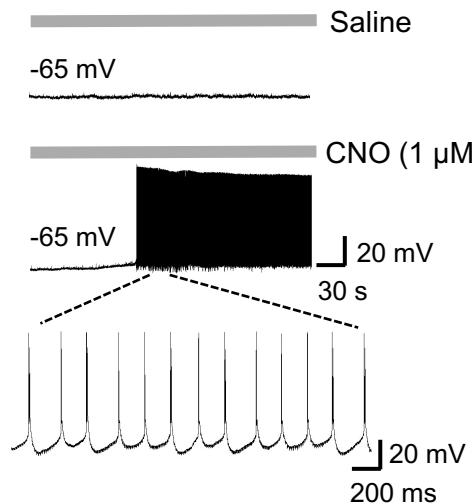
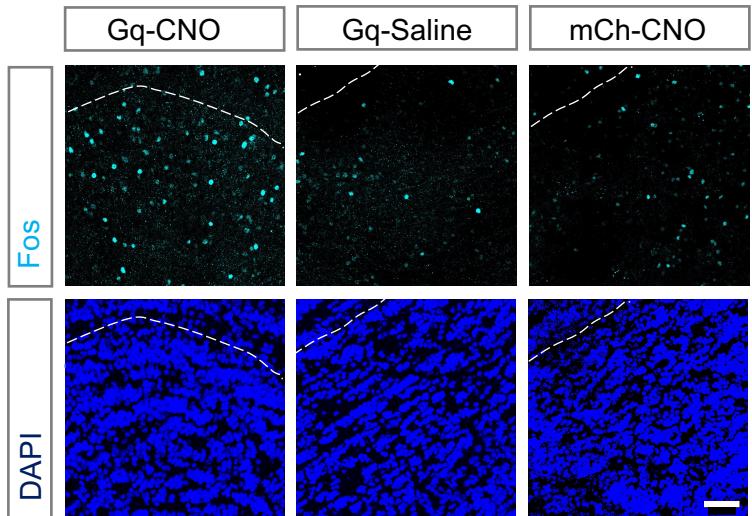
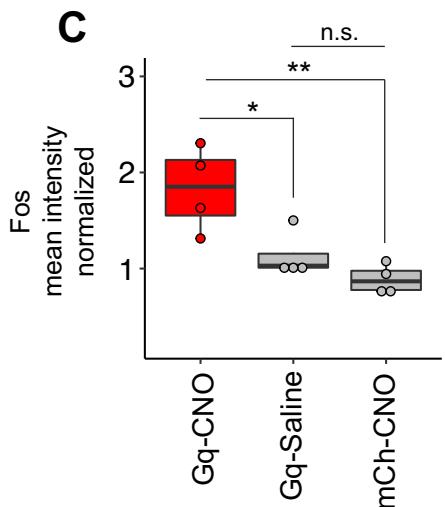
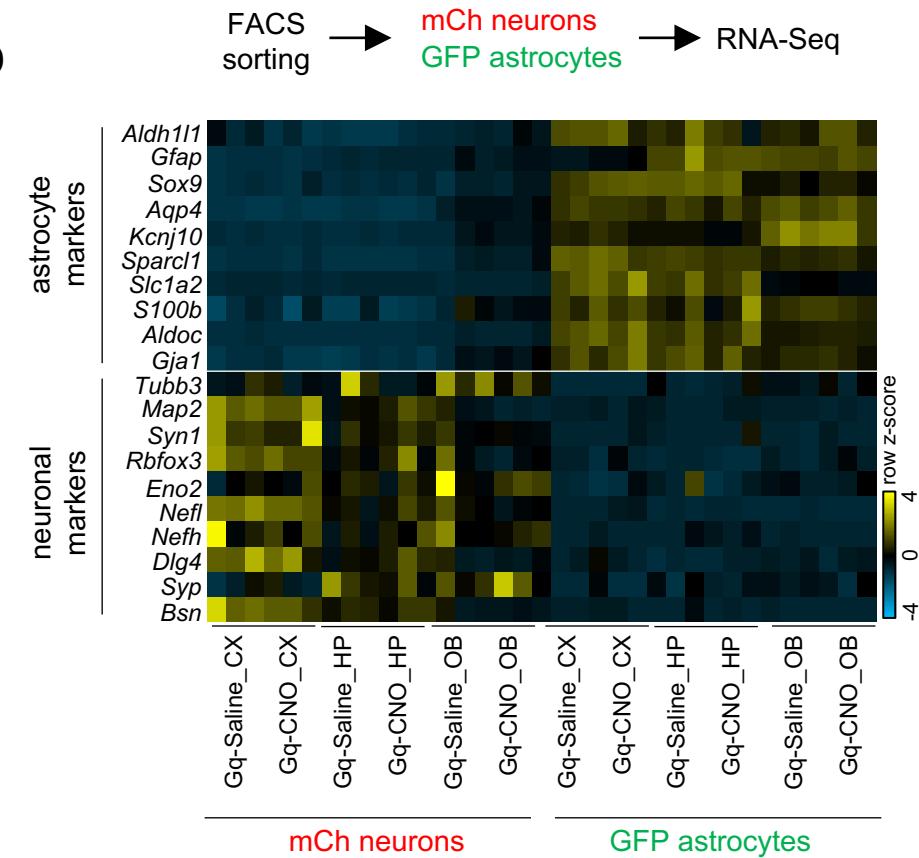
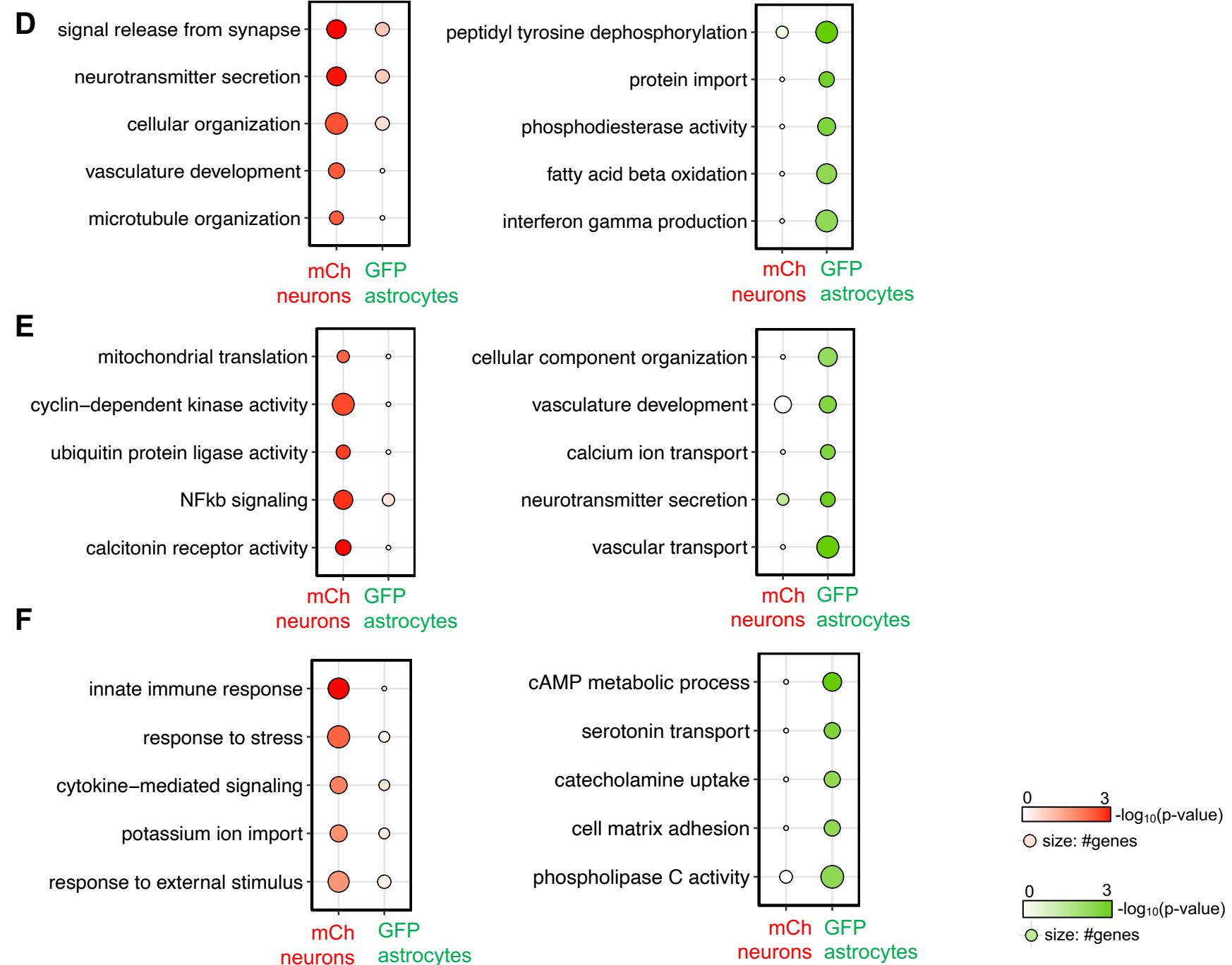
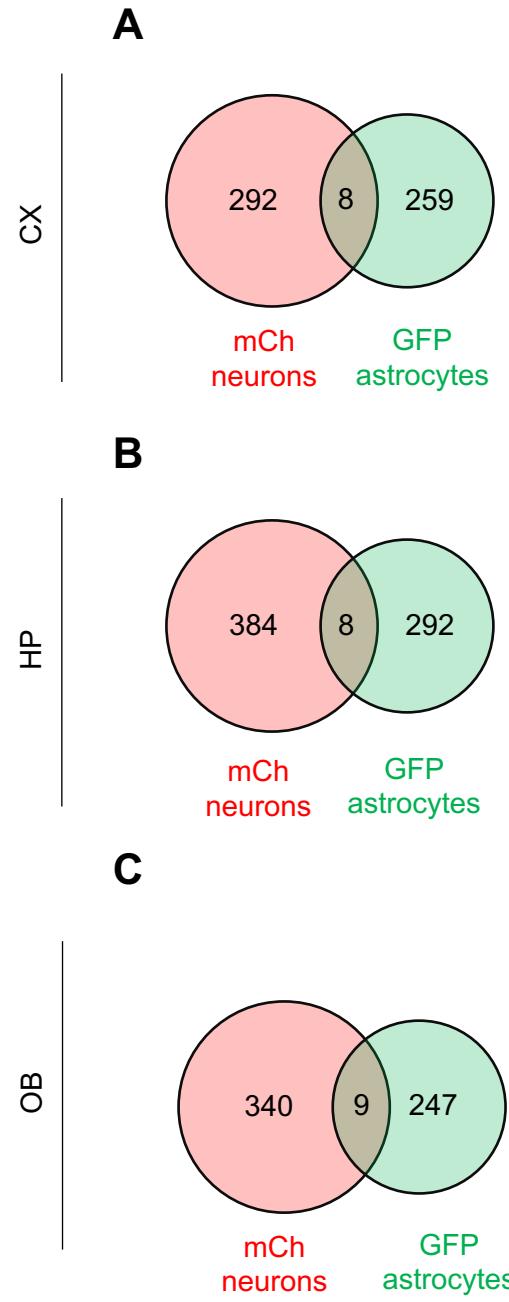


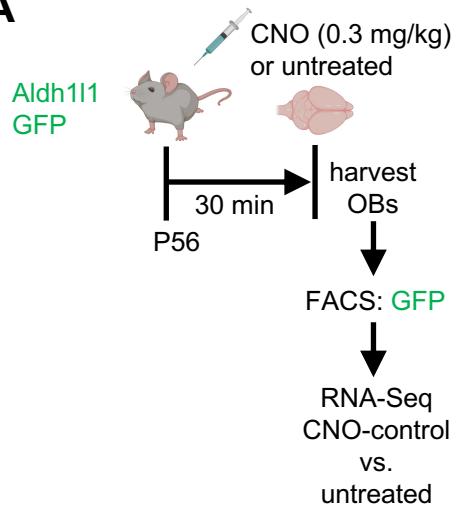
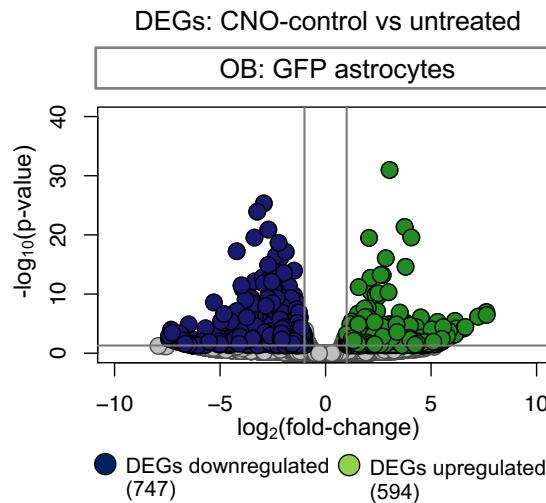
**A**

neuronal  
Gq-DREADD  
brain slices

**B****C****D**

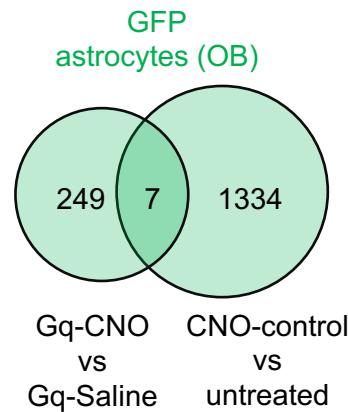
Supp Figure S2



**A****B****C**

OB: GO terms compare with Supp Fig S2F

GOID	GO Term	p-value
GO:0046058	cAMP metabolic process	0.2407
GO:0006837	serotonin transport	-
GO:0090493	catecholamine uptake	-
GO:0098634	cell-matrix adhesion mediator activity	-
GO:0007200	phospholipase C-activating G protein-coupled receptor signaling pathway	0.4619

**D****E**

7 overlapping genes:

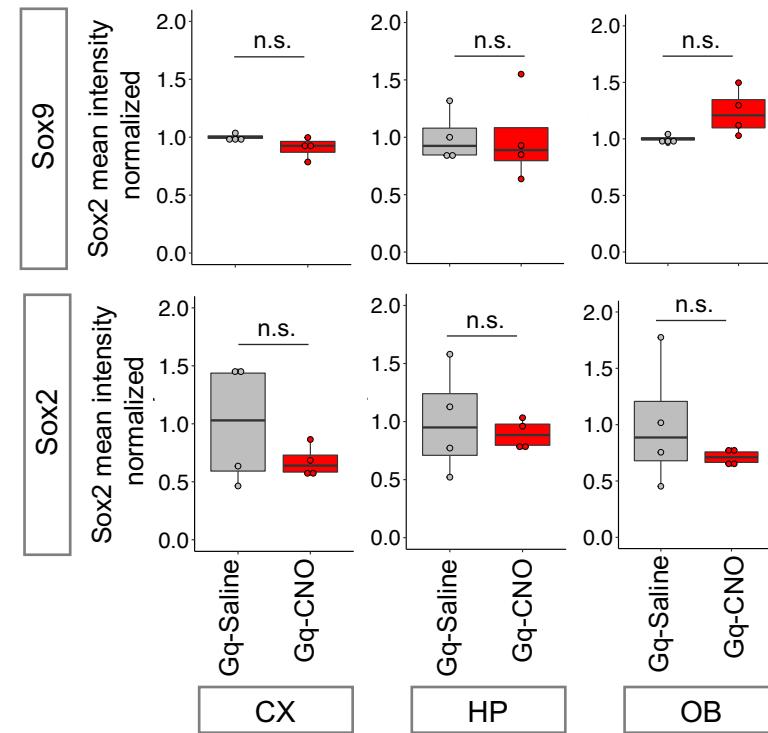
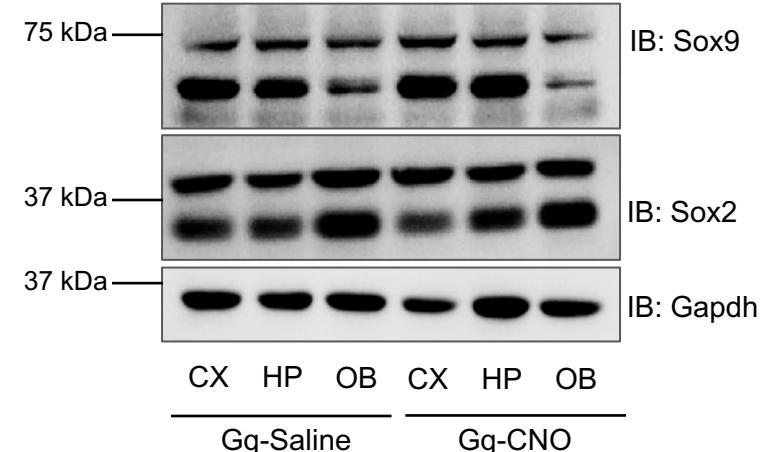
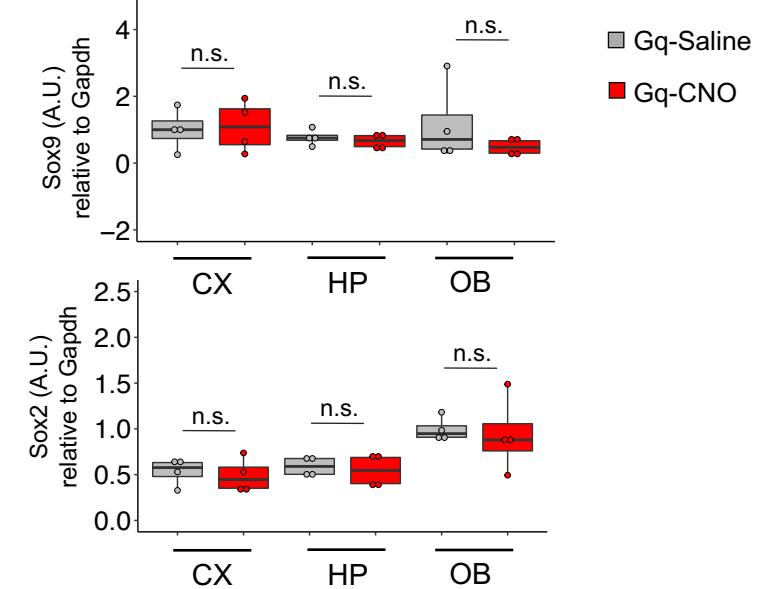
Gene	LFC	p-value
Ddx4	5.417	0.0102
Gm20199	3.946	0.0011
Rttn	2.079	0.0188
Zfp568	2.498	0.0016
Cd68	-2.549	0.0332
Gpr34	-2.344	0.0017
Hk2	-2.395	0.0244

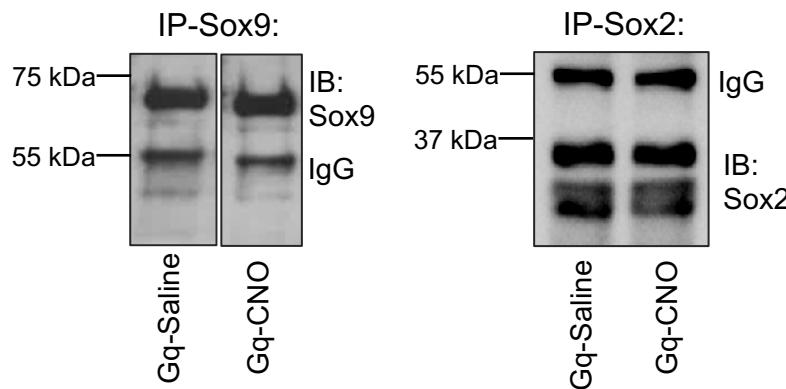
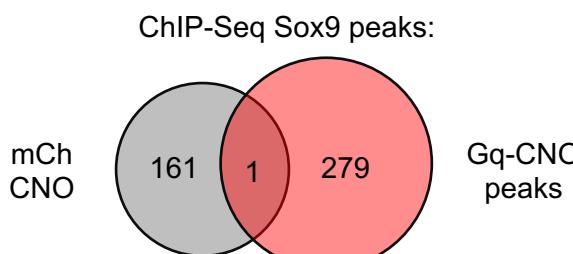
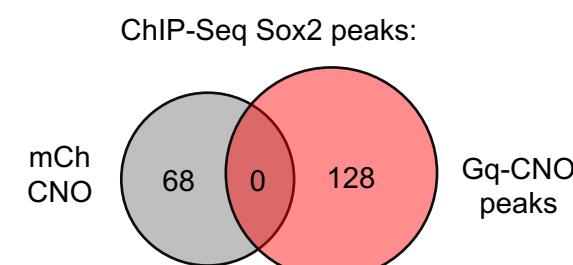
**A**

**GFP astrocytes:**  
Gq-CNO DEG's  
motif enrichment

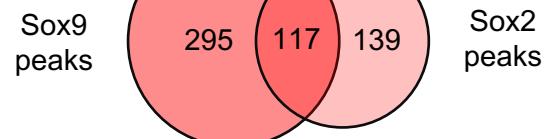
filter TFs based on  
astrocyte-specific expression  
>1.5-fold over mCh neurons  
>150 CPM in GFP astrocytes

motifs shown in  
Fig 1G

**B****C****D**

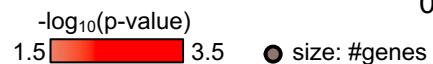
**A****B****C****D**

differential peaks:  
Gq-CNO vs. mCh-CNO control  
( $\log_2$ fold-change over Input > 2, FDR < 0.01)

**E**

GO analysis of genes with differential peaks:

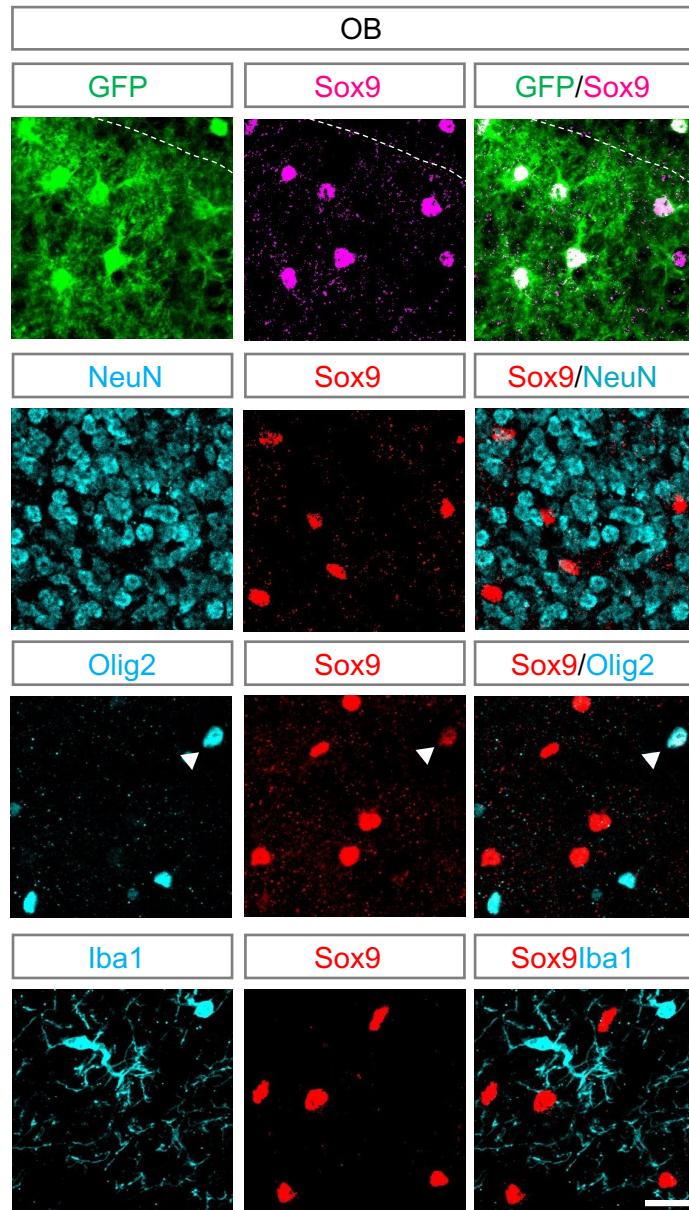
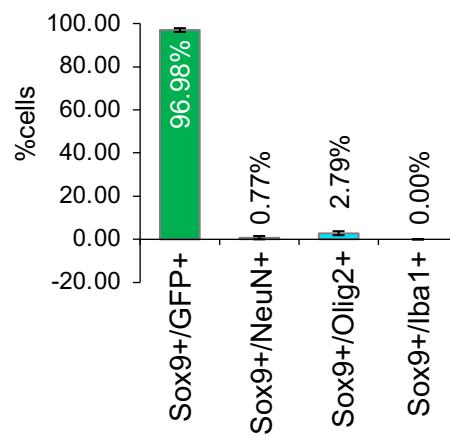
**dendrite development**  
**fibroblast proliferation**  
**transcription**  
**response to growth factor**  
**cell differentiation**  
**proteoglycan metabolic process**  
**sialic acid transport**  
**glial derived neurotrophic factor signaling**  
**aspartate metabolic process**  
**stress induced apoptotic signaling**  
**glucuronosyltransferase activity**  
**mRNA processing**



Sox9 peaks

Sox2 peaks

shared

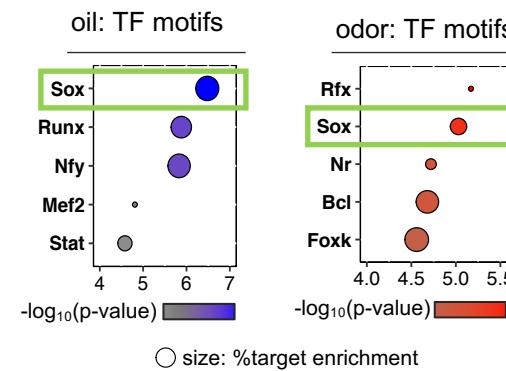
**A****B****C**

OB

ChIP-Seq Sox9 peaks:

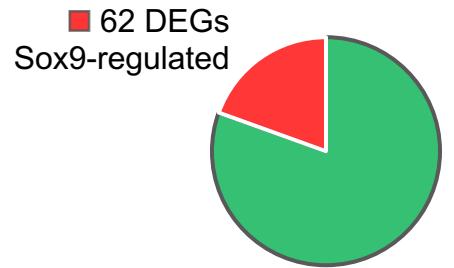
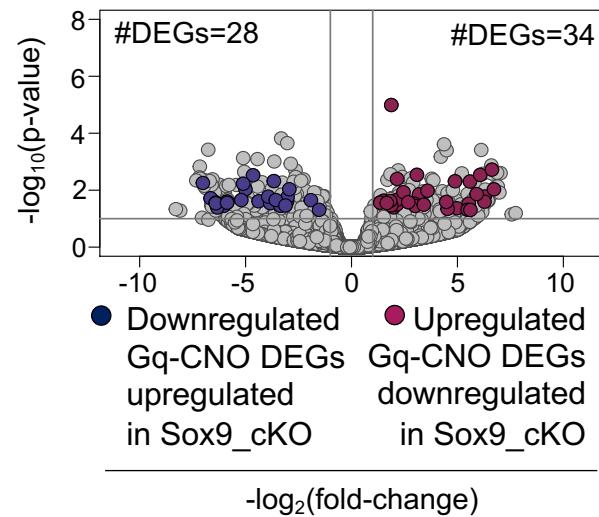
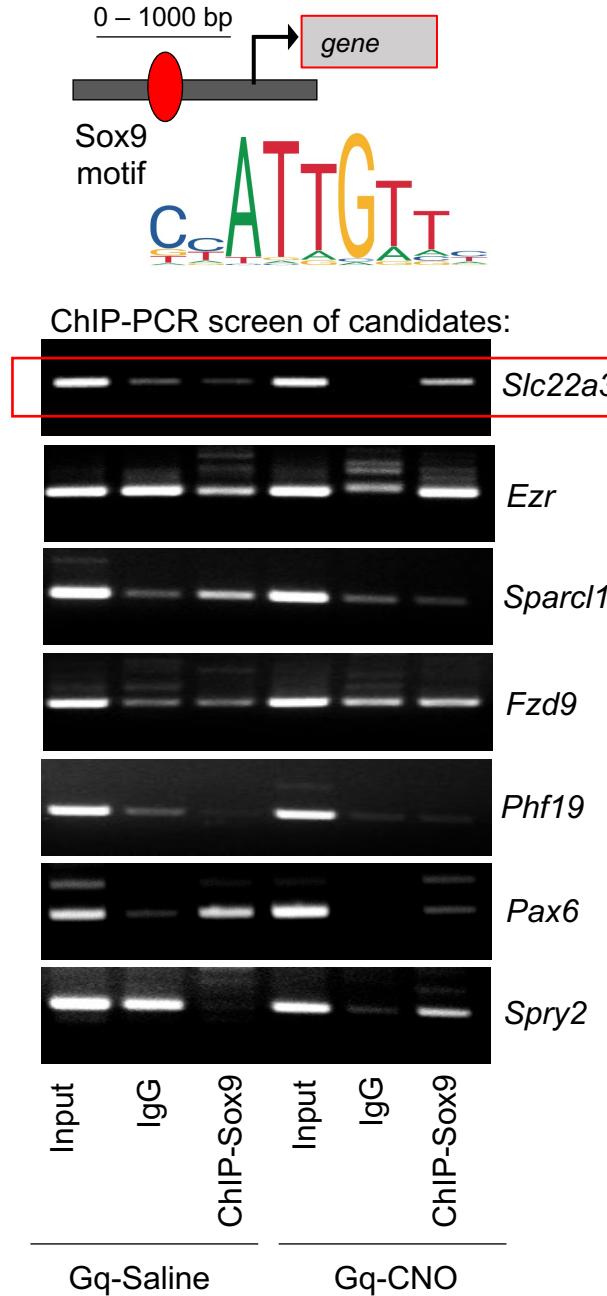
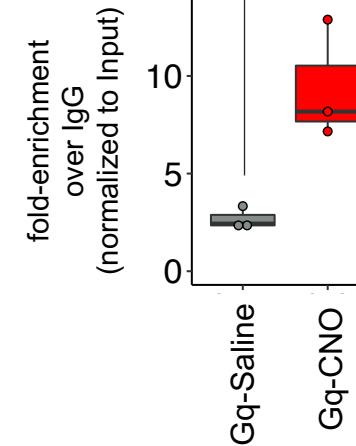
**D**

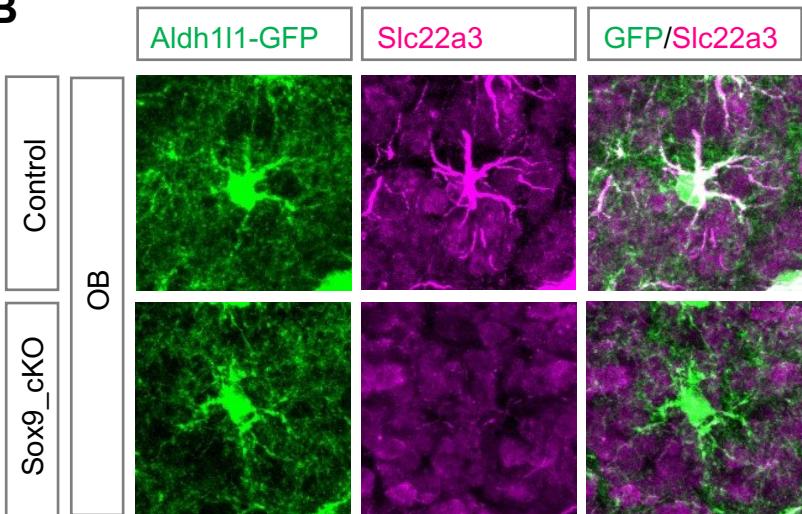
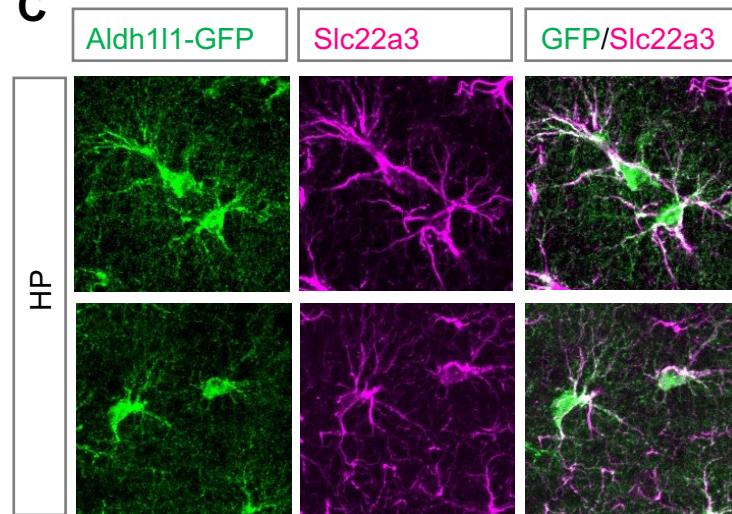
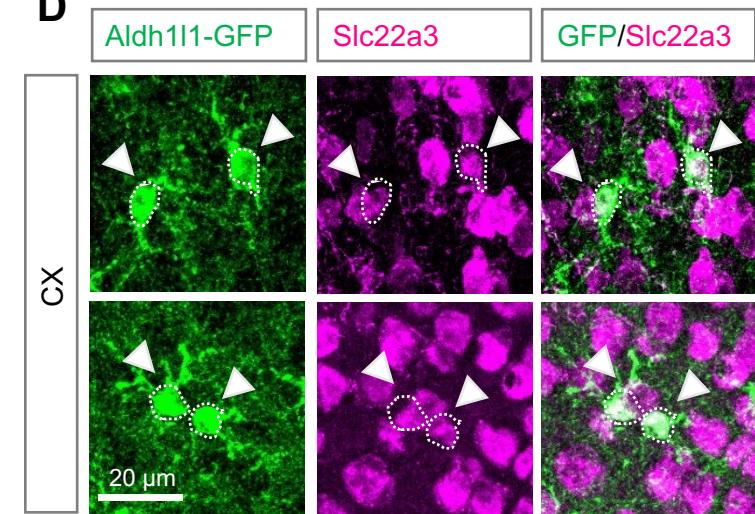
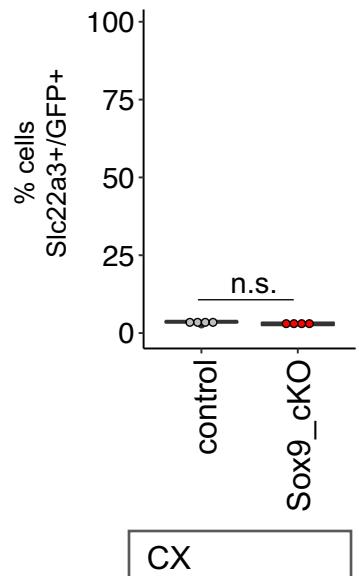
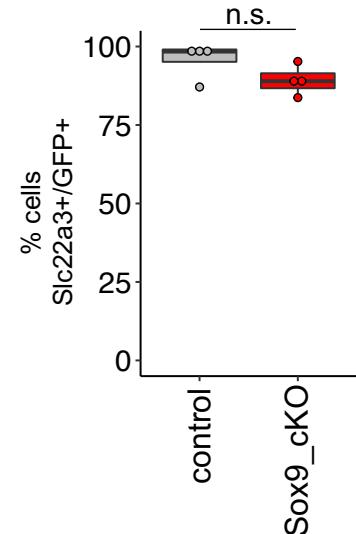
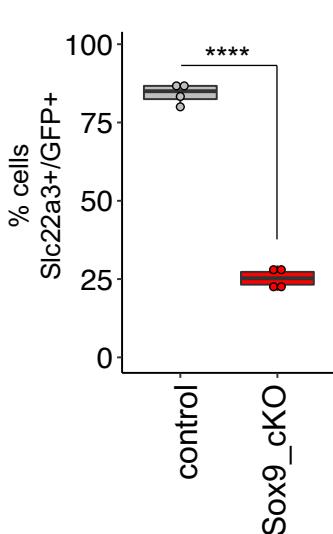
Motif analysis at ChIP-Seq peaks:

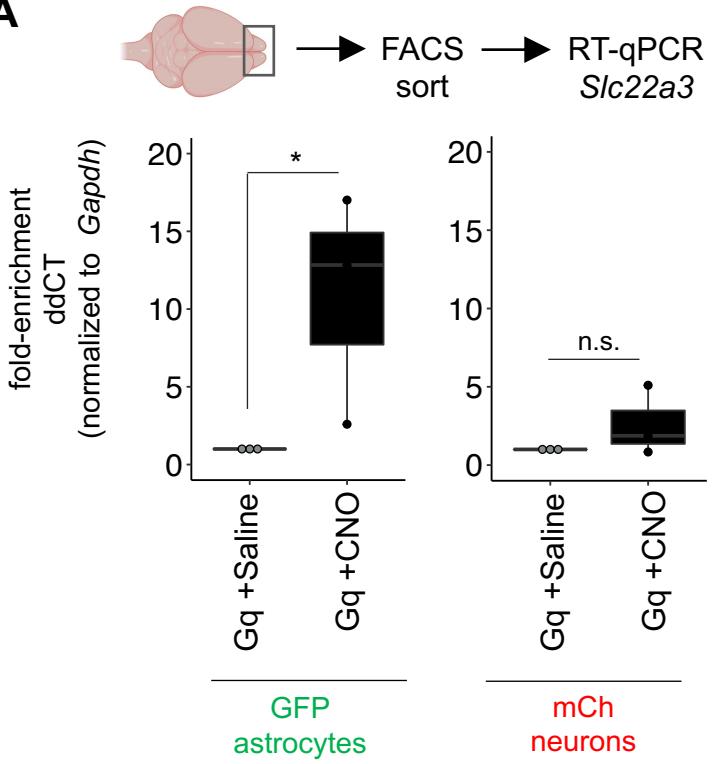
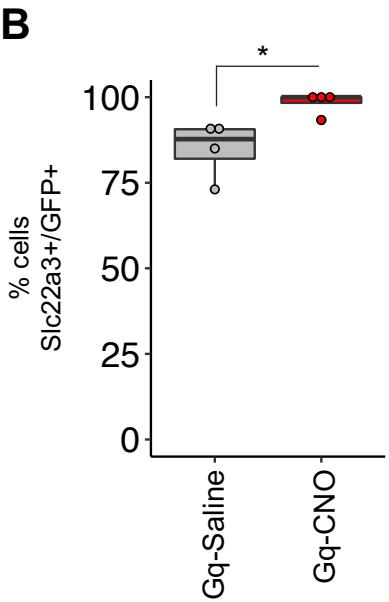
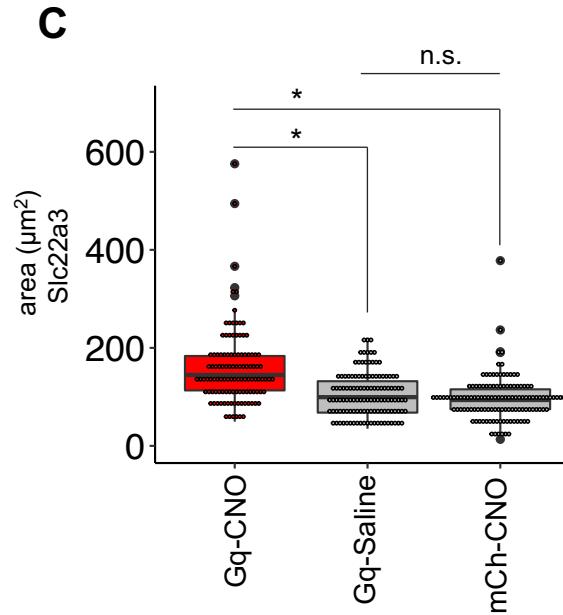
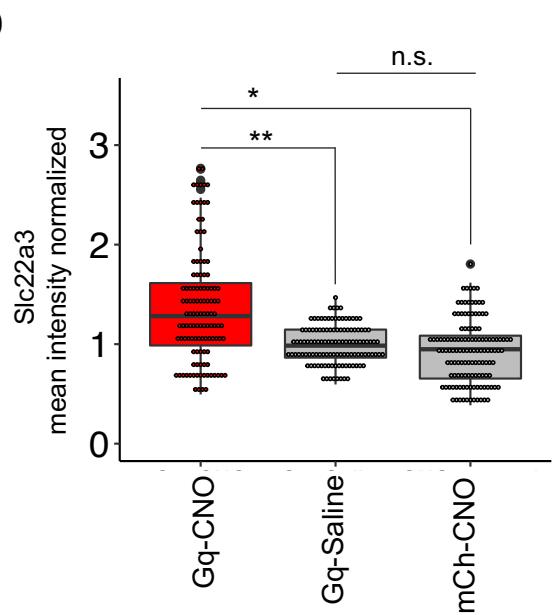
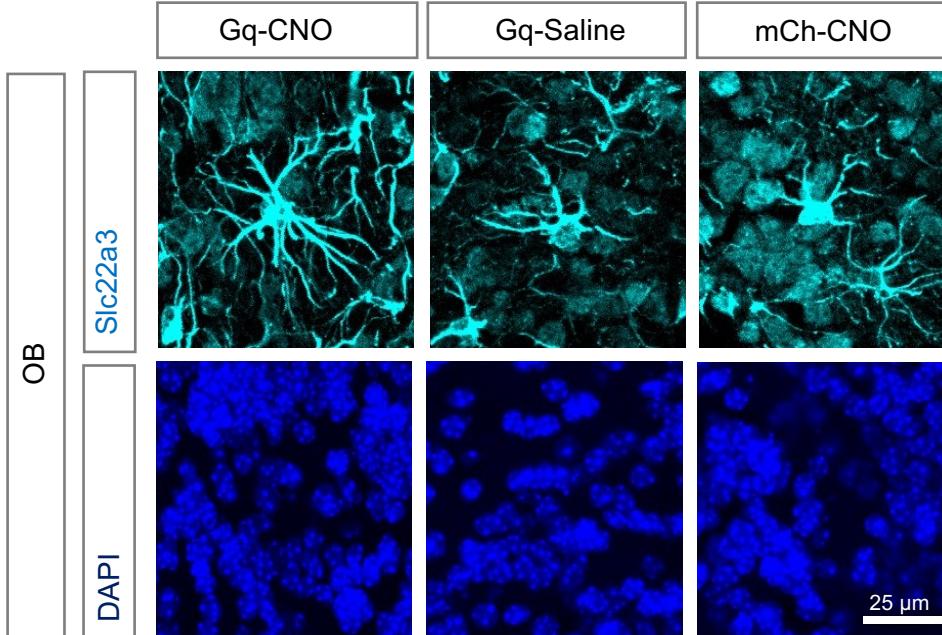


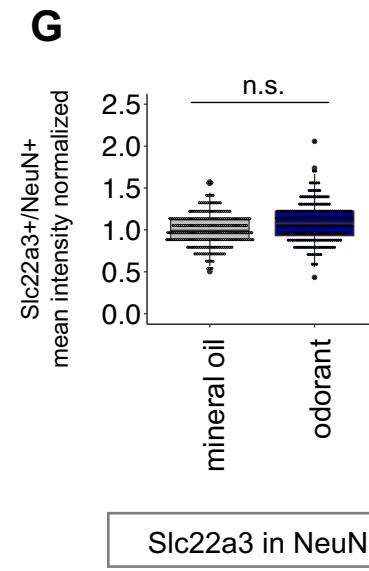
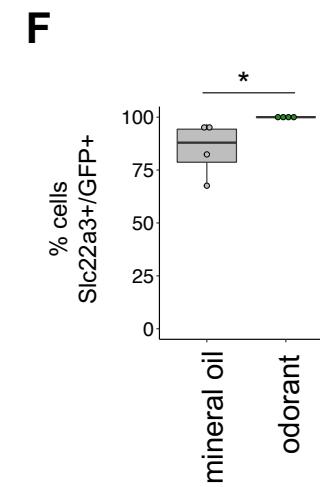
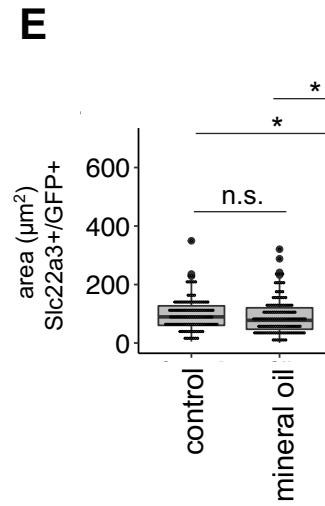
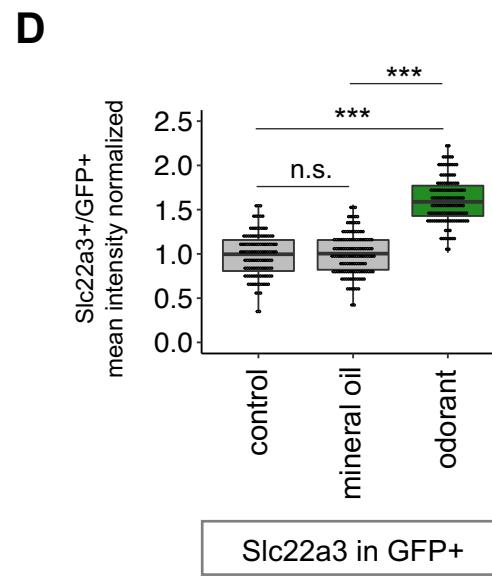
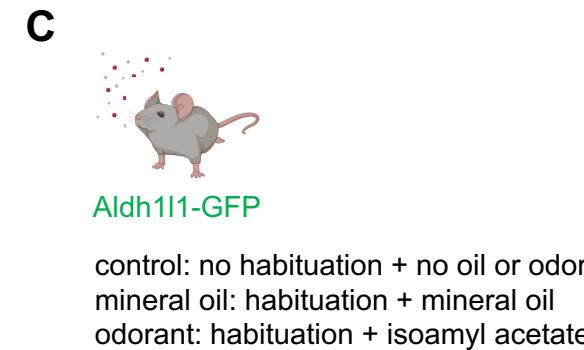
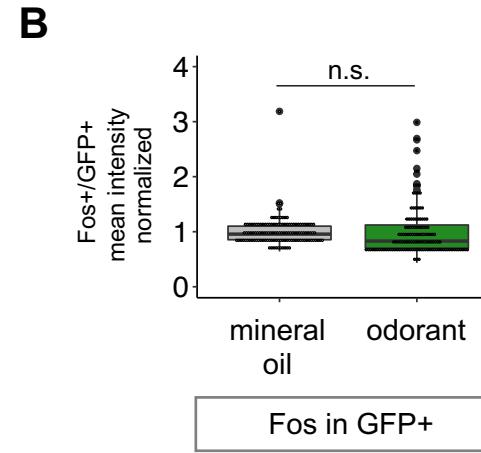
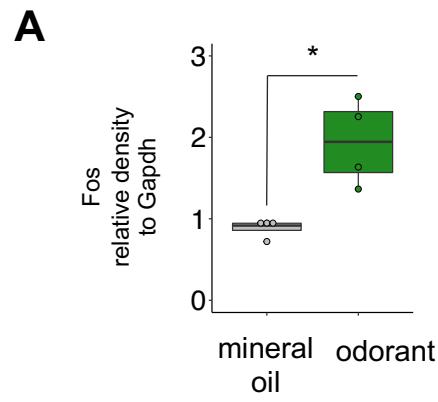
**A**

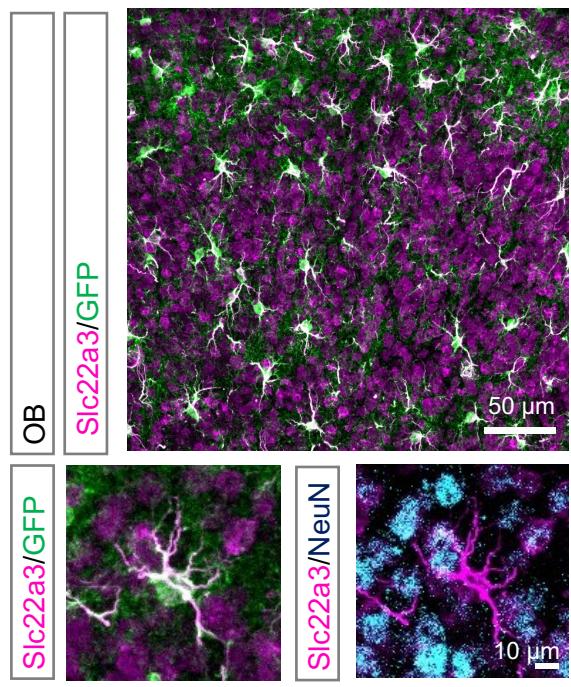
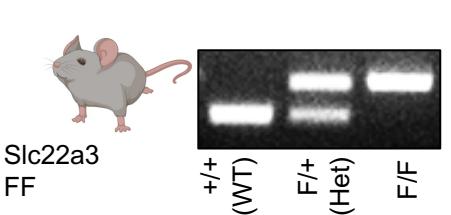
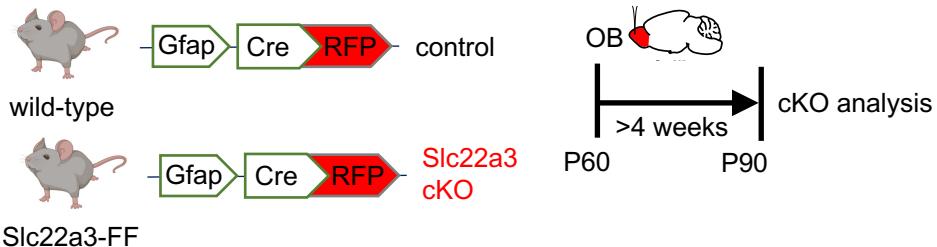
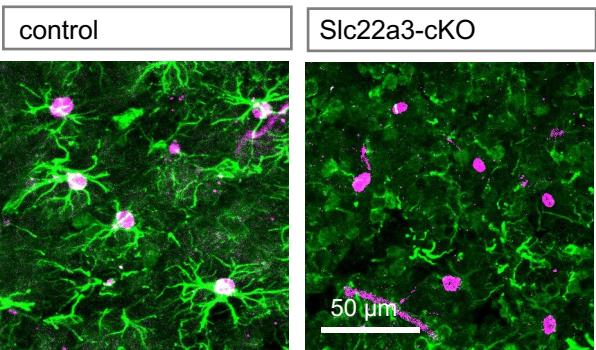
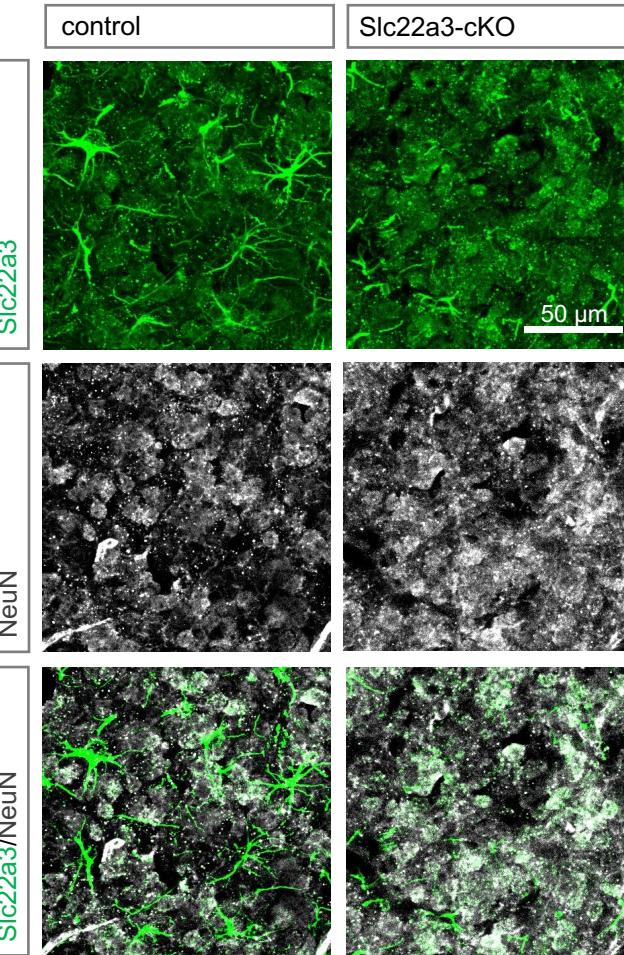
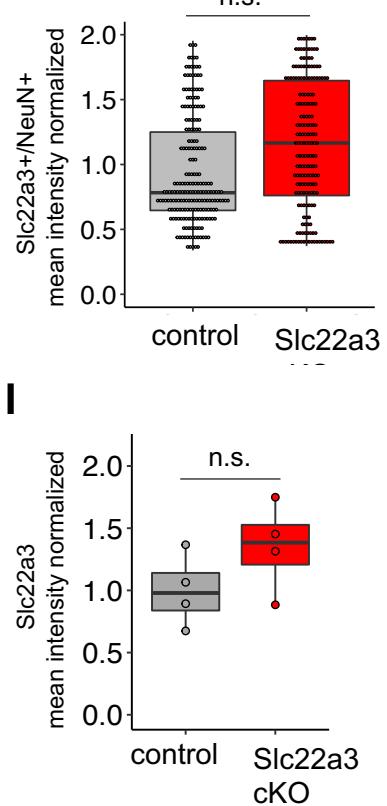
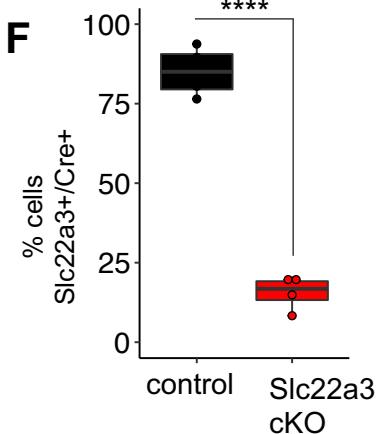
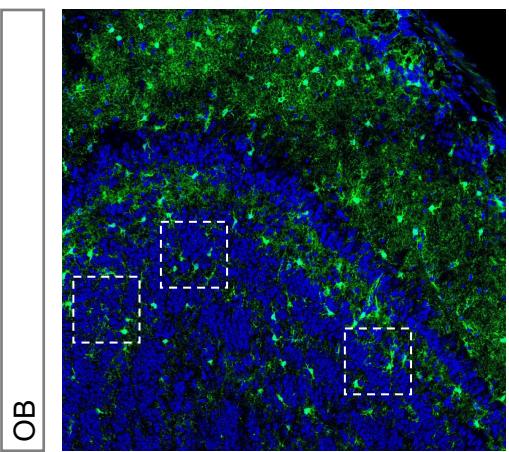
OB: Gq-CNO vs. Gq-Saline DEGs

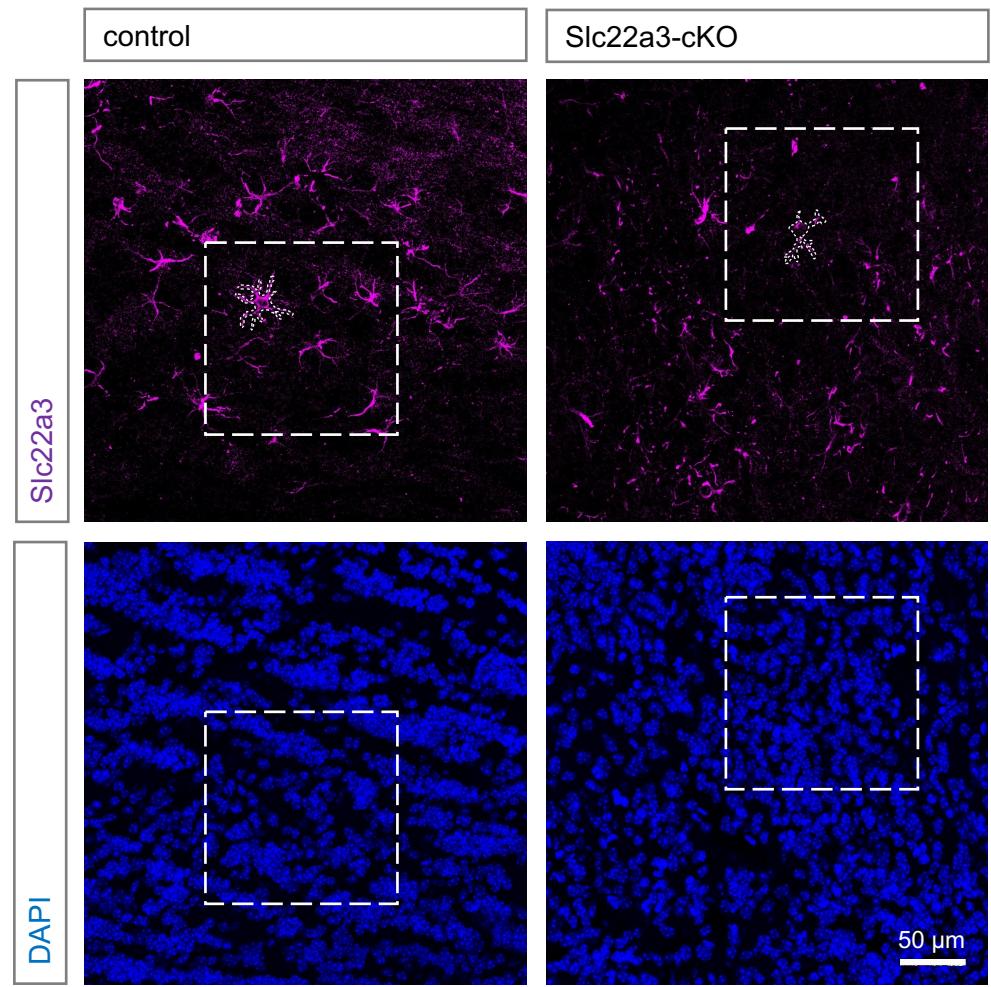
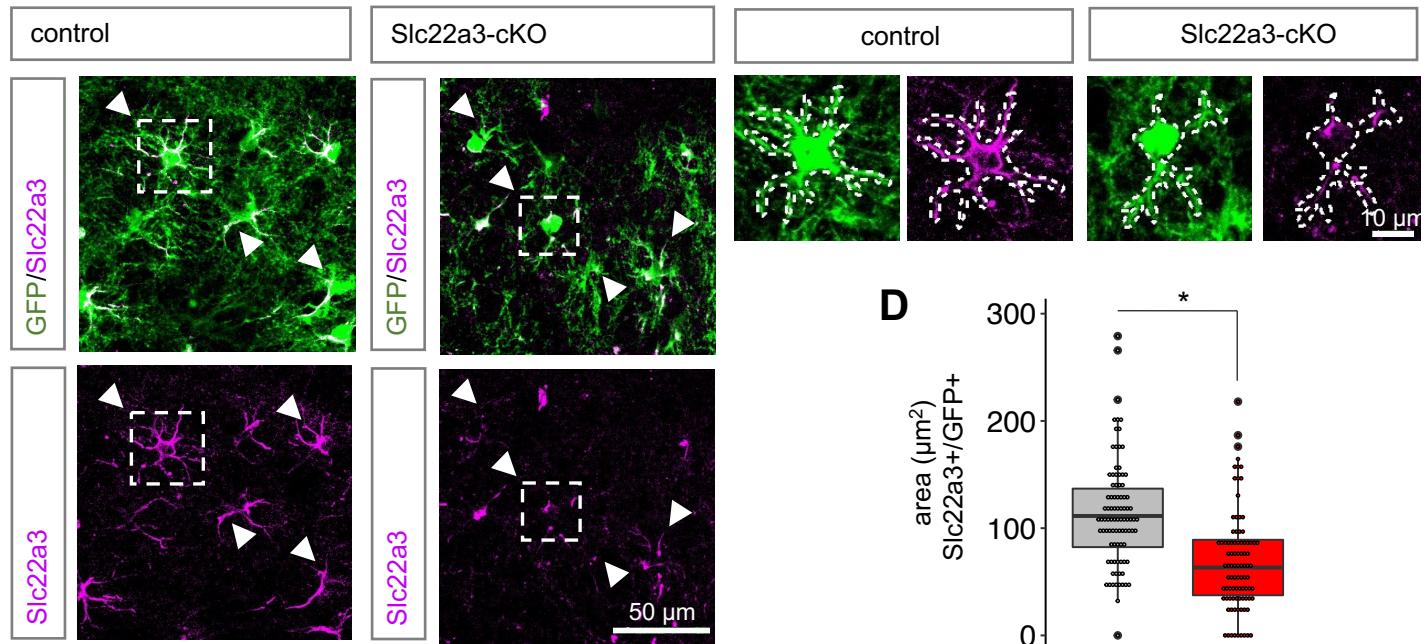
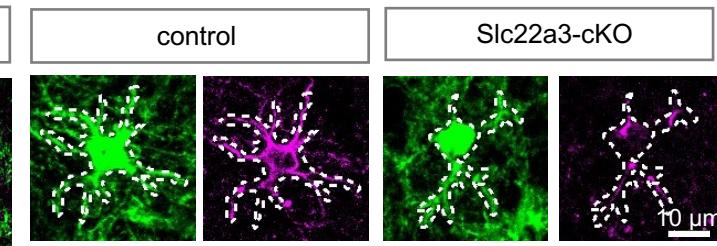
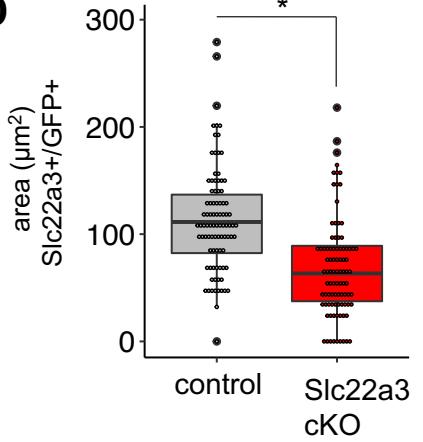
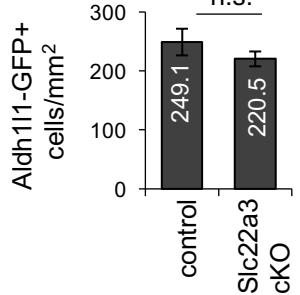
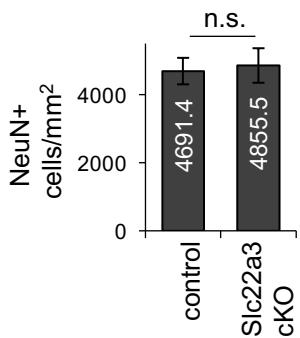
**B****C****D**Sox9 ChIP-qPCR  
at *Slc22a3*

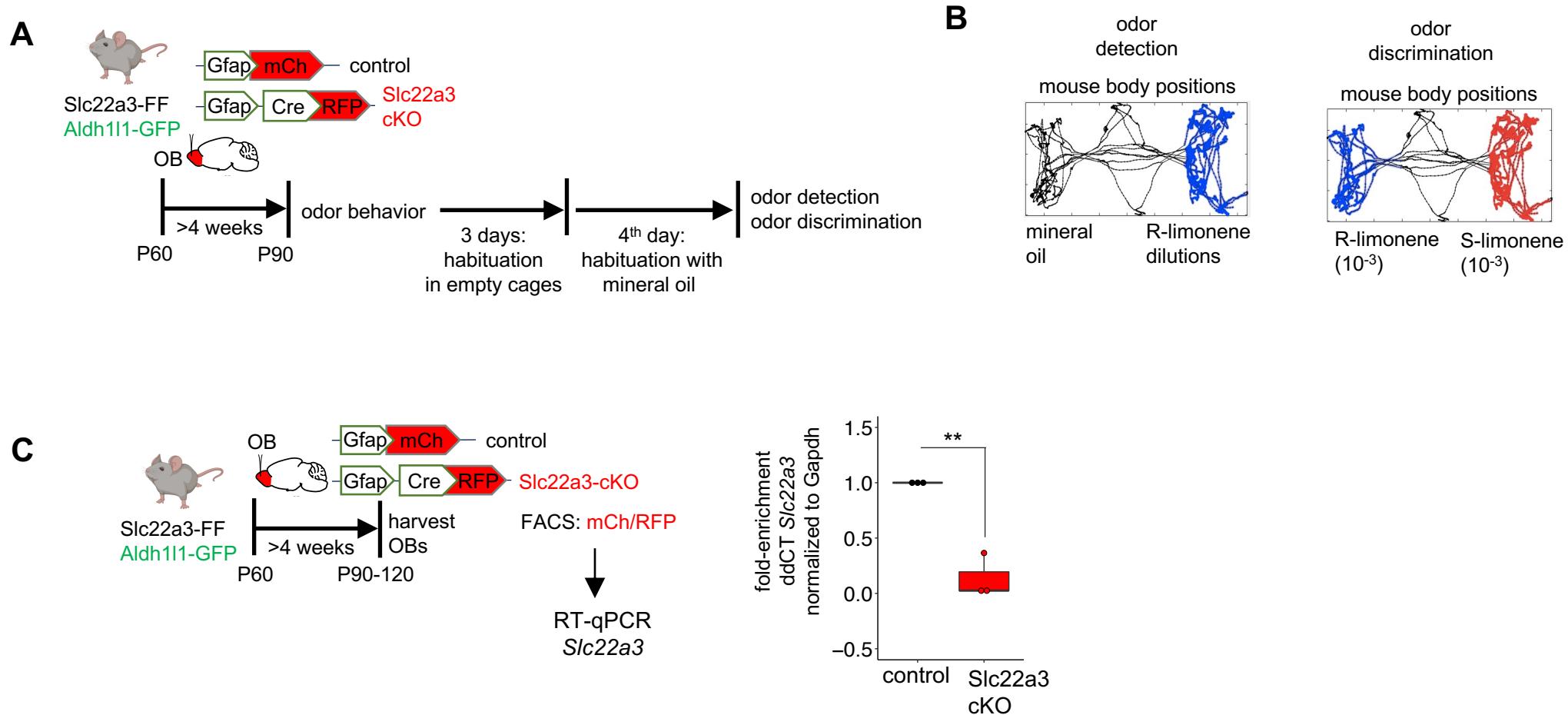
**A**control: *Sox9\_FF; Aldh1l1-GFP* + tamoxifen*Sox9\_cKO*: *Sox9\_FF; Cag-CreER; Aldh1l1-GFP* + tamoxifen**B****C****D****E**

**A****B****C****D****E**

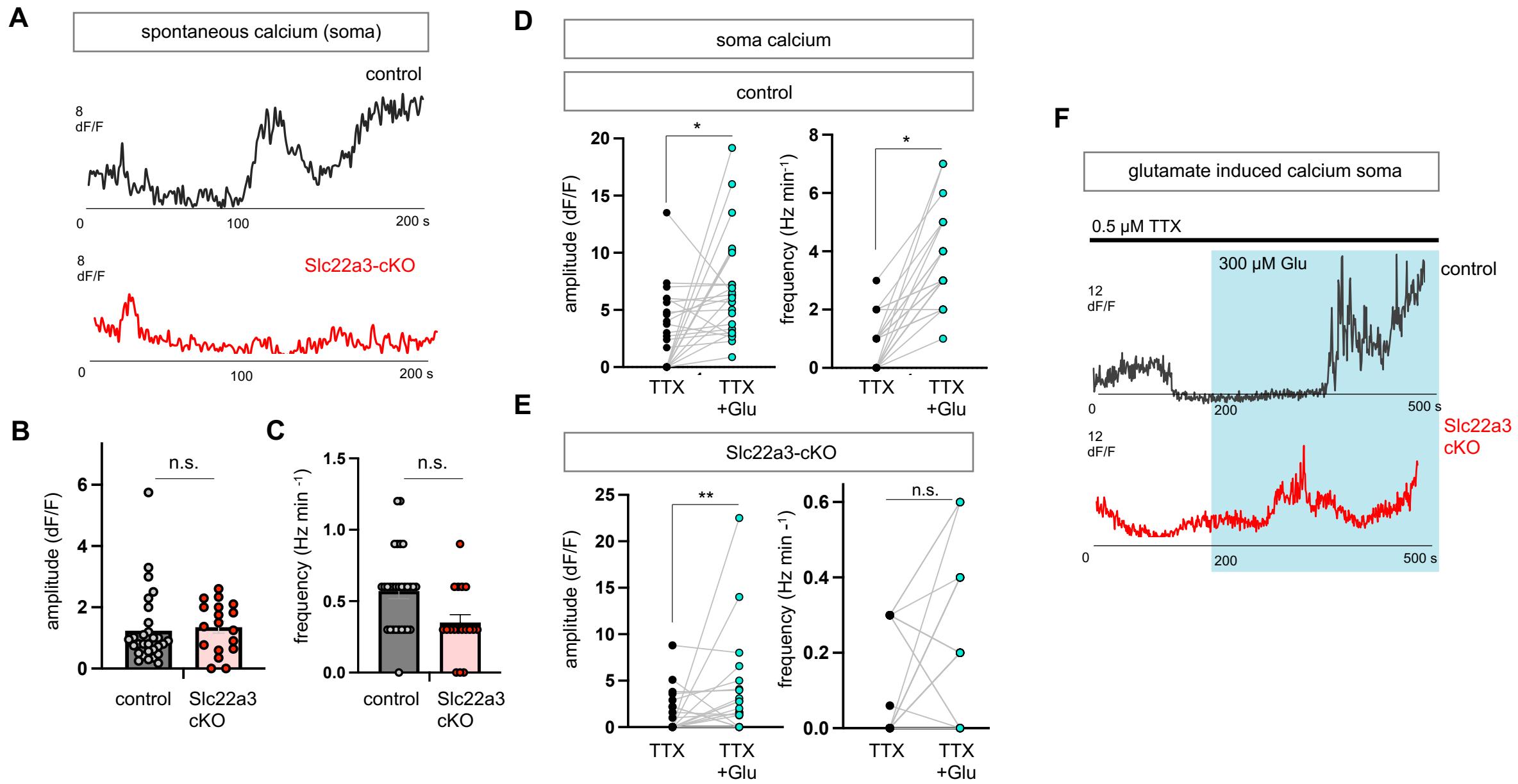


**A****C****D****E****G****H****B**

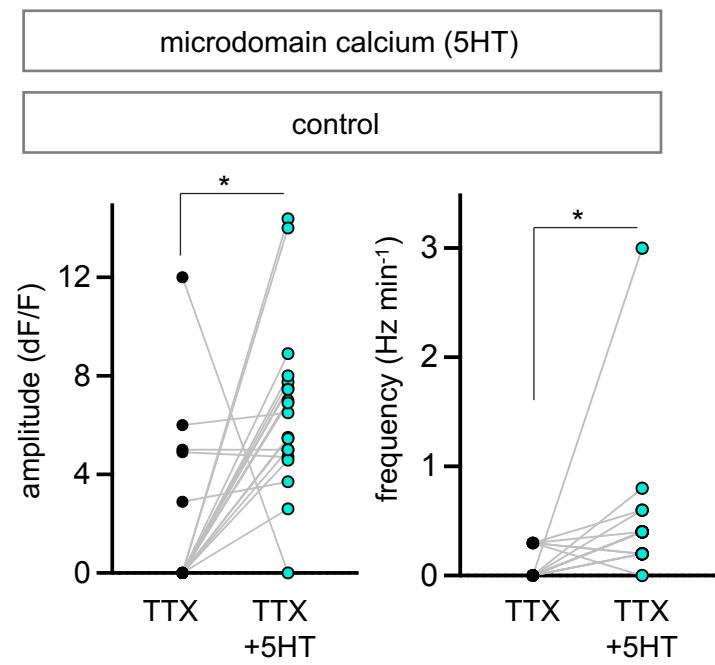
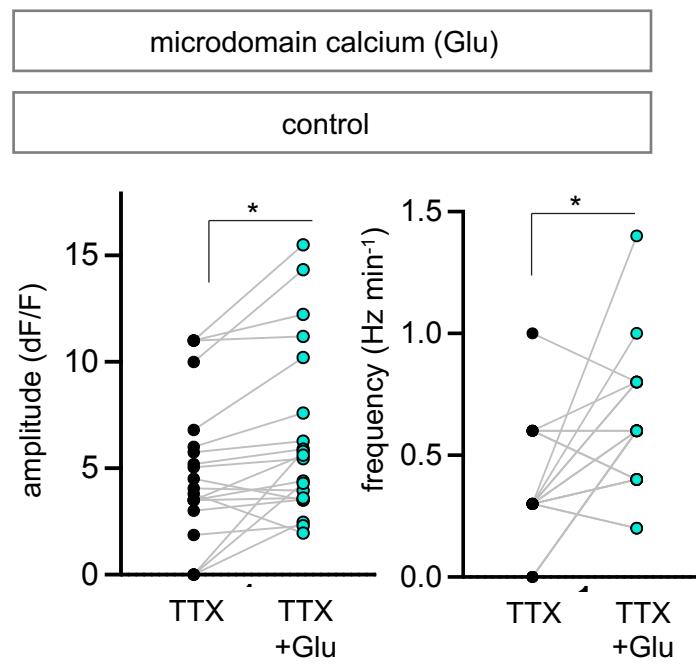
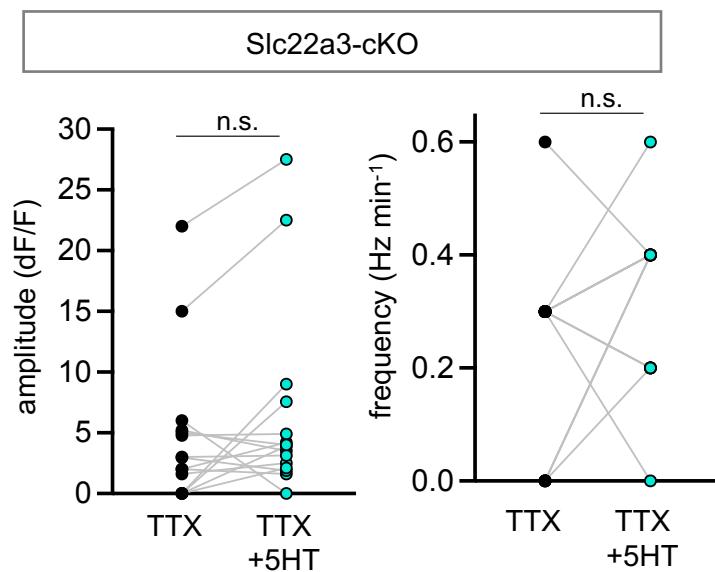
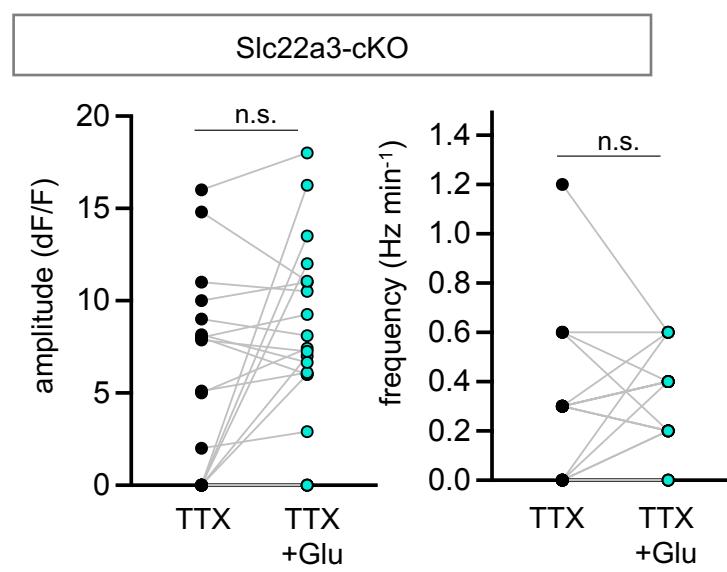
**A****B****C****D****E****F**

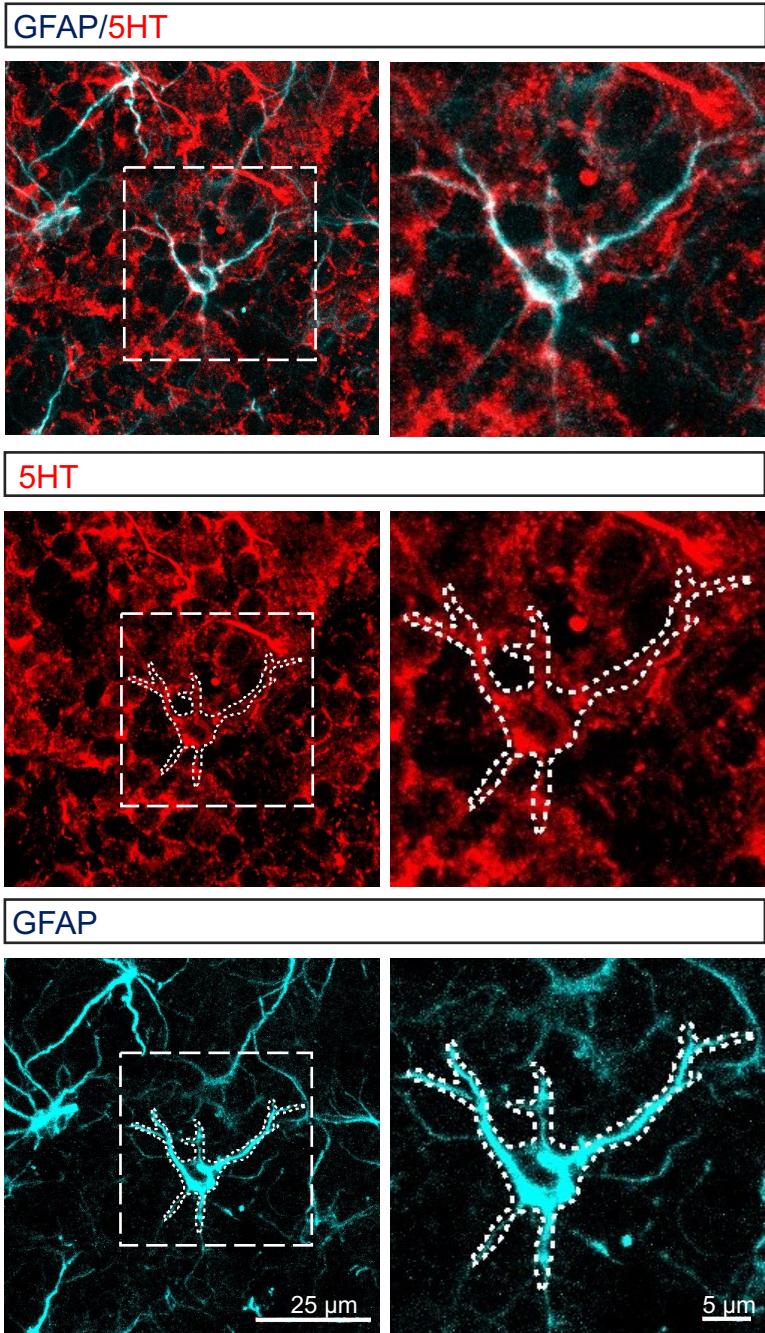
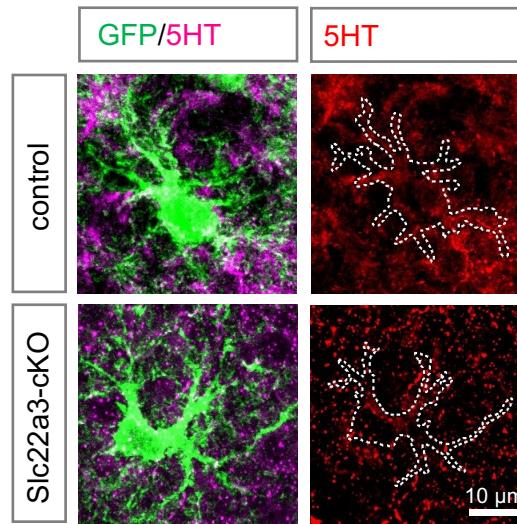
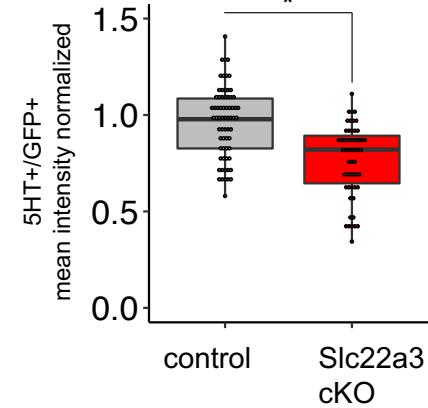


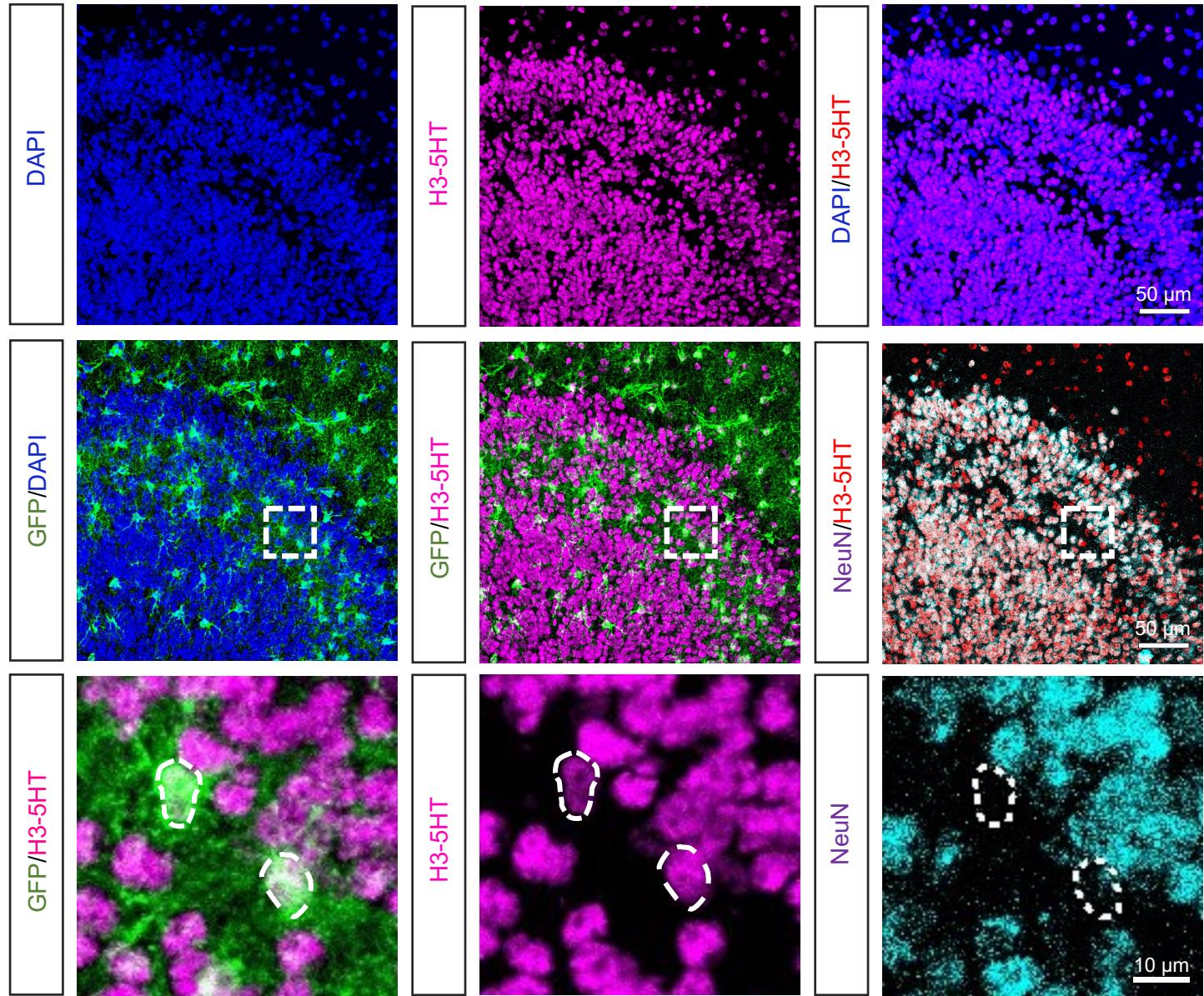
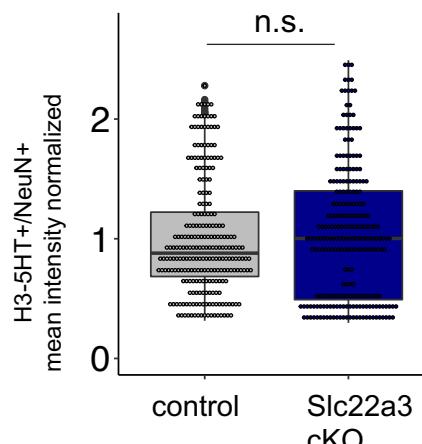
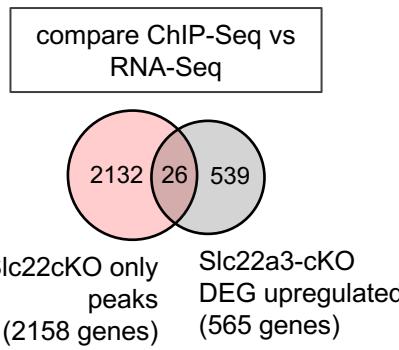
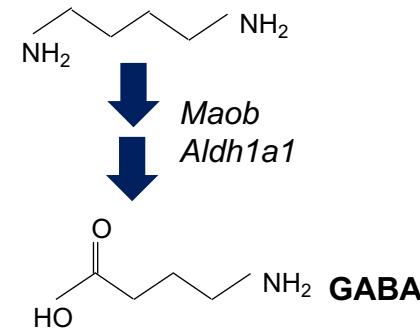
Supp Figure S13

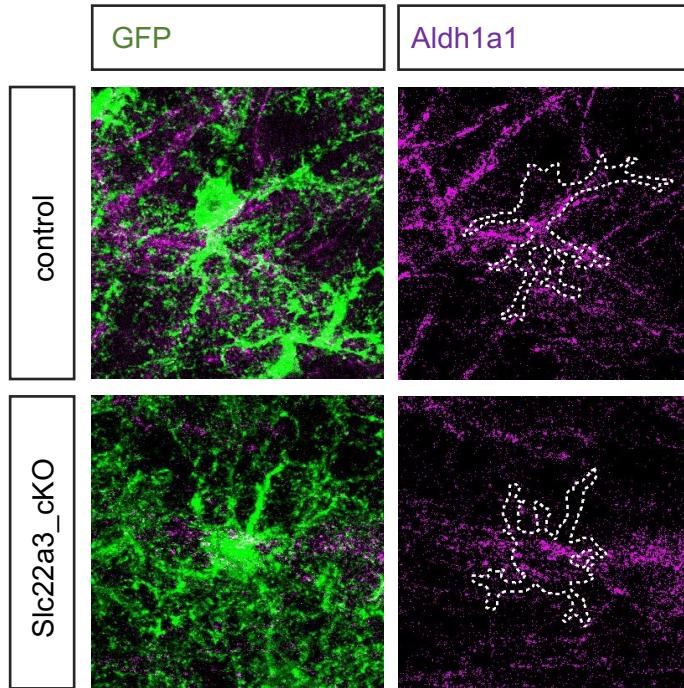
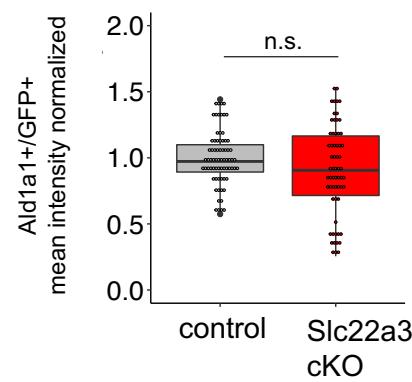
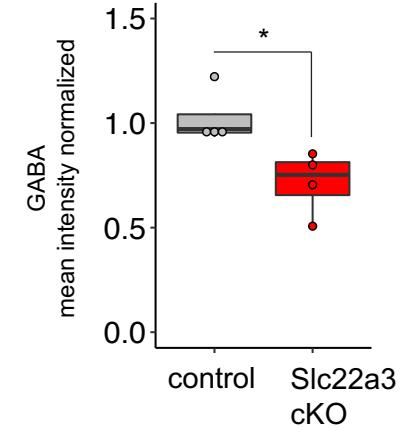
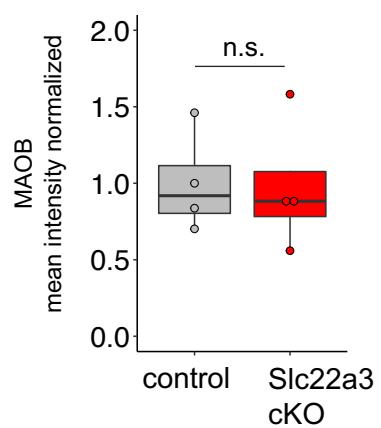


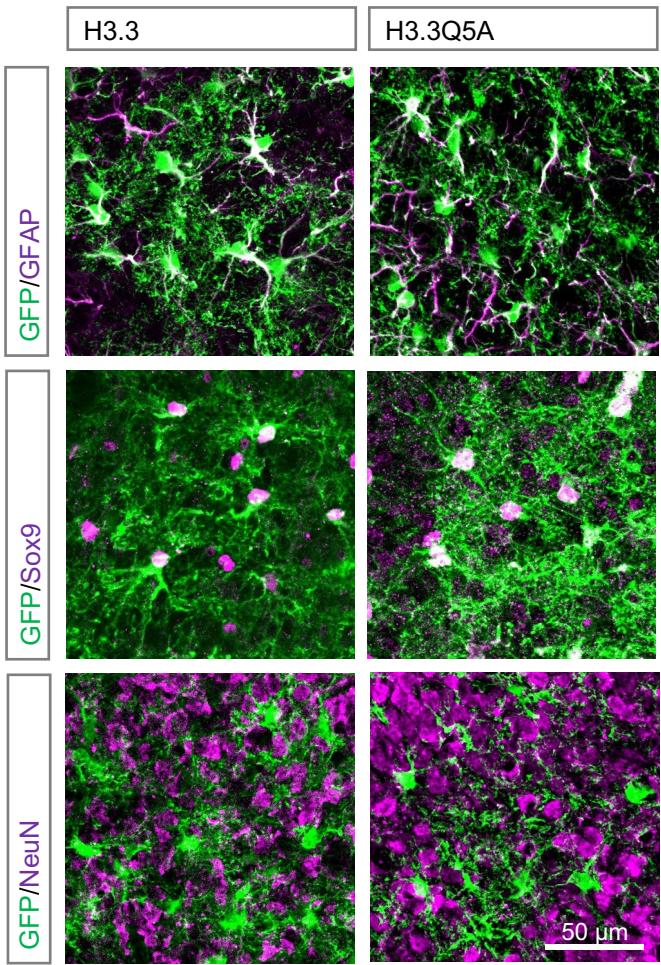
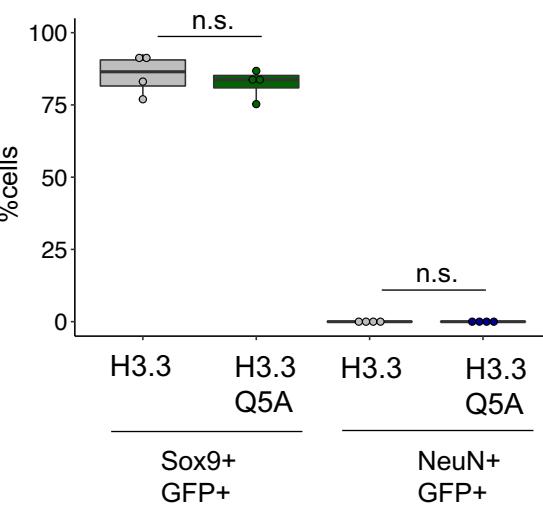
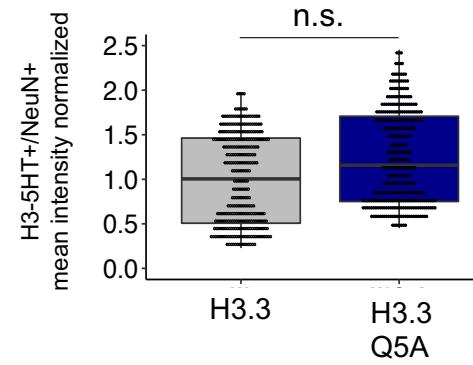
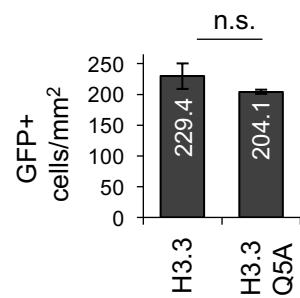
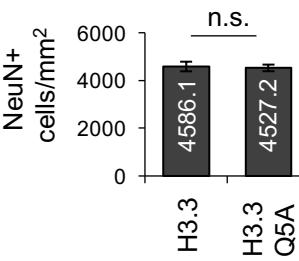
Supp Figure S14

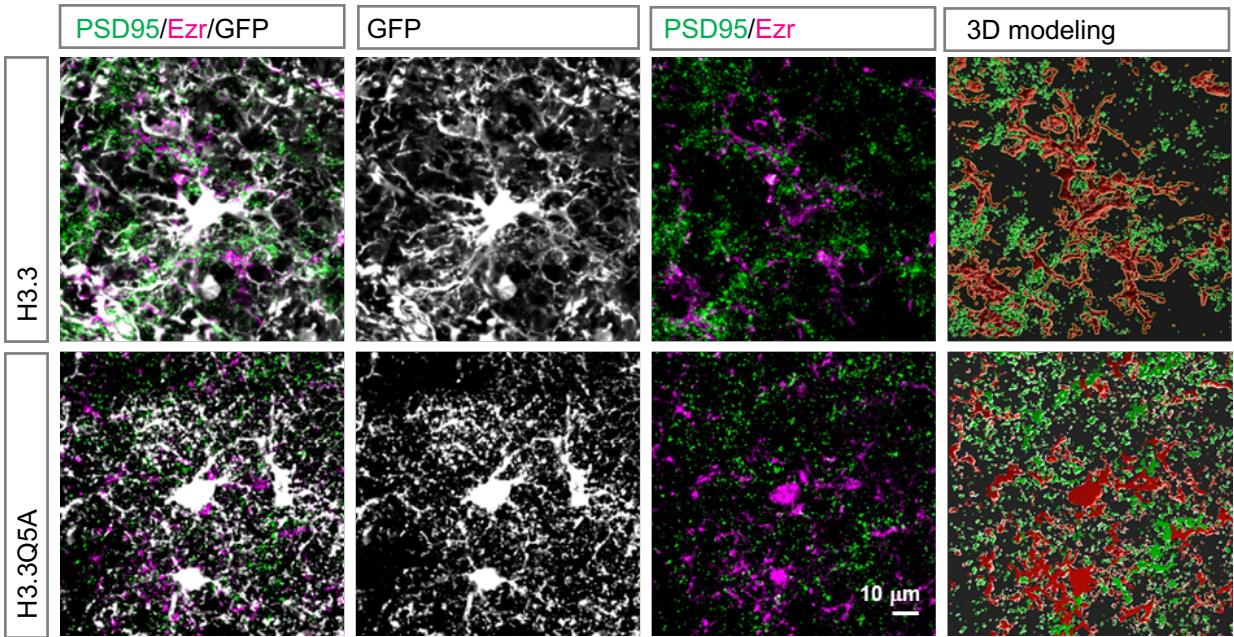
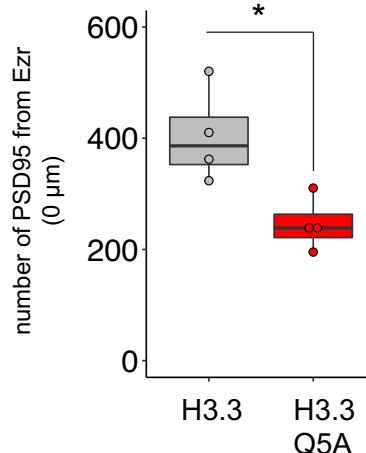
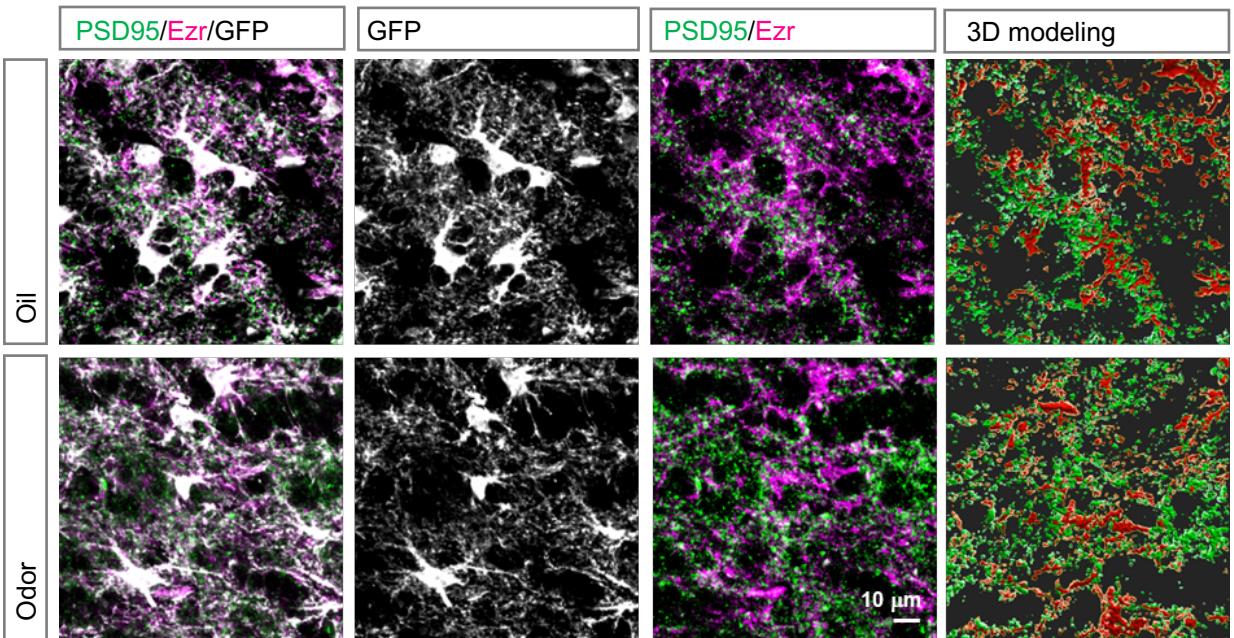
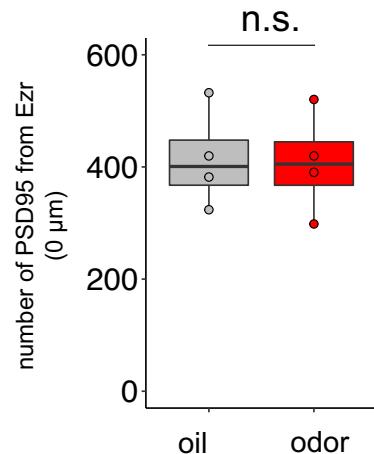
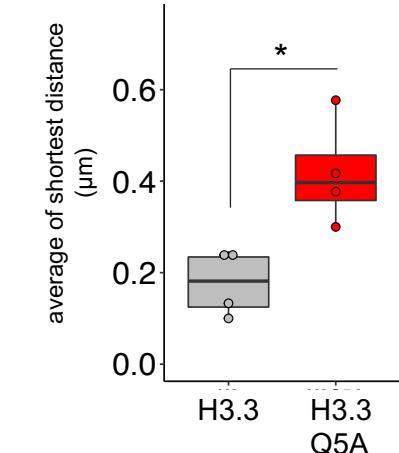
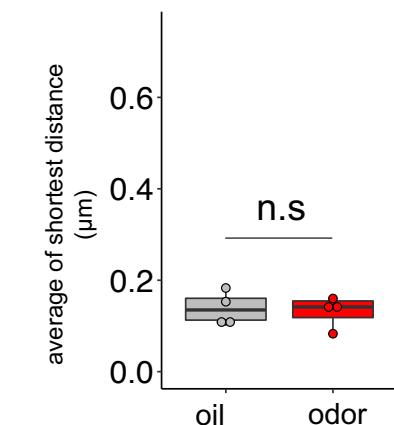
**A****C****B****D**

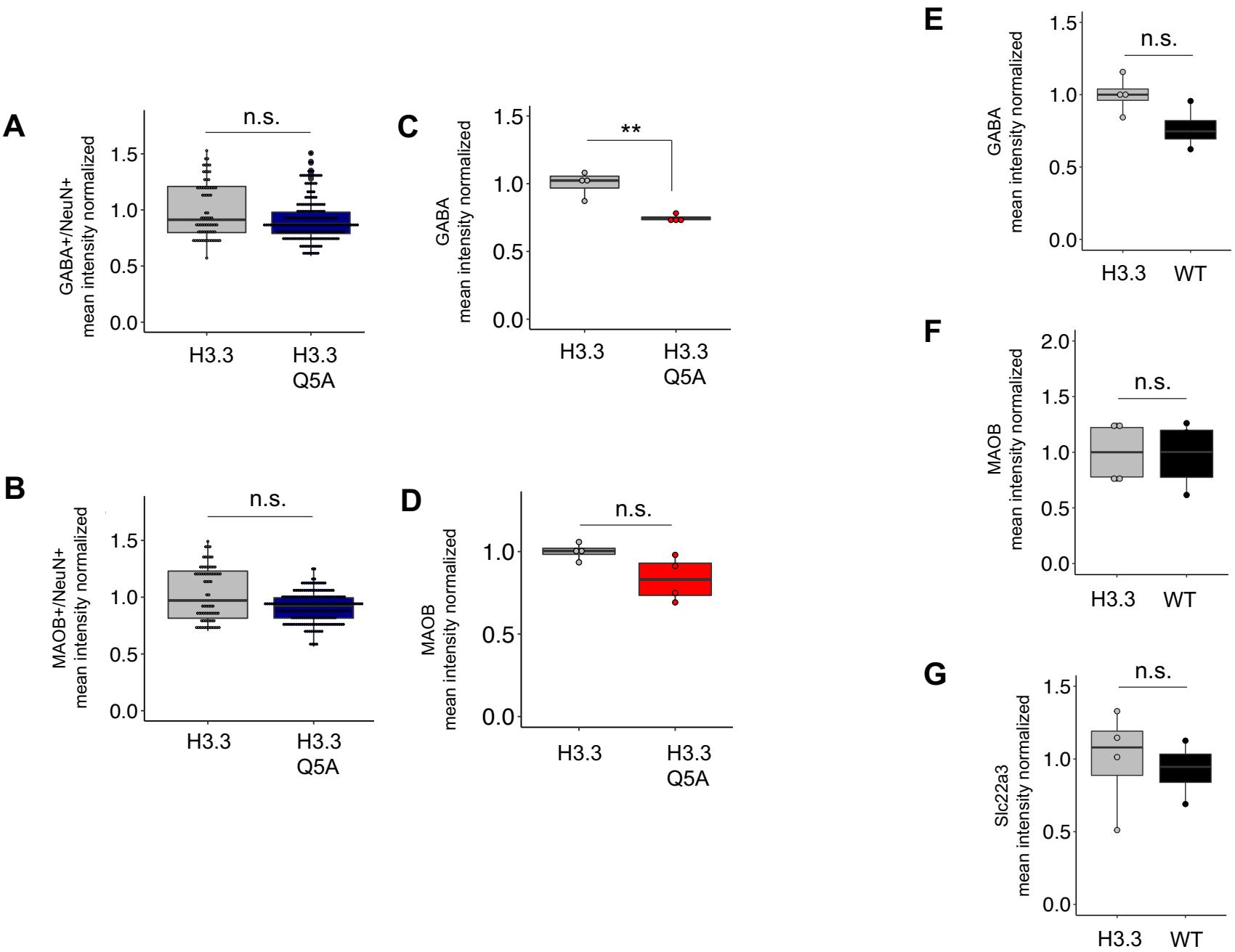
**A****B****C**

**A****B****C****D**

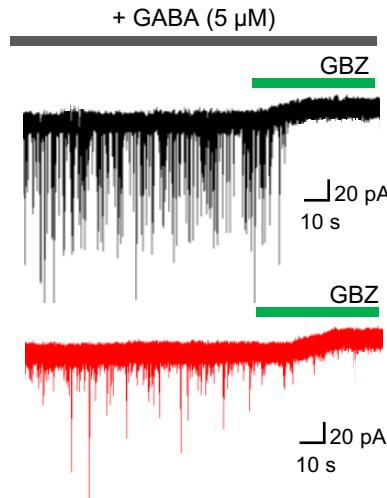
**A****B****C****D**

**Supp Figure S19****A****B****E****C****D**

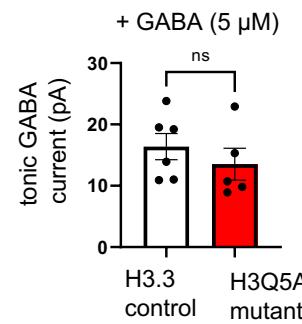
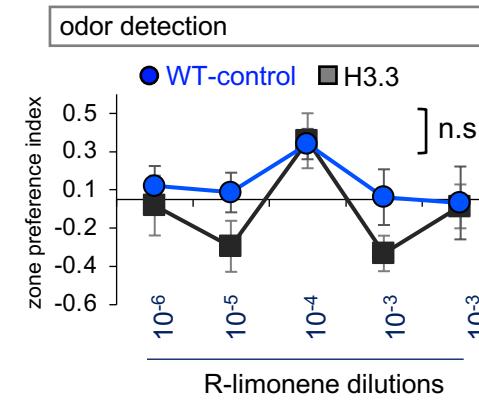
**A****B****D****E****C****F**



Supp Figure S21

**A**

μ

**B****C****D**