

## **Technology development and application for next-generation sequencing of cancer**

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### ***Project description***

A new generation of DNA sequencing instruments is currently dramatically changing the field of molecular genetics and pharmacogenomics by enabling rapid acquisition of large data amounts. The current projects are part of a larger project aiming to a pipeline for targeted resequencing of genomic regions using next generation sequencing platforms. In this project we will develop and apply a pipeline for high throughput sequencing using the Selector Technology™. The Selector Technology™ enables selective amplification of large numbers of genomic loci in a single reaction enabling resequencing of large gene sets involved in for example cancer. The project involves further development of the genetic enrichment procedure, parallel sequencing using the ABI SOLiD and Illumina GA instruments, assembly and assessment of available analysis software, bioinformatic design, and development of new software. The exact objective will be adjusted depending on student background and skills, ranging from development and application of the Selector Technology in the laboratory to bioinformatic analysis and programming. Two projects are announced, one focusing primarily on bioinformatics and one on the molecular technology. The projects may serve as a foundation to further PhD studies or employment in the spin out company.

### ***Olink Genomics AB***

Olink Genomics is a spin out company formed by researchers at Uppsala University together with Olink Biosciences AB. The company is located in Uppsala Science Park and the technology development has been tightly connected to the research group of Molecular Diagnostics at Uppsala University headed by associate professor Mats Nilsson. The company is based on beyond state of the art technology enabling researchers globally to execute projects previously not possible.

### ***Applicant***

Interesting applicants include students with background in molecular biology, engineering with medical focus, biotechnology, medicine, biomedicine or pharmacy, and software development/programming however other backgrounds may be acceptable. Previous laboratory or programming experience is an advantage, interest and motivation is essential. After initial introduction the project is designed to allow the student to gradually design and push the research project independently, however always in the context of the group, and good communicative and social skills are required. Applications will be evaluated and subsequently interviews will be performed. CV comprising relevant educational and professional history including grades is mandatory, references and/or letter(s) of recommendation may increase chances to be accepted.