

FASSBERG

SEMINAR SERIES



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 **online**

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Single-cell transcriptomics and epigenomics of oligodendroglia in neural development and in multiple sclerosis

Oligodendrocytes are glial cells that mediate myelination of neurons, a process that allows efficient electrical impulse transmission in the central nervous system (CNS). An autoimmune response against myelin triggers demyelination in multiple sclerosis (MS). Oligodendrocyte precursor cells (OPCs) can initially differentiate and promote remyelination in MS, but this process eventually fails in progressive MS. In order to clearly define transcriptional of oligodendrocyte lineage cells in multiple sclerosis, we performed single-cell RNA-Seq in the experimental autoimmune encephalomyelitis (EAE) mouse model of MS and in different kind of CNS lesions from MS patients. We identified disease-specific of oligodendrocytes and OPC populations in EAE, and altered heterogeneity of the oligodendrocyte lineage in MS patients. One of the populations expressed genes involved in antigen processing and presentation and immunoprotection, and presented immunomodulatory properties. We also performed single-cell ATAC-Seq in oligodendroglia from the EAE mouse model of MS and observed transitions in chromatin accessibility correlating with the single-cell transcriptomics data. We have also recently adapted Cut&Tag to examine histone modifications at a single-cell level in the mouse brain. Thus, our single cell transcriptomics and epigenomics analysis unveiled a transcriptional overhaul during chronic inflammatory demyelination in multiple sclerosis.

Host: Marina Rodnina



Tuesday / 19.01.2021 / 11:00

zoom access data will be mailed before the seminar!

