1-JS1-2

Joint Symposium

Developmental mechanism of psychiatric disorders: psychobehavioral impairments according to neurodevelopmental abnormalities

Yukihiro Noda¹

¹*Div. Clin. Sci. Neuropsychopharmacol., Meijo Univ. Fac. & Grad. Sch. Pharm.*

Glutamate transporters (GLTs), which regulate glutamatergic transmission are mainly localized on glial cells. Glial disruption results in decreased uptake of glutamate and an elevation in extracellular glutamate levels. Elevated extracellular glutamate may cause cytotoxic damage to neurons and glia. Abnormalities of GLTs cause some neurodevelopmental disorders, such as ADHD and schizophrenia. A recent study found an increased incidence of a rare genetic variant in the human gene encoding glial glutamate and aspartate transporter (GLAST; one of GLT family) in schizophrenia. The loss of GLAST is predicted to cause glutamate excess that provoke glutamate release. In fact, the deficient of GLAST induces some behavioral abnormalities and morphological changes in mice. During the adolescent period, further, mice that had received the combination of neonatal viral infection and adolescent drug abuse exhibits some psychobehavioral abnormalities and increased expression of GLAST. In this symposium, we will present the recent advances of our researches, regarding functional roles of GLAST in neurodevelopment under the physiological and pathological conditions using the mice with varying expression of GLAST.