



RESEARCH PROJECT
“The driving force”

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Proteins: driving force for degeneration

Lena Lößlein is a motivated student of the Elite Graduate Program “Translational Neuroscience (ENB)” at the University of Würzburg. To gain deeper insight into degenerative and regulating processes of the nervous system, she undertook a research internship at the Roslin Institute of the University of Edinburgh, Scotland.

Understanding degenerative mechanisms

Nerve cells communicate with each other via specialized junctions, so-called synapses. These structures are of particular research interest as their damage often is one of the early signs of neurodegenerative diseases such as Alzheimer’s disease. Dr. Thomas Wishart’s research group at the Roslin Institute of the University of Edinburgh, Scotland, investigates regulating mechanisms in neurodegenerative diseases. The research group works with a combination of several methods such as bioinformatic tools and molecular techniques to get a more detailed picture of the underlying cellular and molecular processes.

During her research internship in the Wishart’s group, Lena Lößlein aimed at the identification of novel putative regulators in the nervous system in health and disease. She successfully performed complex so-called proteomic analyses of datasets of protein expression in different compartments of nerve cells such as synapses throughout degenerative processes. Furthermore, she extended her own novel analyses to compare her results to other neurodegenerative diseases, thus providing new insight on mammalian models of diseases including motor diseases and Alzheimer’s disease. Finally, Lena Lößlein carried out preliminary gene manipulations in different compartments of nerve cells in *Drosophila* (fruit fly) in order to validate previous results on regulators.

More on the Elite Graduate Program “Translational Neuroscience”:

www.elitenetzwerk.bayern.de

Learn more about Dr Thomas Wishart’s research at the University of Edinburgh:

www.research.ed.ac.uk/portal/en/persons/thommas-wishart