**MSc research projects: Identifying and characterising causal genes for cardiometabolic risk factors and diseases using image-based screens in zebrafish model systems**

The den Hoed lab at IGP's Medical Genetics and Genomics section and SciLifeLab is looking for motivated MSc students for degree projects. The project work will be based at the BMC in Uppsala. Background information and a description of the research program can be found 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 identified hundreds of genetic loci that are robustly associated with cardiovascular and metabolic risk factors and diseases, such as blood glucose, insulin and lipid levels, type 2 diabetes, atherosclerosis, and coronary heart disease. With few exceptions, the causal genes in these loci remain uncharacterised, and in many cases even unidentified. Before results from GWAS can be translated into efficient new medication, we need to identify and characterise the causal genes. 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 our research program, we used epidemiological and bioinformatics approaches to distil valuable candidate genes from various –omics data (genomic, epigenomic, transcriptomic, proteomic and metabolomic). In addition, we developed and validated high-throughput, largely image-based translational approaches to identify and characterise causal genes for cardiometabolic risk factors and diseases using zebrafish model systems. Besides being able to work with state of the art approaches, we provide students with the opportunity to be part of a multidisciplinary and international research team.

**Requirements MSc students**

We are looking for enthusiastic, motivated students that are eligible for an ≥30 ECTS project, who enjoy working as part of a team but can also work independently after adequate instructions. Ideally, candidates have some previous practical experience in working with molecular biological methods.

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

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