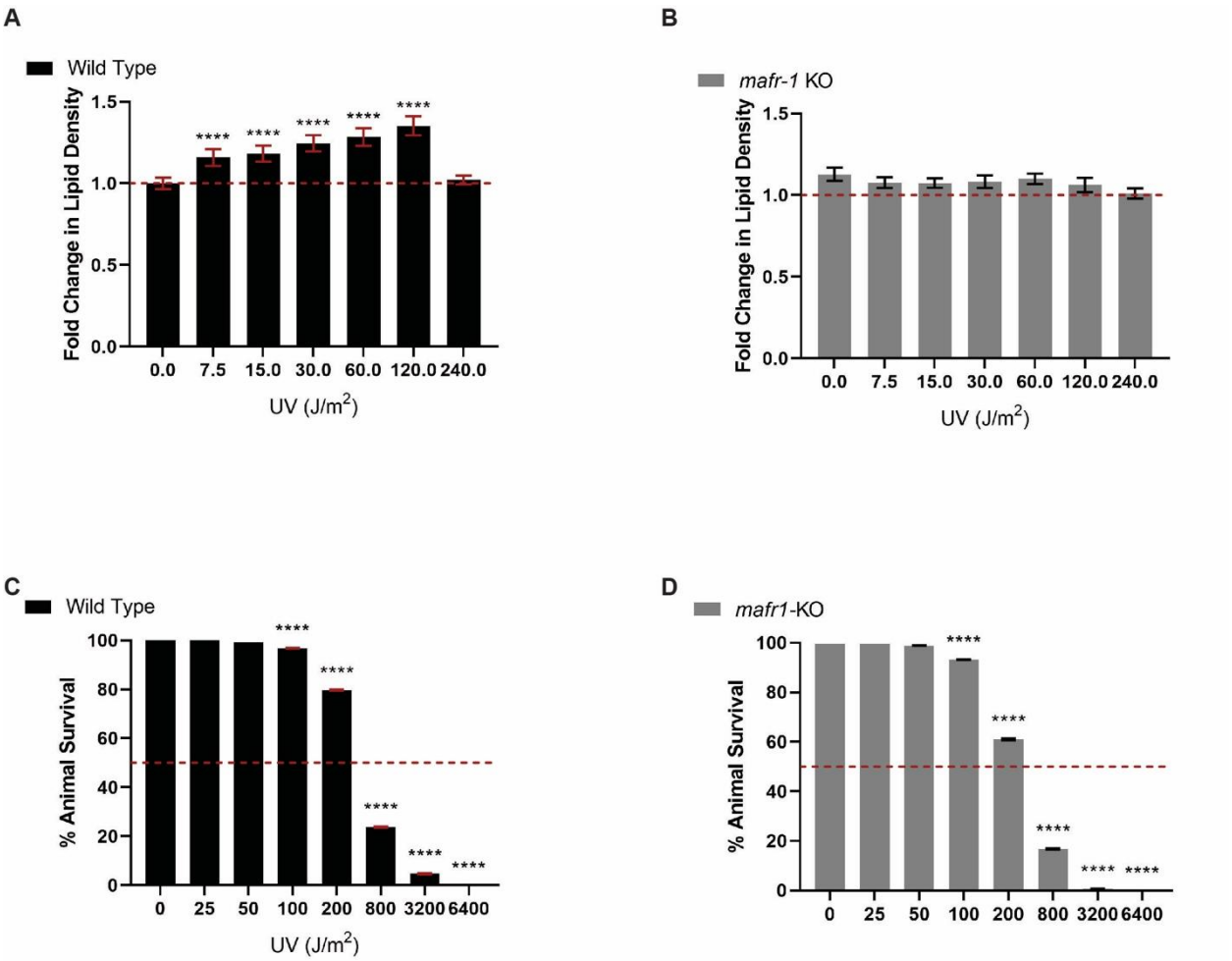
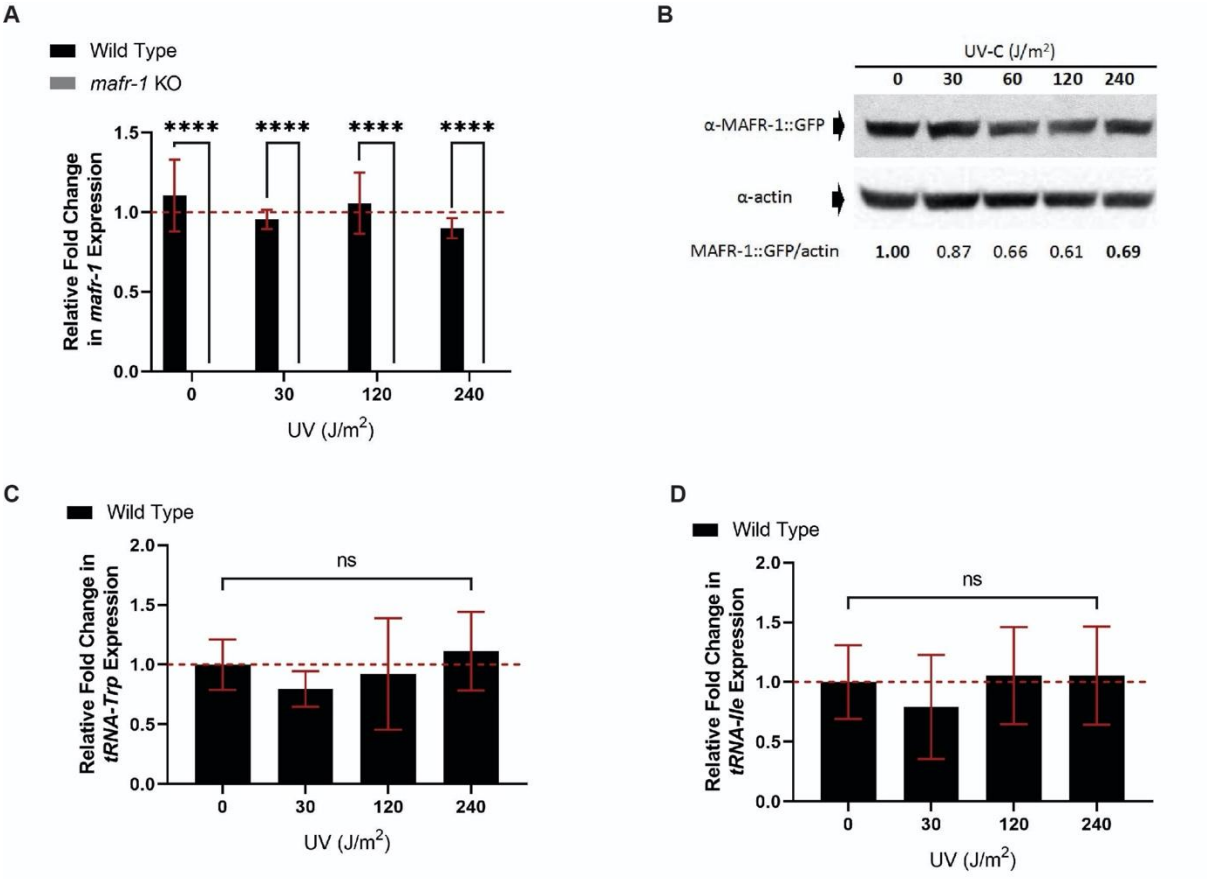
Supplemental Materials

Molecular Biology of the Cell

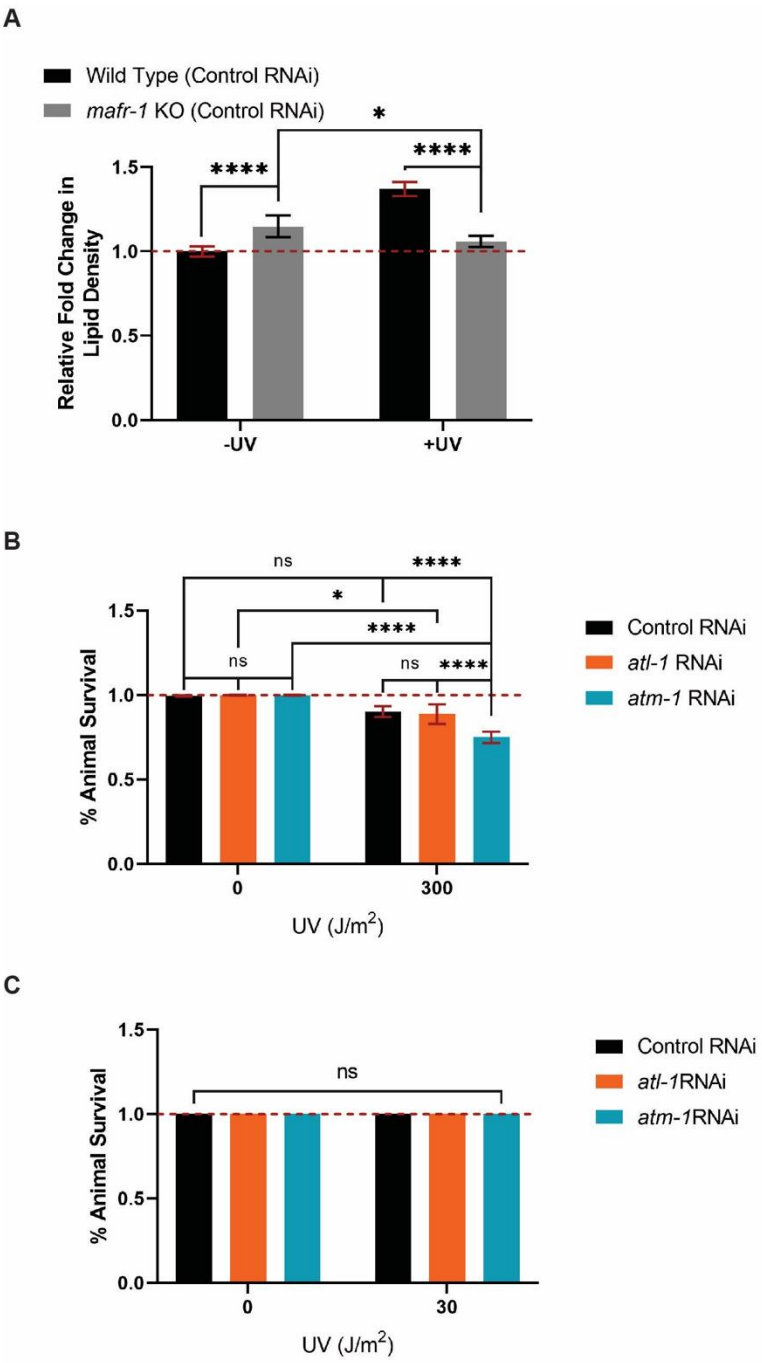
Hammerquist *et al*.



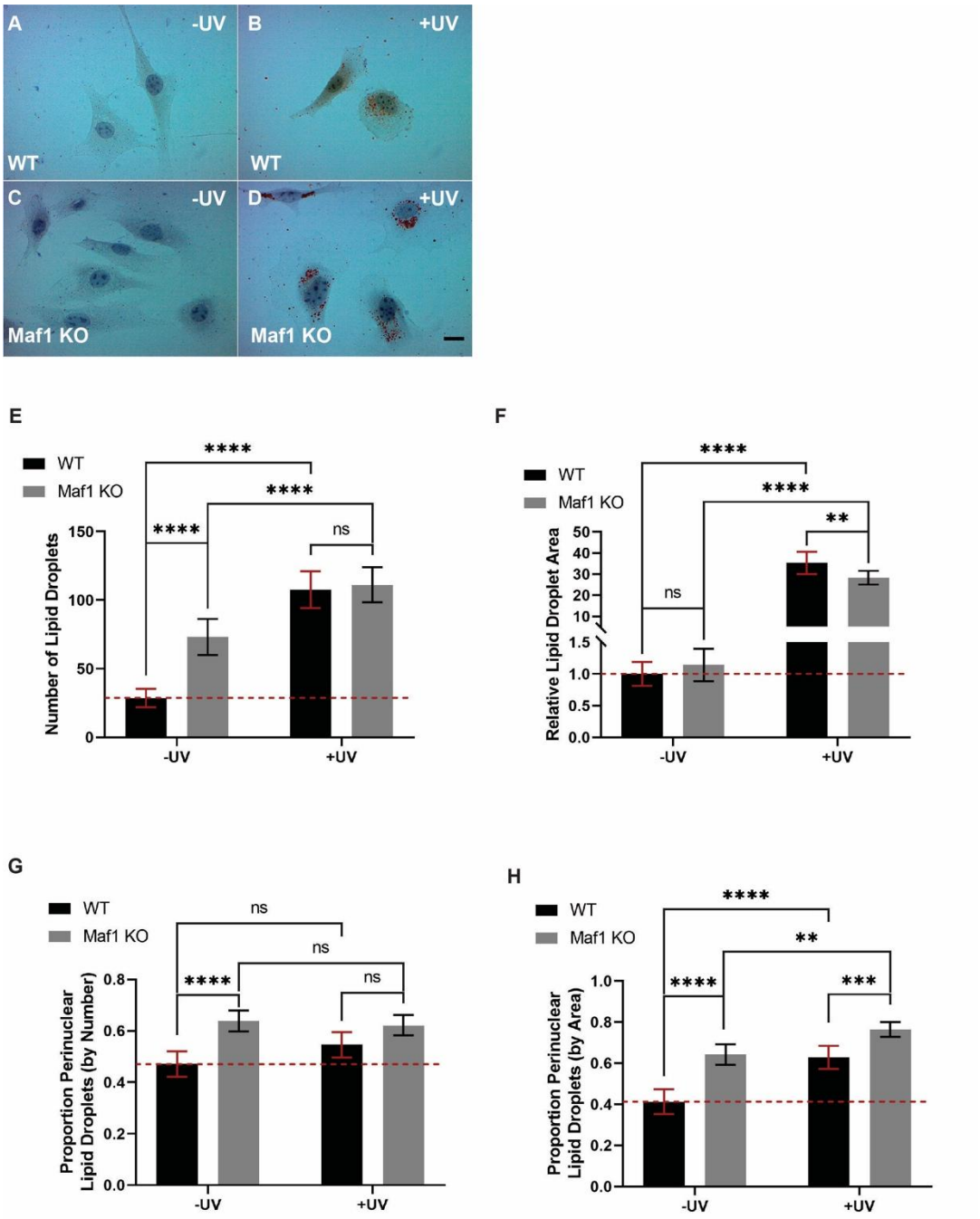
Supplemental Fig. 1. Lack of MAFR-1 results in failure to elevate lipid density and decreased survival in response to UV phototoxicity. (**A-B**). Quantification of lipid density in whole WT (**A**) and *mafr-1* KO (**B**) worms in response to increasing doses of UV light (**C-D**). Survival of WT (**C**) and *mafr-1* KO (**D**) animals following UV exposure. The red dashed line shows the mean lipid density in untreated wild type animals. A one-way ANOVA test with Tukey's *post hoc* test was used for multiple sample comparisons in lipid density data. See **Descriptive Statistics Table** for sample sizes used in each experiment. *, $p<0.05$; **, $p<0.01$; ****, $p<0.0001$; n.s., no significance. Error bars show 95% C.I. of the mean.



Supplemental Fig. 2. Increasing UV light results in reduced *mafr-1* and MAFR-1 expression without changing RNA pol III transcript expression. (**A**) *mafr-1 KO* animals showed no detectable *mafr-1* expression. (**B**) MAFR-1 stability decreases with increasing UV light exposure in a MAFR-1::GFP multicopy overexpressing strain. (**C-D**) Relative to untreated animals, wild type worms show no change in *tRNA-Trp* (**C**) and *tRNA-Ile* (**D**) expression in response to increasing doses of UV light. A one-way ANOVA test with Tukey's *post hoc* test was used for multiple sample comparisons in qPCR data. See **Descriptive Statistics Table** for sample sizes used in each experiment. *, p<0.05; **, p<0.01; ***, p<0.001; ****, p<0.0001; n.s., no significance. Error bars show 95% C.I. of the mean.



Supplemental Fig. 3. Following UV light phototoxicity, *mafr-1* KO animals fed an HT115/K-12 *E. coli* diet recapitulate the failure to elevate lipid density of worms fed an OP50/B *E. coli* diet. (**A**) WT and *mafr-1* KO animals fed an HT115/K-12 *E. coli* diet exhibit similar lipid accumulation as worms fed an OP50/B *E. coli* diet. (**B-C**) Survival of UV-exposed animals on *atl-1* and *atm-1* RNAi. RNAi of *atm-1*, but not *atl-1* decrease survival of WT animals at 300 J/m^2 UV. (**B**) Neither *atl-1* or *atm-1* RNAi affects animal survival at 30 J/m^2 (**C**). A one-way ANOVA test with Tukey's *post hoc* test was used for multiple sample comparisons in lipid density data. See **Descriptive Statistics Table** for sample sizes used in each experiment. *, p<0.05; ****, p<0.0001. Error bars show 95% C.I. of the mean.



Supplemental Fig. 4. Lack of Maf1 in mouse embryonic fibroblast (MEF) cells results in altered lipid accumulation in response to UV phototoxicity. (**A-D)** Images of MEF cells stained with Oil Red O following exposure 0 or 30 J/m^2 of UV light. (**E-F**) Quantification of Oil Red O staining: both (**E**) number of lipid droplets and (**F**) total area of lipid droplets increase upon exposure to UV. (**G-H**) Proportion of the number (**G**) and total area (**H**) of lipid droplets localized to perinuclear region (defined as within 8.4 microns of the nucleus) increases upon UV exposure. Proportion of area (**H**) is also more perinuclear in Maf1 KO background. One-way ANOVA test with Tukey's post hoc test was used for multiple sample comparisons in lipid density data. See **Descriptive Statistics Table** for sample sizes used in each experiment. *, p<0.05; **, p<0.01; ****, p<0.0001; n.s., no significance. Error bars show 95% C.I. of the mean. Scale bar is 100 μm.