

Neuroimmune system associated with brain development and neurodevelopmental disorders

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In the developing brain, generation of neurons and glial cells is rigorously regulated by various factors. In particular, recent studies demonstrated that immune system in the brain, called neuroimmune system, is a key player in brain development and neurodevelopmental disorders. However, it remains unclear whether peripheral lymphocytes contribute to brain development and the pathogenesis of neurodevelopmental disorders. In this study, we investigated the role of lymphocytes in the brain development and found that some lymphocytes are involved in oligodendrogenesis and the proliferation of neural progenitors in the neonatal brain. These findings prompt us to investigate whether neuroimmune system in the developing brain is also involved in the pathogenesis of neurodevelopmental disorders. To resolve this, we examined the proportion and role of immune cells in the pathological condition of neonatal brain. In this symposium, we will introduce the contribution of neuroimmune system to brain development and neurodevelopmental disorders.