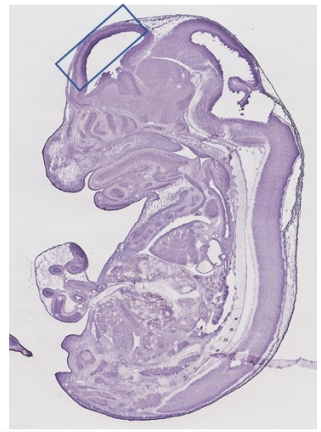
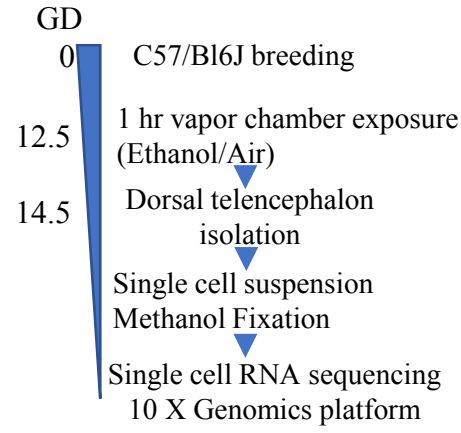




HEALTH SCIENCE CENTER  
TEXAS A&M UNIVERSITY

# Cell-type and sex-specific targets of prenatal alcohol exposure in the developing mouse cerebral cortex: Identification of novel mechanisms for teratogenesis

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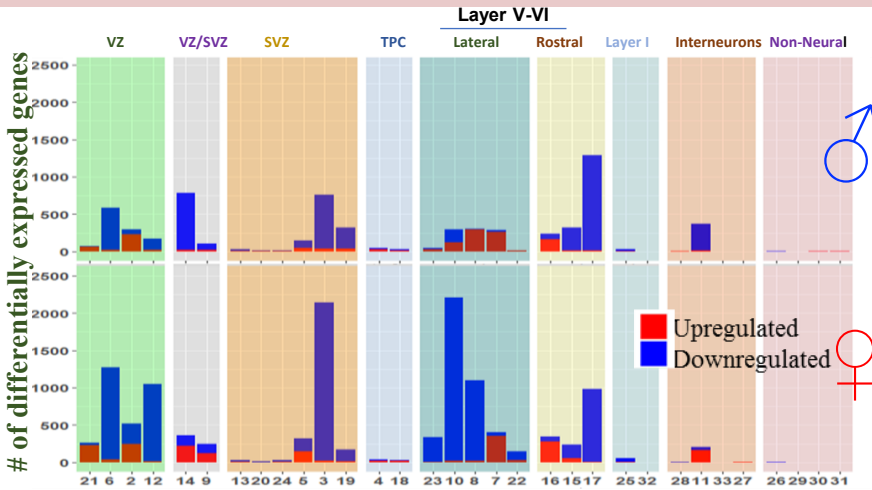


# of samples	Control	Prenatal Alcohol Exposure (PAE)
Males	3	3
Females	3	3



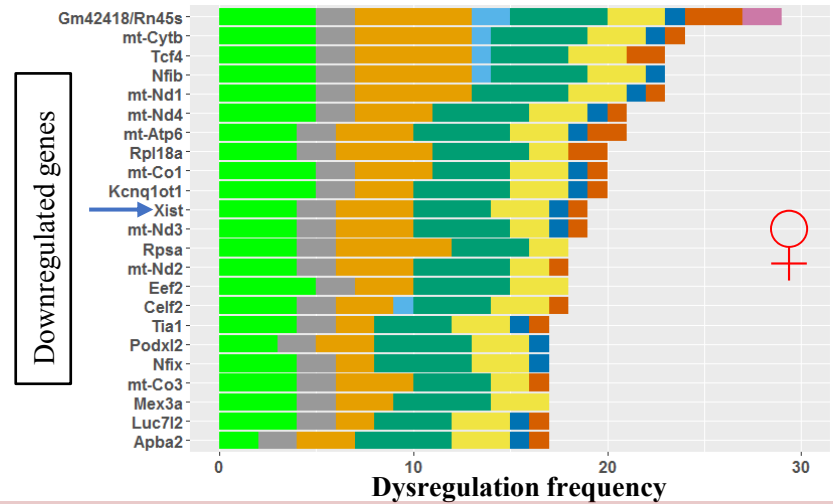
139195 cells sequenced  
33 clusters identified

More genes are dysregulated by PAE in female clusters compared to male clusters

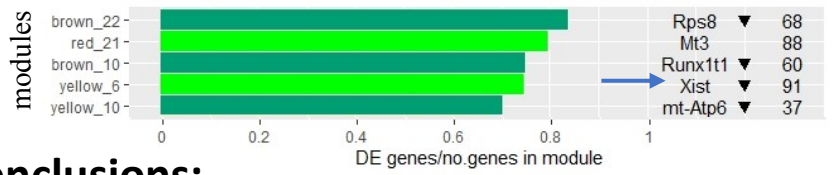


## Xist, a female specific lncRNA, is a target of prenatal alcohol exposure

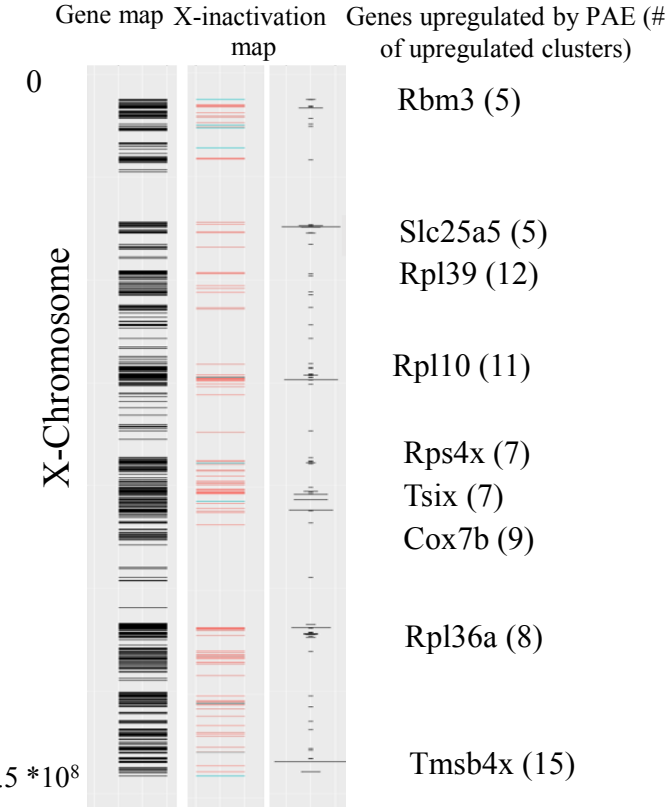
Xist, and other genes, are dysregulated in multiple cell clusters



Xist is a downregulated hub gene of highly dysregulated gene co-expression module



PAE resulted in the upregulation of X-linked genes located within X-inactivation regions



## Conclusions:

1. Single cell RNA sequencing captured the heterogeneity of the murine fetal developing cortex
2. PAE resulted in sex- and cluster-specific alterations in developmental trajectory and cell cycle.
3. We identified gene co-expression networks dysregulated by alcohol exposure
4. We identified female-specific responses to PAE mediated by Xist downregulation

**Brief interval of alcohol exposure during the initiation of fetal cortical neurogenesis has profound and persistent sex-specific consequences on gene expression patterns.**