Long non-coding RNA as a mechanistic bridge between altered immunity and autism spectrum disorder

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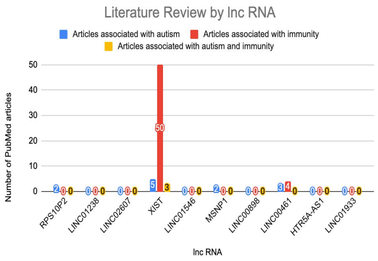
Purpose

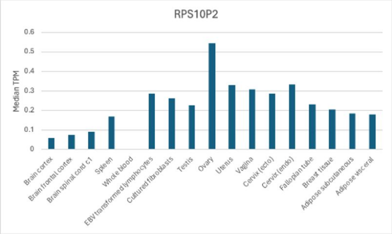
Autism spectrum disorder (ASD) is a neurodevelopmental disorder that presents with altered social communication and behavioral flexibility. While the cause is not yet understood, research suggests that altered immunity contributes to ASD risk (1-9). Long non-coding RNAs (lncRNAs) are known to contribute to altered immune function and are also implicated in ASD etiology by genetic association (10, 11). LncRNAs are genes that are transcribed yet not translated into a protein (12, 13). The intent of this study is to determine if there is a convergence of altered immunity, ASD, and changes in expression of specific lncRNAs

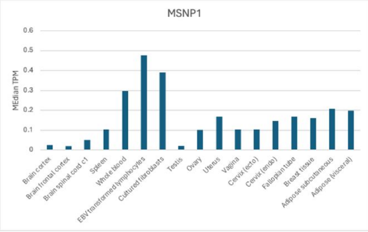
Methods

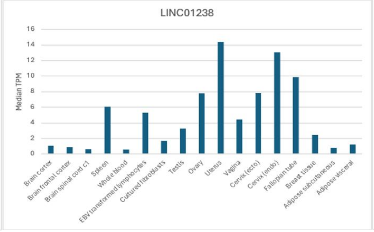
- Conducted a literature review via PubMed cross referencing each lncRNA with immunity and autism
- GTEX portal was utilized to assess lncRNA expression in cortical tissues, tissues associated with immunity and tissues associated with sex differences

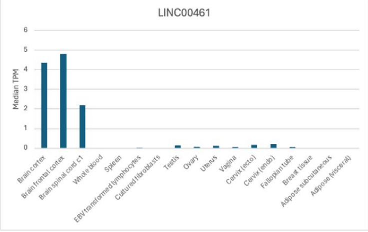


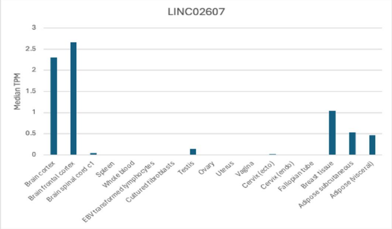
Results

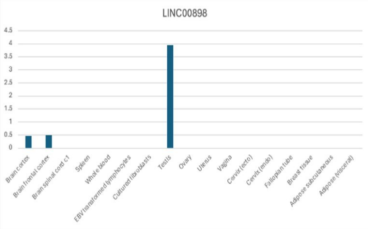


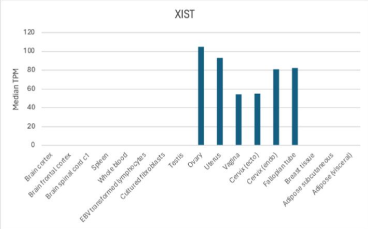


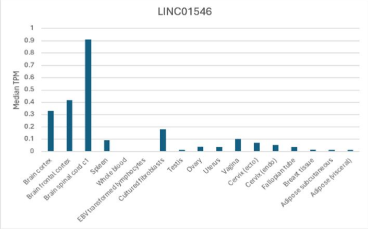


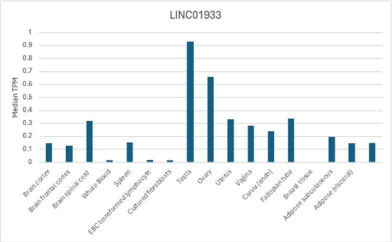


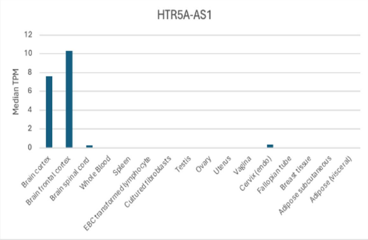












Conclusion

It was observed that the expression of LINC02607, LINC 00461 and HTR5A-AS1 were highly significant in the adult cortex. RPS10P2, MSNP1, LINC01238, LINC01546, and LINC01933 had expression in tissue associated with the immune system. XIST, LINC00898, LINC02607, RPSS10P2, MSNP1, LINC01238, and LINC01933 had significant expression in sex specific tissues while LINC01546 had minimal expression. The lnc RNA expressed in immune cells will be the focus of ongoing research to determine their function within the immune system and discuss correlational relationships with autism while further investigating their potential role in ASD and altered immunity etiology.

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