

## Master thesis – Morphological changes upon PUR proteins depletion in human neural stem cells

We are looking for a highly motivated master's student who will help us characterize the importance of PUR proteins for membrane compartments within cells. The best-studied PUR protein — PURA — is directly related to PURA Syndrome, a rare neurodevelopmental disorder that affects patients' intelligence, mobility, immunological system, and so on. The PUR protein family consists of three highly similar paralogues that have the capacity to bind RNA and DNA. Our preliminary study showed that they influence the cellular morphology. The goal of the project is to perform cell imaging with a scanning electron microscope to observe the cell surface upon PURA/PURB/PURG knockout in the same cellular model. For this purpose, human neural stem cells will be used, which can be additionally differentiated into astrocytes, neurons, and oligodendrocytes. Thus, the analysis of cell differentiation in clones containing the knockout is additionally envisioned. We expect involvement in the project and, after the training period, independent work. In exchange, we offer the possibility of learning diverse methods, including:

- Cell culture
- Cell differentiation
- Scanning electron microscopy
- Real-time qPCR
- Western blotting
- Immunofluorescence experiments
- Interpreting and evaluating results

If you are interested in this project, contact our team at Ulm University!  
([estera.pluzek@uni-ulm.de](mailto:estera.pluzek@uni-ulm.de), direct supervisor).