

What harms the peripheral nervous system?

Molecular Neurogenomics Research Group Group leader: Prof. Dr. Albena Jordanova



Our group focuses on the identification and characterization of genes and pathways implicated in the molecular etiology of inherited motor and sensory peripheral neuropathies (known as Charcot-Marie-Tooth disease). Our research strategy is characterized by a multidisciplinary experimental approach:

Disease gene discovery using cutting-edge sequencing technologies

Short- and/or long-read sequencing of patients coupled with linkage analysis and homozygosity mapping

Follow-up with Sanger sequencing, Flongle analysis, qPCR, cDNA analysis, Western blotting, and other relevant functional assays.



Disease models: identification and validation of molecular pathways



Larval neuromuscular junction analysis using IHC



Patient-derived iPSCs



Differentiation and characterization of iPSC-derived motor neurons



Spheroid cultures to study axonal trafficking



5mm





The fly eye for high-throughput genetic screening using scanning electron microscopy



Differentiation in microfluidic devices to separate cellular compartments



Pathway identification through <u>omics</u> approaches

Transcriptome analysis to identify affected pathways in CMT

Omics data integration and pathway analyses: Transcriptomics, proteomics, interactomics, GeoMx DSP: spatial transcriptomics for cell type specific analysis in peripheral nerves



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