



Graduate School Event

Thesis Defense: Role of NOTCH Signaling in Radial Glial Progenitor Lineage Progression

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Hippenmeyer Group

Host: Johann Danzl

Radial glial progenitors (RGPs) generate all excitatory neurons and certain glial lineages that populate the mature neocortex. The NOTCH signaling pathway plays a pivotal role during brain development, mediating the balance between stem cell self-renewal and differentiation. The NOTCH1 receptor is broadly expressed at the membrane surface of RGPs. Previous studies reported that loss of Notch1 results in precocious progenitor differentiation and neurogenesis, affects gliogenesis, and results in brain morphological abnormalities. However, the precise role of Notch1 at single-RGP level remains elusive. Here, we used Mosaic Analysis with Double Markers (MADM) to assess the cell-autonomous function and tissue-wide effects of Notch1 at single-cell level. We showed that sparse deletion of Notch1 reduced the number of neurons and nearly eradicated the astrocyte population in the mouse neocortex. In contrast, tissue-wide Notch1 ablation did not affect neurogenic or astrogenic output, but rather showed some features resembling human focal cortical dysplasia phenotypes. Altogether, taking advantage of the single-cell resolution of MADM, these data revealed distinct cell-autonomous and tissue-wide effects of Notch1 in neocortical development.

Monday, December 1, 2025 01:30pm - 02:30pm

Central Bldg / O1 / Lecture Hall (I02.O1.014)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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