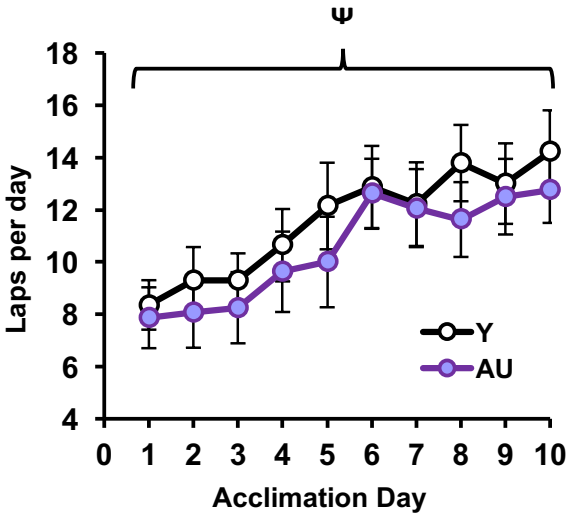
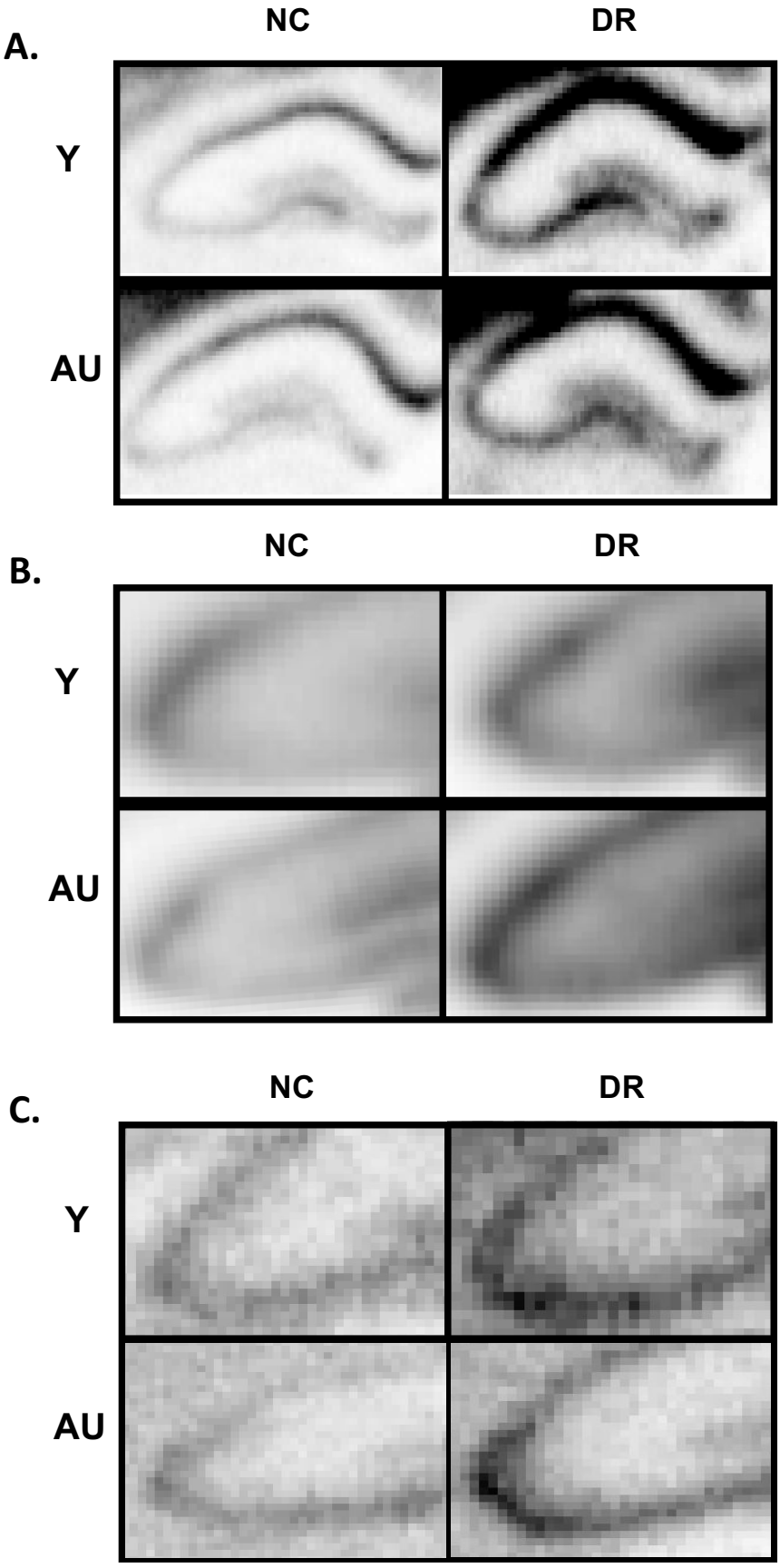
Supplemental Figures

Supplementary Figure 1.



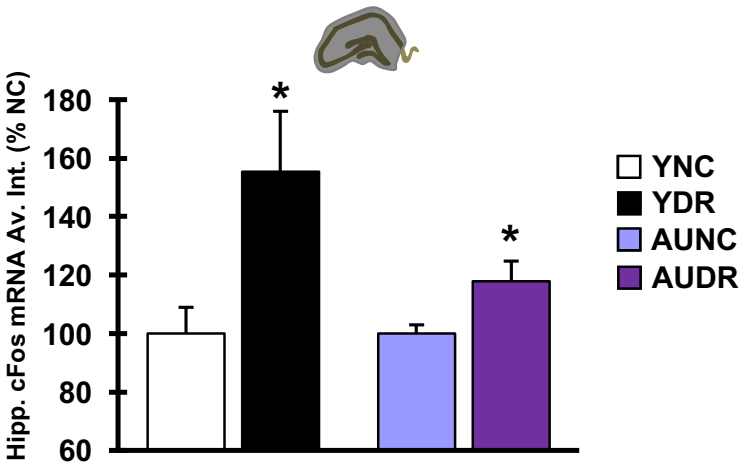
Supplementary Figure 1.The number of laps run during track acclimation increases over days but does not differ between ages. A repeated measures ANOVA shows an effect of day (Ψ, $F(1,28) = 11.848$, $p = 0.002$), with no effect of age ($F(1,28) = 0.412$, $p = 0.526$), nor interaction between age and day ($F(1,28) = 0.311$, $p = 0.581$).

Supplementary Figure 2.



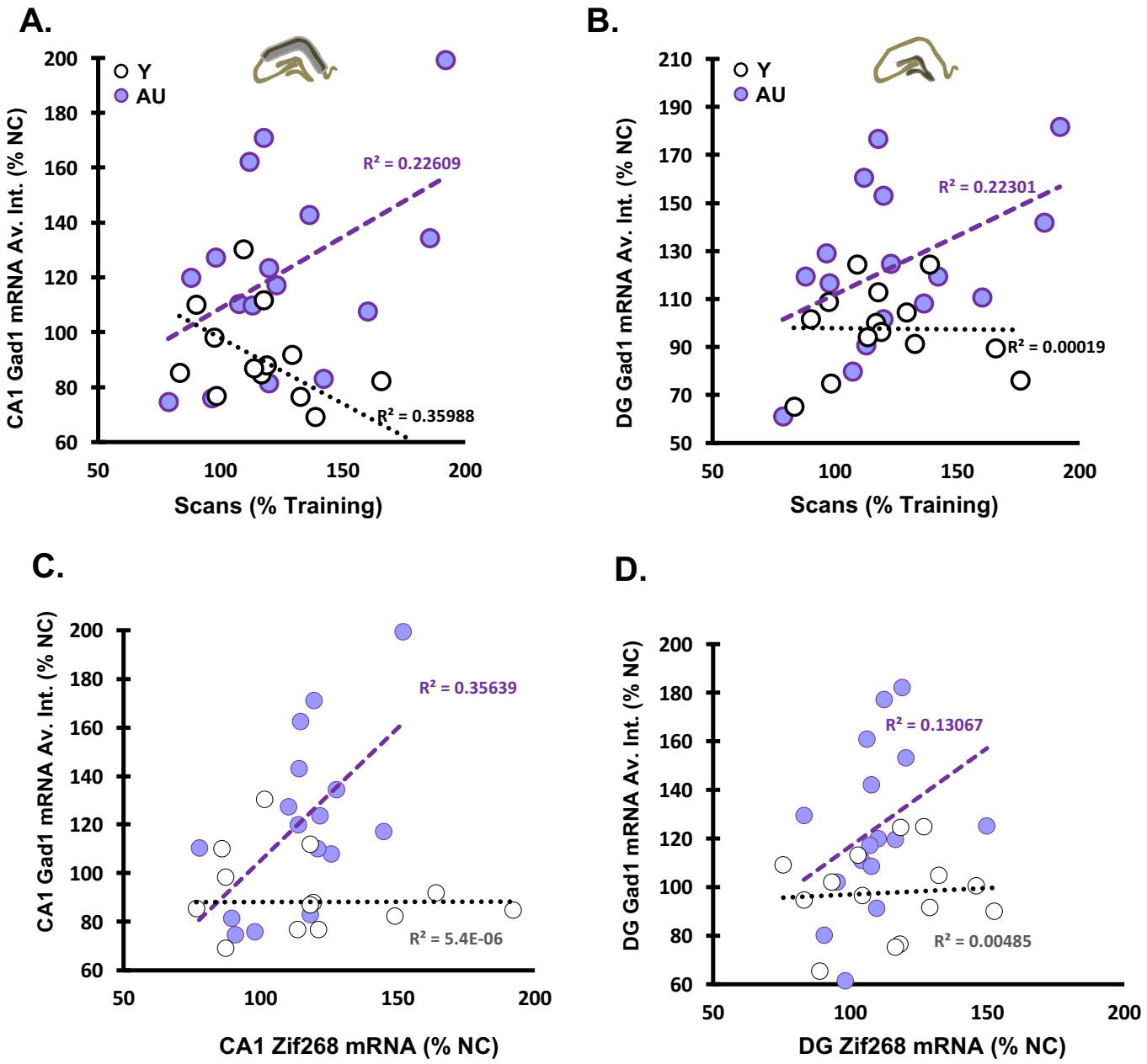
Supplementary Figure 2. Representative images of A. Zif268, B. Camk2A, and C. Nlgn1 in situ hybridization. Original greyscale images of those shown in Figure 3F, H, and J as heat map images

Supplemental Figure 3.



Supplementary Figure 2. cFos mRNA is increased with cue rotation in whole hippocampus. In situ hybridization of cFos mRNA shows increased expression in DR rats relative to NC rats for both Y and AU age groups. 1W ANOVA: Y: $F(1,13) = 6.041$, $p = 0.03$; AU: $F(1,15) = 4.649$, $p = 0.049$. *, $p<0.05$

Supplemental Figure 4.



Supplementary Figure 3. CA1 and dentate gyrus correlations between Gad1 mRNA expression and scans or Zif268 show similar patterns as CA3. **A.** Gad1 mRNA shows a near significant positive correlation with test day scanning behavior (percent baseline) for CA1 across AU rats (Pearson r = 0.4755, p = 0.0627). In young rats, Gad1 mRNA is significantly negatively correlated with scans (Pearson r = -0.5999, p = 0.0233). These correlations are significantly different from each other (Fisher Z-transformation, Z = 2.95, p = 0.0032). **B.** Gad1 mRNA shows a near significant positive correlation with scanning behavior for DG across AU rats (Pearson r = 0.4722, p = 0.0647) while young rats show no correlation (Pearson r = -0.0139, p = 0.9624). **C.** In CA1, Gad1 mRNA is significantly correlated with Zif26 mRNA levels for AU rats (Pearson r = 0.5970, p = 0.0146) but no correlation was found in young rats (Pearson r = 0.0023, p = 0.9937). **D.** In DG, the positive correlation between Gad1 mRNA is and Zif26 mRNA does not reach significance in AU rats (Pearson r = 0.3615, p = 0.1689) with no correlation was found in young rats (Pearson r = 0.0697, p = 0.8129).