Gene expression patterns in different mice strains

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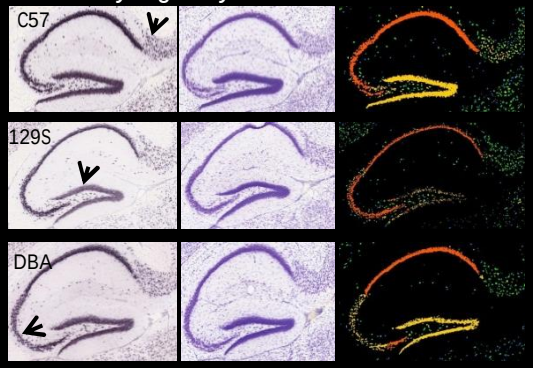
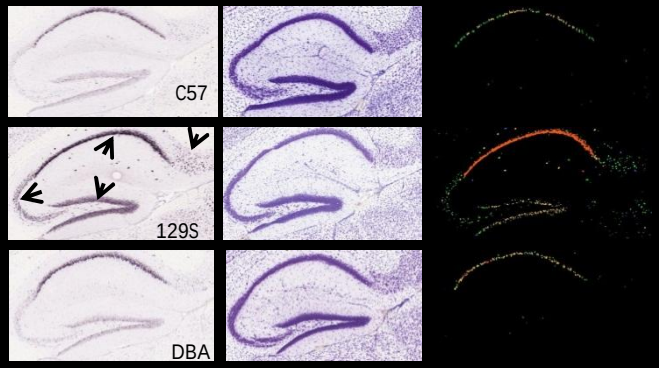
Methods: Idea was to check Mouse Diversity Atlas and look for the different patterns of gene expression across 3 strains (C57, as the reference, 129S and DBA) in 3 brain regions (HP, HY and Isocortex). Using Wikipedia and PubMed I checked all listed genes to look for any possible association with anxiety disorders. It narrowed down the search to 16 genes out of 71. Using Mouse Brain Atlas I checked which genes out of 16 are expressed in my structure of interest. Finely I had list of 7 genes (Gsk3b, Htr1a, Grin2b, Ptgs2 and Slc6a1) . I checked their expression in all 3 strains across 3 brain regions.

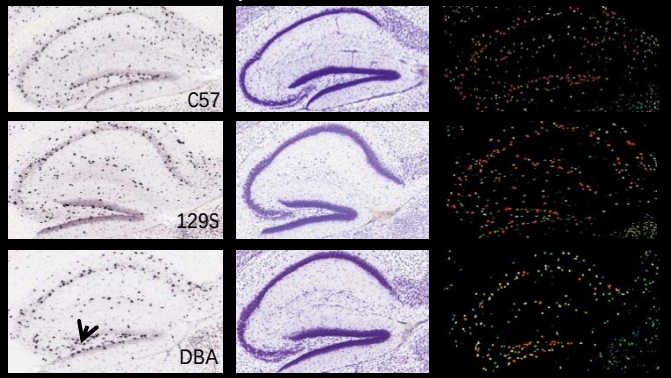
Gsk3b-Glycogen synthase kinase 3B



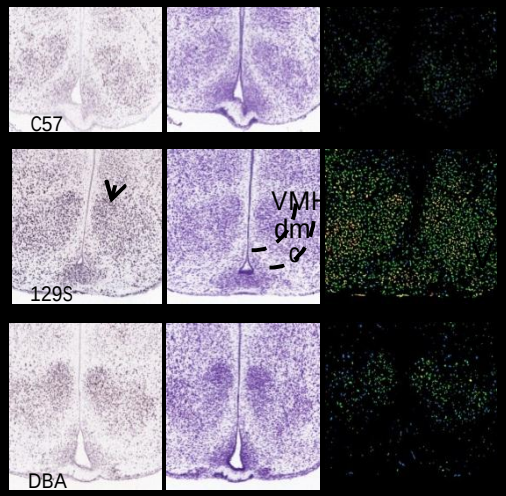
Htr1a-Serotonin 1A receptor



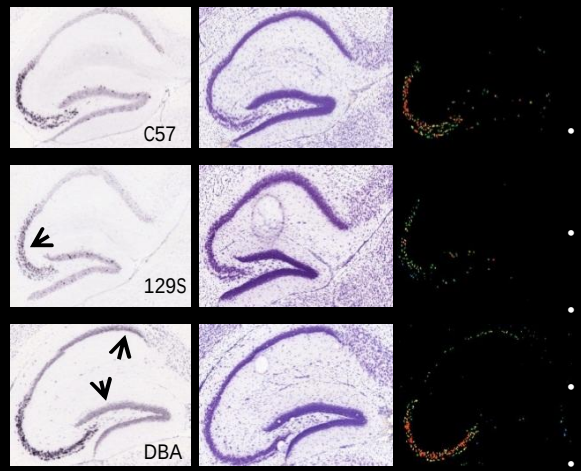
Slc6a1-GABA transporter 1



Grin2b-NMDA receptor 2B



Ptgs2-Prostaglandin-endoperoxidase 2



Conclusions:

- I mainly found difference in the gene expression pattern in two brain regions such as the Hypothalamus and Hippocampus. High-order structures linked with cognition, learning and memory.
- I didn't observe any difference between strains in Rorb and Faah gene expression pattern.
- I localized possible changes in expression in 5 out of 7 genes : Gsk3b, Htr1a, Grin2b Ptgs2 and Slc6a1.
- I didn't find direct correlation between phenotype I observe in 3 strains with differen gene expression pattern.
- I found 5 promising candidate genes, which I can test!!!!!!!!