

MSc research project: Identifying causal genes for cardiometabolic risk factors using a zebrafish model system

In collaboration with the Zebrafish facility at the SciLife Lab in Uppsala, the Department of Medical Sciences of Uppsala University is continuously looking for motivated students for degree projects. We anticipate the research program may result in one or more PhD positions in the near future, for which a degree project would provide the MSc student with a competitive edge. The project work will be based at the SciLifeLab Zebrafish facility in Uppsala. Please find background information and a description of the research program below. The topic of individual research projects will depend on the student's interests and the requirements of the program at the time of applying.

Description of the research program

Genome-wide association studies (GWAS) have so far identified hundreds of genetic loci that are robustly associated with cardiometabolic risk factors and diseases, such as obesity-related traits, physical activity, blood glucose, insulin and lipid levels, type 2 diabetes, atherosclerosis, and coronary artery disease. With few exceptions, the causal genes in these loci are currently unknown. Before results from GWAS can be translated into something that can be used in the clinic - for example into novel biomarkers or drugs - we need to identify and characterize the causal genes in these loci. Recent developments in CRISPR-Cas9-based mutagenesis, high-throughput imaging, and image-based analyses have highlighted the zebrafish as a promising model system for large-scale genetic screens.

In this research program, we use the zebrafish as a model system for high-throughput genetic screens, aiming to identify causal genes in GWAS-identified loci for cardiometabolic risk factors and diseases. Genes that show promising results in large-scale screens will be taken forward for more detailed phenotypic characterization of putative causal genes. Our program uses state of the art techniques when it comes to live imaging and mutagenesis, and provides students with the opportunity to be part of a multidisciplinary research team,

Requirements MSc students

We are looking for enthusiastic, motivated students that are eligible for a 15/30 credit project, whom enjoy working as part of a team as well as independently. Ideally, candidates have some previous practical experience working with methods used in molecular biological research, as well as with zebrafish husbandry (not compulsory).

Please send us a short description of your relevant work experience and your motivation if you are interested in doing a research project in this program for your degree. Please also indicate the period during which you are available.

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