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Microglia in Early Brain Development

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ABSTRACT

Microglia cells are resident innate immune cells in the central nervous system and act as sentinel toward infection and injury. Contributions of microglial immune responses in pathological conditions are well documented, however, yet, little is known their roles in the maintenance of normal brain functions. Recently, we found that activation of inflammasome and subsequent pyroptosis in microglia cells is required for normal brain development. Mice deficient for Nlrp3-Casp1-Gasdm/IL1R pathway exhibited behavior changes similar to Attention-deficit/hyperactivity disorder (ADHD). Microglial heterogeneity has been proposed and consistent with previous reports, we observed that small number, but specific subsets of microglia cells underwent pyroptosis using an advanced imaging technique. We also discuss that pharmacological disruption of this pathway may represent a risk for ADHD.

