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Life Sciences Seminar

Probing human neurogenesis by direct lineage reprogramming

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Host: Maximilian Jösch

Ectopic expression of defined transcription factors can force direct cell fate conversion from one lineage to another in the absence of cell division1. Several transcription factor cocktails have enabled successful reprogramming of various somatic cell types into induced neurons (iNs) of distinct neurotransmitter phenotype2-5. However, the nature of the intermediate states that drive the reprogramming trajectory towards distinct iN types is largely unknown. Here we show that successful direct reprogramming of adult human brain pericytes into functional iNs by Ascl1 and Sox2 (AS) encompasses transient activation of a neural stem cell-like gene expression program that precedes bifurcation into distinct neuronal lineages. Intriguingly, during this transient state key signaling components relevant for neural induction and neural stem cell maintenance are regulated and functionally contribute to iN reprogramming and maturation. Thus, AS-mediated reprogramming into a broad spectrum of iN types involves the unfolding of a developmental program via neural stem cell-like intermediates.

Monday, February 26, 2018 02:45pm - 04:00pm

IST Austria Campus Mondi Seminar Room 1, Central Building

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