Protein detection biotechnology development for molecular medicine applications

Project description

The project aim is to develop and apply novel approaches for detection of proteins and protein-protein interactions. We have previously established a revolutionizing technique for protein detection called proximity ligation[1,2,3]. The project involves developing the technique to high throughput platforms enabling multiplex detection of several proteins and their interactions. Technique development is performed in conjunction with projects applying the technique for detection of cancer marker proteins and elucidation of oncogenic mechanisms. The project is technique oriented and will involve microarray manufacturing, utilization and analysis, quantitative PCR, cell culturing, immuno histo chemistry & fluorescence, *in situ* imaging, confocal microscopy and protein detection assays along with more conventional laboratory proceedings.

The research group of molecular medicine,

http://www.genpat.uu.se/molme/

The project is carried out in the research group of molecular medicine at Uppsala University, department of genetics and pathology, Rudbeck laboratory.

The research group is headed by Professor Ulf Landegren and has a long track record of cutting edge technology development in the biotechnology and molecular medicine sector, with several successfully commercialized inventions. Further on, the lab is well funded well published and connected and to several other outstanding labs and companies in collaborative projects both nationally and internationally.

Applicant

Interesting applicants include students with background in molecular biology, biotechnology, medicine, biomedicine or pharmacy, however other backgrounds may be acceptable. Previous laboratory experience is an advantage, interest and motivation is required. 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.

Recent relevant publications:

1) Shallmeiner, E et.al **Sensitive protein detection via triple-binder proximity ligation assays.** Nat Methods. 2007 Feb;4(2):135-7

2) Söderberg O. et al **Direct observation of individual endogenous protein complexes in situ by proximity ligation.** Nat Methods. 2006 Dec;3(12):995-1000.

3) Söderberg O. et al **Proximity ligation: a specific and versatile tool for the proteomic era**. Genet Eng (N Y). 2007;28:85-93. ***Review***

Contact information & applications

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