



Heidelberg University

Department of Neurobiology

AG Mauceri

Lab rotation: Regulators of Neuronal Morphology

Project description:

Neurons receive and integrate signals 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. Therefore, the regulation of neuronal morphology is essential for maintaining healthy neural network function. Aberrant dendritic morphology is often linked to neurological disorders. Our group is investigating the mechanisms that regulate neuronal morphology as they are still vastly unknown.

We are looking for a motivated student to join our lab to work on two aspects of this fundamental neurobiology question:

1| We have identified Vascular Endothelial Growth Factor D (VEGFD) as a key regulator of neuronal dendritic structure and are now investigating its downstream signals (Aksan et al., 2024 CMLS). You will generate and employ genetic tools to manipulate primary hippocampal neurons and analyse the morphology of both fixed and live cells.

2| We are studying how the plasma membrane's lipid composition adapts to structural changes in neurons. You will pharmacologically manipulate primary hippocampal neurons and analyse expression and activity of key enzyme involved in lipid regulation.

What will you learn?

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

We provide an international, open and social environment where you can explore other opportunities via interactions with other projects ongoing in the lab.

What do you need?

Bachelor's degree in biosciences or other related life sciences and basic laboratory experience.

Duration of lab rotation: minimum 3 months with possibility to prolong, starting as soon as possible.

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

Deadline: October 15th 2024