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# PhD student position in biomedical engineering focused on fabrication of microfluidic systems for cell studies

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**Uppsala University is a comprehensive research-intensive university with a strong international standing. Our ultimate goal is to conduct education and research of the highest quality and relevance to make a long-term difference in society. Our most important assets are all the individuals whose curiosity and dedication make Uppsala University one of Sweden's most exciting workplaces. Uppsala University has over 54,000 students, more than 7,500 employees and a turnover of around SEK 8 billion.**

## **Admission to postgraduate education in the subject Engineering Sciences with specialisation Biomedical Engineering**

The position is located at the Division of Biomedical Engineering in the interdisciplinary research group EMBLA, which is led by Professor Maria Tenje. The group conducts successful and internationally recognized research in organs-on-chip and droplet microfluidics in collaboration with research teams at several different Swedish and overseas universities. This doctoral position is part of a newly started research project, funded by the Knut and Alice Wallenberg Foundation, which involves five different research groups at Uppsala, Linköping and Umeå university, coordinated by SLU-Umeå.

Further information about the research group is available on the website: <http://www.materialvetenskap.uu.se/embla>

[Read more about our benefits and what it is like to work at Uppsala University](#)

### **Research project**

The FATE project aims to understand how plant cells obtain their "identity", i.e. what causes different types of cells to develop in the right place and at the right time during plant development. The EMBLA group is part of the project with responsibility for researching new microfluidic methods to be able to grow and study plant cells under fully controlled forms.

### **Work duties**

The main task for a doctoral student is to devote themselves to their doctoral education, which includes both participation in research projects and doctoral education courses. The tasks may also include participation in teaching and other departmental work, however this would account for max. 20% of working time.

Your tasks will be research in microfluidics and microsystems technology to develop miniaturized systems where plant cells can be grown and stimulated under controlled conditions in a so-called *plant-on-chip*. In particular, the focus is on using cleanroom-based fabrication techniques to create patterned surfaces that can control the adhesion and proliferation of plant cells and generate differently organised patterns of multiple cell types. Both chemical and physical patterns will be created and evaluated. You are also expected to research a microsystem that, in combination with the patterned surfaces, can stimulate individual cells both mechanically and electrically at specific time points.

You will also use the final systems to study how differentiation of the cells is affected by the pattern they are part of and the external stimuli they are exposed to. The evaluation will mainly be performed using microscopy.

### **Qualification requirements**

Master of Science degree with specialization in biomedical engineering, engineering sciences, nanotechnology, materials science, biotechnology or equivalent and where fabrication and/or use of microsystems and/or microfluidic systems were a part of your degree project.

We require good knowledge of English, both oral and in writing.

### **Additional qualifications**

Documented knowledge of fabrication of and experimental work in microsystems and microfluidics is meritorious. Documented experience of cell culture, staining protocols and microscopy is an advantage, as is knowledge of various cell analysis techniques. Previous experience with culture of plant cells is specifically meritorious.

You must be strongly motivated to complete a doctoral education and want to learn new techniques and methods.

We are looking for a creative person with a strong motivation to complete doctoral studies in this interdisciplinary subject and who can easily learn new knowledge and concepts from other subject areas than their own specialisation. We attach great importance to personal qualities and are looking for an organised person with good analytical skills, interest in planning and leading own projects and who is capable of working both independently and in groups. Good communication skills oral and in writing, is highly valuable.

### **Admission requirements**

To meet the entry requirements for doctoral studies, you must:

- hold a Master's (second-cycle) degree, or
- have completed at least 240 credits in higher education, with at least 60 credits at Master's level including an independent project worth at least 15 credits, or
- have acquired substantially equivalent knowledge in some other way.

Rules governing PhD students are set out in the Higher Education Ordinance chapter 5, §§ 1-7 and in [Uppsala University's rules and guidelines](#).

### **Instructions for application**

Your application must include:

1) A short letter describing yourself, your previous research experience and why you want to do a doctorate.

2) CV (max. 2 pages)

3) A copy of your master's degree and your course grades. Students getting their degree in Spring 2023 are also welcome to apply.

4) Names and contact details (address, e-mail address and telephone number) of at least two reference persons

5) List of relevant publications (including master's thesis)

The application shall be written in English. We will continuously read applications and call for interviews.

### **About the employment**

The employment is a temporary position according to the Higher Education Ordinance chapter 5 § 7. Scope of employment 100 %. Starting date as soon as possible or as agreed upon. Placement: Uppsala.

**For further information about the position, please contact:** Prof. Maria Tenje, (maria.tenje@angstrom.uu.se), Dr. Susan Peacock (susan.peacock@angstrom.uu.se) and Dr. Stéphan Verger (stephane.verger@umu.se)

Information about the Division of Biomedical Engineering is available at <https://www.materialvetenskap.uu.se/biomedical-engineering>

Information about Umeå Plant Science Center SLU is available at <https://www.upsc.se/>

**Please submit your application by 26 May 2023, UFV-PA 2023/1503**

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Please do not send offers of recruitment or advertising services.

**Submit your application through Uppsala University's recruitment system.**

**Placement:** Department of Materials Science and Engineering

**Type of employment:** Full time , Temporary position

**Pay:** According to local collective agreement

**Number of positions:** 1

**Working hours:** 100 %

**Town:** Uppsala

**County:** Uppsala län

**Country:** Sweden

**Union representative:** ST/TCO [tco@fackorg.uu.se](mailto:tco@fackorg.uu.se)

Seko Universitetsklubben [seko@uadm.uu.se](mailto:seko@uadm.uu.se)

Saco-rådet [saco@uadm.uu.se](mailto:saco@uadm.uu.se)

**Number of reference:** UFV-PA 2023/1503

**Last application date:** 2023-05-26

**[Apply for position](#)**