


Title: *OXTR regulation in the autistic basal forebrain*



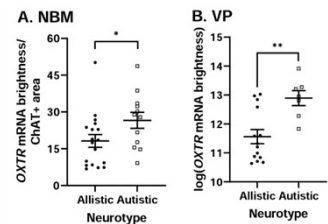
PRESENTER:

Ethan Dayley

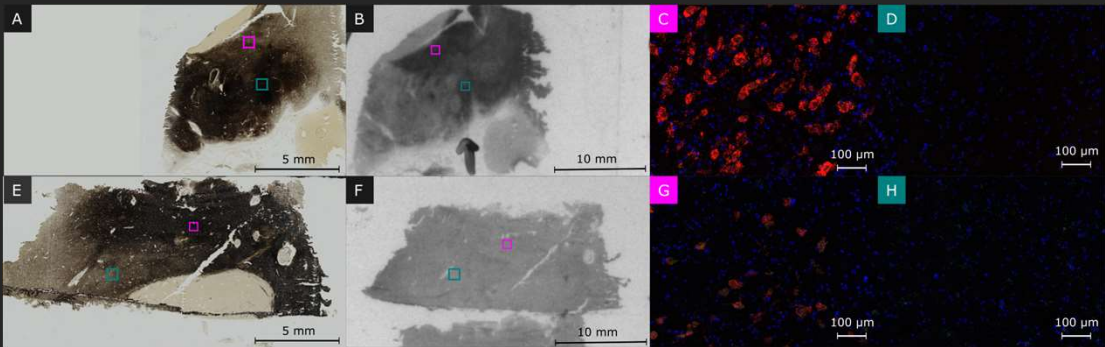
BACKGROUND: Differences in oxytocin receptor (OXTR) binding density have been demonstrated in two key brain regions in autism: the nucleus basalis of Meynert (NBM, related to sustained visual attention), and the ventral pallidum (VP, related to reward) (Freeman et al., 2018). The 2018 study found that OXTR was upregulated in the NBM and downregulated in the VP for the autistic samples. These differences might underlie some key behavioral differences seen in autism, but little is known about the regulatory mechanisms creating these differences.

- METHODS**
1. We ran fluorescence in-situ hybridization on the same samples shown to have OXTR binding differences in the NMB and VP in the original study.
 2. We then extracted OXTR mRNA brightness values for both the NBM and VP for each sample (NBM extraction example on the right).
 3. Finally, we analyzed our results to determine whether there were group differences in OXTR mRNA brightness between our autistic and allistic groups.

RESULTS



Oxytocin receptor mRNA is upregulated in two key brain regions in autism.



Key: (A) ACHE-stained representative autistic specimen; (B) OXTR autorad film from representative autistic specimen; (C) image of NBM brain region from autistic specimen ; (D) image of VP brain region from autistic specimen; (E) ACHE-stained representative allistic specimen; (F) OXTR autorad film from representative allistic specimen; (G) image of NBM brain region from representative allistic specimen; (H) image of VP brain region from representative allistic specimen.

C,D,G,H: Cell bodies are shown in blue, ChAT mRNA in red, and OXTR mRNA in green.



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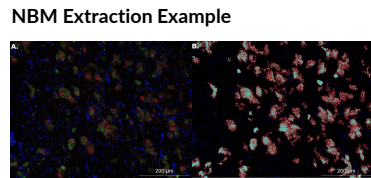
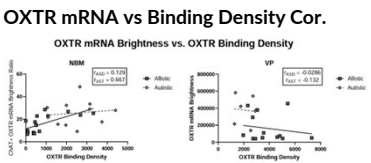
Extra Information:

NBM Marginal Means

Neurotype	Mean	Standard Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Autistic	26.6	3.21	20	33.2
Allistic	18.2	2.62	12.8	23.5

VP Marginal Means

Neurotype	Mean	Standard Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Autistic	398486	127064	204441	776711
Allistic	105045	23685	65527	168394



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