

Invitation

On behalf of the Hamburg Center of Neuroscience we would like to invite you

to the
22st HCNS Lecture

25 June 2025 | 5.00 pm

UKE, lecture hall W30

We are looking forward to meeting you there!

Prof. Dr. Thomas Misgeld

Institute of Neuronal Cell Biology
Technical University of Munich

“Dynamics of cortical myelin”

Myelination is essential for cortical circuit function but can decay with age and in disease due to oligodendrocyte damage and death. This is exacerbated by reduced oligodendrocyte precursor cell (OPC)-mediated remyelination, which, in addition to cell senescence, has been ascribed to a non-permissive cortical neuropil lacking the pliability and signaling cues to support repair. Here, using single-cell ablations and intravital imaging in mice, we show that as cortical remyelination efficiency declines, OPCs lose motility, which can be modulated via CXCL12/CXCR4 signaling. Counter to prevailing notions, however, we find that even in old age, neuropil remains permissive and receptive to remyelination, which can be rekindled by a graded local demyelinating stimulus to induce a more juvenile dynamic state of OPCs. Our findings reveal the hitherto hidden remyelination potential of aged OPCs and a key role of OPC dynamics for cortical remyelination that could be targeted to improve myelin repair strategies.*

*Katharina Eichenseer, Shahrzad Askari, Nicolas Snaidero and Thomas Misgeld

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