

I&I Seminar with Anne Roumier

Tuesday, Jun 17th, 2025 / 11:00-12:00 / Eduard Biermann Auditorium (1252-204)

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Serotonin influences brain macrophages – relevance for neuroinflammatory responses and neurodevelopmental disorders

Abstract

The brain resident macrophages, microglia, enter the brain during embryogenesis, regulate neuronal circuits formation postnatally, and are activated in case of inflammation or neurodegeneration. Prenatal immune perturbations in humans have been associated with increased risk of neurodevelopmental disorders such as autism and schizophrenia, and microglial dysfunctions in mice can impact brain connectivity and behavior.

We identified the neuromodulator serotonin (5-HT), which dysregulation is observed in notably in autism spectrum disorders, as a potential upstream regulator of microglia. Using mouse genetic models, we investigated the role of the instruction of microglia by serotonin. Our results indicate that perturbing this regulation during development has long term effects on neuroinflammatory responses and on adult behaviors of sociability and adaptability, shedding new light on the link between serotonin and developmental psychiatric disorders.

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