3-JPS-2

JPS Satellite Symposium

An experimental approach using a neurosteroid deficient mouse model from Kampo medicines to autism spectrum disorder (ASD) therapy

Kinzo Matsumoto¹, Hironori Fujiwara¹

¹*Div. Medicinal Pharmacol., Inst. Natural Med., Univ. Toyama*

ASD is a developmental disorder with core symptoms of social impairments and restrictive repetitive behaviors. Its prevalence in a male is 4-times higher than in the female. Dysfunction in the GABAergic system has been implicated in ASD but the exact cause is unclear yet. Thus, no appropriate drugs are currently available for ASD. We recently found that SKF105111 (SKF), a type I 5 α -reductase inhibitor, reduced the brain level of allopregnanolone (ALLO), a positive allosteric GABA_A receptor modulator and thereby caused ASD-like behaviors only in male mice, suggesting that SKF treatment provides a novel animal model of ASD. Moreover, to elucidate if Kamishoyosan (KSS), a Kampo formula used for the treatment of neuropsychiatric symptoms in the menopause female, is available for ASD therapy, we examined the effects of KSS on ASD-like behaviors in the ALLO deficient mouse model. KSS ameliorated sociability deficits via improving the mechanisms mediated by the dopamine D₁ receptor, while it reduced repeated grooming behaviors via improving the mechanisms mediated by dopamine D₁ and D₂ receptors and the GABA_A receptors. Our findings suggested that KSS is beneficial for the treatment of ASD.