

Lab rotation: Investigating the Regulation of Neuronal Morphology

Project description:

Neurons receive and integrate information via their tree-like dendritic structure. Structural changes do not only affect the functioning of a single neuron but also the way that inputs are processed within the affected network. Aberrations in dendritic morphology have been linked to numerous neurological disorders, yet the molecular mechanisms underlying the regulation of dendritic structure remain largely elusive. Our group is dedicated to uncover how neuronal morphology is controlled and maintained in health and disease.

We are currently looking for a motivated Master student to join our lab and contribute to the ongoing research:

We have previously identified Vascular Endothelial Growth Factor D (VEGFD) as a key regulator of neuronal dendritic structure and are now investigating its downstream signaling in the hippocampus (Aksan et al., 2024 CMLS).

You will generate and employ molecular biology tools to manipulate the expression in primary hippocampal neurons and analyse neuronal morphology and functional consequences in both fixed and live cells.

What will you learn?

Primary neuronal cell culture, *in vitro* drug treatments, neuronal transfection, Western blotting, immunocytochemistry, qRT-PCR, cloning, co-immunoprecipitation, proximity ligation assay, fluorescent microscopy (confocal, widefield), morphometric analyses, Incucyte® live cell imaging, rAAV production.

We provide an international, collaborative, and social environment with the opportunity to also explore other projects that are ongoing in the lab.

What do you bring?

Bachelor's degree in biosciences or other related life sciences, basic laboratory experience and a high level of motivation and scientific curiosity.

Duration: Minimum 3 months (with possibility to extend)

Start date: End of May / Beginning of June 2025

Deadline: May 9th, 2025

Interested?

Please send a motivation letter and CV via email to:

Prof. Dr. Daniela Mauceri, Institute of Neurobiology, Heidelberg University, Im Neuenheimer Feld 366, 69120 Heidelberg; Email: Mauceri@nbio.uni-heidelberg.de