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iPSZÜRICH

A Lecture Series Focused on Induced Pluripotent Stem Cells

EMBL

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Functional dissection of chromatin regulators implicated in neurodevelopmental disorders

Chromatin, formed through interactions between histone proteins and DNA, plays a central role in gene regulation, and its disruption is associated with neurodevelopmental disorders. Our research investigates how alterations in chromatin regulators influence gene expression and neurodevelopment. Using CRISPRi perturbations in hiPSC-derived neural precursor cells and neurons, we perform high-throughput single-cell screens targeting key transcription factors and chromatin regulators associated with schizophrenia. By integrating single-cell RNA and chromatin accessibility data, we identify abnormal neurodevelopmental cell states resulting from specific perturbations. This multi-omics approach reveals how chromatin dynamics shape both healthy and disordered brain development. In this talk, I will present insights from our recent studies and discuss the functional role of chromatin in neurodevelopment and related disorders.