Life Sciences Seminar

Mechanisms of Axon Growth and Regeneration

Prof. Frank Bradke

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Host: Simon Hippenmeyer

Almost everybody who has seen neurons under a microscope for the first time is fascinated by their beauty and their complex shape. Early on during development, however, neurons look round and simple without signs of their future complexity. How do neurons develop their sophisticated structure? How do they initially generate domains that later have distinct functions within neuronal circuits, such as the axon? And, can a better understanding of the underlying developmental mechanisms help us in pathological conditions, such as a spinal cord injury, to induce axons to regenerate? Here, I will talk about the cytoskeleton as a driving force for initial neuronal polarization and axon growth. I will then explore how cytoskeletal changes help to reactivate the growth program of injured CNS axons to elicit axon regeneration after a spinal cord injury. Finally, I will discuss whether axon growth and synapse formation could represent mutually excluding processes. Following this developmental hypothesis helps us to generate a novel perspective on regeneration failure in the adult CNS and to envisage new paths to overcome it. Thus, this talk will describe how we can exploit developmental mechanisms to induce axon regeneration in the adult after a spinal cord injury.

Wednesday, February 28, 2018 02:30pm - 03:45pm

Mondi Seminar Room 2, Central Building

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.