**Master Degree Project**

# Technology development of microfluidic devices for advanced cell studies

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*Project description*

Microfluidic technology has the potential to revolutionize experimentation with living cells *in vitro*, as it enables precise manipulations of cells together with high content analysis of cell responses. Microfluidic cell-based assays may in the future be widely used for clinical diagnostic applications, state-of-the-art drug development and basic medical research.

The current project is focused on developing microfluidic devices that allow formation of predictable concentration gradients in advanced cell culture systems. In all living organisms gradients of signaling molecules control biological processes such as cell survival, signaling, activation, migration and differentiation. The ability of cells to respond to gradients is essential to all aspects of developmental biology, and important for physiological and pathological organ function.

The project involves further development and application of microfluidic devices to study cell chemotaxis and cell-cell interactions. The exact project objective will be adjusted to the background and skills of the successful applicant. The project may serve as a foundation for further PhD studies or employment at Gradientech AB.

*Dept. of Medical Biochemistry and Microbiology, Uppsala University*

Research carried out within the Dept. of Medical Biochemistry and Microbiology at the Uppsala Biomedical Center concerns the mechanisms, primarily at the molecular and cellular levels, that together enable life.

*Gradientech AB*

Gradientech AB is a Swedish biotech company developing unique microscale platforms for the cell biology research market. Gradientech AB was founded in 2009 and is a spinoff from Uppsala University.

*Applicant*

We seek a highly motivated and ambitious student with good communicative and social skills. A strong personal drive is essential. Applicants should preferably have a solid background in one or more of the following areas: biotechnology, cell and molecular biology, engineering with medical focus, or biomedicine. Previous laboratory experience is an advantage.

All applications will be evaluated, and interviews performed with the top candidates. CV comprising relevant educational and professional history including grades is mandatory in your application, together with a personal cover letter. References and letters of recommendation may increase chances to be accepted.

Please note, applications by e-mail only.