Masters Thesis Project at siTOOLs Biotech

Munich 24.10.2019

RNAi and CRISPR: Probing Specificity and Efficiency by High Content Screening

siTOOLs Biotech is offering a Masters Thesis Project in collaboration with Prof. Dr. Heinrich Leonhardt from Faculty of Biology Department II, Ludwig-Maximilians-Universität München (LMU).

Project Introduction

RNA interference (RNAi) and CRISPR are the most widely used methods of gene inactivation that differ fundamentally in their strengths and caveats.
In a research grant funded by the Bayerische Forschungsstiftung, the Leonhardt lab and siTOOLs Biotech will compare both methods critically and establish application guidelines for their optimal use. Using high throughput screening assays and high content (multiparametric) imaging combined with statistical analysis of phenotypic profiles, the project will provide a detailed quantification of the efficiency and specificity of RNAi and CRISPR reagents.

About siTOOLs Biotech

siTOOLs Biotech GmbH is a research-driven Munich-based biotech with core expertise in genetics, bioinformatics, and RNA production. siTOOLs creates gene function analysis tools with exceptional targeting specificity and efficiency based on a core technology of high complexity pooling of optimally designed oligos. *Our advanced genetic tools include:* **siPOOLs™** for reliable gene silencing, **raPOOLs™** for targeted RNA enrichment and **riboPOOLs™** for efficient ribosomal RNA depletion. siTOOLs is active in grant-funded research in the field of functional genomics, NGS, and big data analysis and caters to customers in both academia and industry world-wide.

To apply, please send your resume and cover letter to:

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Project Goals

- Quantify and compare the efficiency and specificity of RNAi and CRISPR reagents in cell-based assays.
- Explore novel approaches to minimize off-target effects in RNAi .

Project Content

- Assemble libraries of siRNA and CRISPR molecules using third party reagents and siTOOLs technology.
- Run small to medium scale screening experiments with multiple cell lines using 384-well plates, potentially including robotics and automated microscopes.
- Perform image analysis and data processing using established software such as CellProfiler, Knime, Spotfire and Excel (guidance provided).

Qualification, Experience and Motivation

- Bachelors in Life Sciences, Biology, Biochemistry, Pharmacology or related discipline
- Solid experience in routine molecular biology lab techniques: pipetting, RNA/DNA purification, PCR, agarose gel and PAGE, enzymatic reactions.
- Basic experience in tissue culture, cell seeding and transfection, preferably in multi-well plates would be desirable.
- Familiar with the standard functions of Excel, Word and PowerPoint. No advanced computer skills are required.
- Experience in microscopy and image analysis useful but not critical.
- Comfortable working with data as extracting, processing and analyzing numerical data will be a substantial part of the work

Benefits and Perks

- 500,- €/ month allowance provided
- Hands-on training in imaging and data analysis

Learn more about siTOOLs at **www.sitoolsbiotech.com**