

Does "Volized" Mouse Become More Romantic? - Transcriptional Lability of Brain Oxytocin Receptor (Oxtr) and its Impact on Social Behaviors

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Sep. 9, 2024, 16:00-17:00

Room 102, Faculty of Medicine Bldg. A

Prairie voles, known for their monogamous pair bonds, contrast starkly with the promiscuous and solitary behaviors of mice. Studies have linked the oxytocin receptor (Oxtr) to these behavioral differences. To explore whether constitutive OXTR expression influences social behavior diversity, we generated BAC transgenic mice carrying the prairie vole Oxtr locus. Remarkably, each of the eight “volized” mouse lines exhibited unique brain OXTR expression patterns, distinct from both mice and prairie voles, while maintaining consistent mammary gland expression. These lines displayed varied partner preferences and maternal behaviors, supporting the hypothesis that brain OXTR expression diversity drives social behavior variation. Our analysis also suggests that Oxtr expression in the brain is influenced by long-range chromosomal interactions, contributing to the evolution of adaptive social behaviors.

In addition, I will briefly present work on the Inherited GPI Deficiency (IGD) mouse model developed in our lab, demonstrating the rescue effect of non-invasive genetic therapy.

Host: Yasunori Hayashi x84393