



**LUNDS**  
UNIVERSITET

# Doctoral student in Plant Molecular Biology

**Apply to this position**

## Lund University, Faculty of Science, Department of Biology

Lund University was founded in 1666 and is repeatedly ranked among the world's top 100 universities. The University has around 44 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

Lund University welcomes applicants with diverse backgrounds and experiences. We regard gender equality and diversity as a strength and an asset.

### **Subject description**

Biology is the broad subject about all living things. It encompasses everything from processes at the molecular and cellular level to global processes at ecosystem level. The subject is divided into a range of sub-disciplines and specialisations. The PhD programme at the Department of Biology includes many of these specialisations, from molecular biology to applied ecology, from viruses and individual cells to evolutionary biology and global biodiversity. Taking on research studies at the Department of Biology generally means focusing on a delimited part of the research area of biology and may include field studies, experiments, theoretical studies, or a combination of these.

### **Work duties**

The main duties of doctoral students are to devote themselves to their research studies which includes participating in research projects and third cycle courses. The work duties can also include teaching and other departmental duties, up to 20%.

As plants cannot move away from adverse conditions, they have developed extensive molecular and physiological defence systems. Plants can thus respond to a range of stimuli such as pathogen infection, water availability, changes in light intensity and temperature, etc. These signalling events often involve multiple cellular organelles including mitochondria, chloroplasts, plasma membrane and the endoplasmic reticulum. The project will focus on understanding signal transduction pathways and

effectors that regulate responses to changing environmental conditions and stress, with a focus on the role of plant mitochondria. Besides being important for energy conversion and metabolism, mitochondria take part in sensing and signalling that lead to effective defence responses in plants. Mitochondria are also regulated by various quality control systems, including retrograde signalling and mitophagy, which help plants to balance growth and reproduction with stress survival. However, major components of these signalling pathways are unknown, so the goal of this project will be to identify and characterise key regulators and effectors. Understanding how mitochondrial signalling and quality control during stress is achieved can lead to downstream applications to improve stress tolerance and yield in crop species.

The doctoral student will join the Van Aken lab focusing on molecular signalling in plants, as part of the Molecular Cell Biology unit at the Department of Biology. The successful candidate will have access to state of the art molecular, biochemical, proteomic and genomic facilities to perform the research. The candidate will also have opportunities to collaborate with international groups and supervise Masters and/or Bachelor students.

### **Admission requirements**

A person meets the general admission requirements for third-cycle courses and study programmes if he or she:

- has been awarded a second-cycle qualification, or
- has satisfied the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second cycle, or
- has acquired substantially equivalent knowledge in some other way in Sweden or abroad.

A person meets the specific admission requirements for third cycle studies in Biology if he or she has passed an independent project (for example a degree project) of at least 30 credits in a relevant subject and have good oral and written proficiency in English. The project work must be completed by the time the position starts.

### **Additional requirements**

- Master Degree in Molecular Biology, Biochemistry or related fields, with laboratory work experience in molecular biology, genetics and/or plant physiology. Students that will complete their Master Degree in 2022 will also be considered if they have extensive experience within molecular biology in a topic highly relevant to this project. The Master degree must be completed before the start of the position.
- Excellent oral and written proficiency in English.
- Highly motivated with strong ability to work independently as well as to collaborate within a research group.

### **In addition to the mandatory requirements, documented experience in the following areas will be considered as strong merits:**

- Practical experience in working with *Arabidopsis thaliana* or other model plant species is of merit.

- Practical experience in molecular and biochemical techniques such as genotyping, sequencing, bioinformatics, PCR, RNA work, cloning, protein/organelle purification, western blot, enzymatic measurements, fluorescence/confocal microscopy are of merit. Experience of 3-D reconstruction in Amira (or equivalent).

- Driver's license

### **Assessment criteria**

Selection for third-cycle studies is based on the student's potential to profit from such studies. The assessment of potential is made primarily on the basis of academic results from the first and second cycle. Special attention is paid to the following:

- Knowledge and skills relevant to the thesis project and the subject of study.
- An assessment of ability to work independently and to formulate and tackle research problems.
- Written and oral communication skills
- Other experience relevant to the third-cycle studies, for example professional experience.

Consideration will also be given to strong collaborative skills, drive, self-motivation and independence, and how the applicant, through his or her experience and skills, is deemed to have the abilities necessary for successfully completing the third cycle programme.

### **Terms of employment**

Only those admitted to third cycle studies may be appointed to a doctoral studentship. Third cycle studies consist of full-time studies for 4 years. A doctoral studentship is a fixed-term employment of a maximum of 5 years (including 20% departmental duties). Doctoral studentships are regulated in the Higher Education Ordinance (1993:100), chapter 5, 1-7 §§.

### **Instructions on how to apply**

Applications shall be written in English and include a cover letter stating the reasons why you are interested in the postgraduate education programme and in what way the research project corresponds to your interests and educational background. The application must also contain a CV, degree certificate or equivalent, and other documents you wish to be considered (grade transcripts, contact information for 2-3 references, letters of recommendation, etc.).

The Faculty of Science conducts research and education within Biology, Astronomy, Physics, Geosciences, Chemistry, Mathematics and Environmental Science. The Faculty is organized into nine departments, gathered in the northern campus area. The Faculty has approximately 1500 students, 330 PhD students and 700 employees.

We kindly decline all sales and marketing contacts.

**Type of  
employment**  
**First day of  
employment**

Temporary position longer than 6 months

2022-12-01 or according to agreement

**Salary** Monthly salary  
**Number of positions** 1  
**Working hours** 100  
**City** Lund  
**County** Skåne län  
**Country** Sweden  
**Reference number** PA2022/2593  
**Contact**

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**Union representative**  
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