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MD9 Workshop



NUS Physiology Research Seminar

Sensory hypersensitivity in Fragile X Syndrome: biomarkers and mechanisms

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Sensory processing deficits are strongly associated with autism spectrum disorders, but underlying mechanisms and treatment options are currently unclear. Fragile X Syndrome (FXS) is an autism spectrum disorder with symptoms that include intellectual impairments, high anxiety, delayed language function, repetitive behaviors and propensity for seizures. Children with FXS also suffer from consistent and debilitating sensory hypersensitivity which may lead to the anxiety and cognitive deficits. Sensory hypersensitivity manifests most strongly in the auditory domain. An animal model of FXS, the Fmr1 knock out (KO) mouse, also shows consistent auditory hypersensitivity. My lab has taken advantage of the similar sensory phenotypes in mice and humans with FXS to develop translation-relevant biomarkers and identify changes in the auditory system from the cochlea to the cortex. In this research seminar, I will present data obtained by my lab over the past 5 years on cellular and developmental mechanisms that shape auditory hypersensitivity in the Fmr1 KO mouse, and how identification of such changes has led to the development of potential therapeutics to treat sensory deficits in FXS.

