Ph.D. projects in progress

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Title of the research topic: Investigating the protective role of Hsp27 in cardio- and cerebrovascular dysfunctions in transgenic mouse models

Description of the research topic: Heat shock proteins (Hsps) are evolutionarily conserved chaperone proteins which are upregulated under different stress conditions and in various diseases. Previously we found that either overexpression of Hsp27 or the pharmacological induction of chaperones, using non-toxic Hsp co-inducers can effectively reduce certain symptoms of neurodegeneration in a mouse model of Alzheimer's disease. The aim of our current project is to study the protective role of the small Hsp, Hsp27, mainly focusing on hyperlipidemia induced cardio- and cerebrovascular dysfunctions. Therefore we crossed our Hsp27 overexpessing mouse strain with the hyperlipidemic ApoB100 transgenic strain, in order to reveal the effects of Hsp27 on the different symptoms related to dyslipidemia and obesity (increased serum glucose level, atherosclerosis, and inflammation). Moreover we aim to test the protective role of Hsp27 against the hyperlipidemia induced blood-brain barrier dysfunction. As cardiovascular disorders are among the most common diseases, their effective prevention and treatment is of primary importance. Hsps are promising therapeutic targets, and the expected results might contribute to the development of new therapeutic strategies for maintaining healthy vascular system.