

Master's degree project in plant biology

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Contact

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Short description

[Autophagy is an extremely interesting catabolic pathway](#) that allows cells to upcycle their own content. Similarly to a trash recycling system, autophagy converts damaged or superfluous components into energy and building blocks. In our group we are investigating how this process helps plants to cope with stress conditions. This knowledge will eventually allow us to improve crops and make them better fitted for the changing climate.

In this project you will develop a novel advanced approach for quantifying plant autophagy and use it to reveal what role autophagy plays in the stress response of different plant organs.

Project goals:

1. Cloning constructs encoding novel molecular reporters of plant autophagic activity
2. Verifying/optimizing the constructs using transient expression in plants and advanced fluorescence microscopy
3. Initiating stable transgenic lines expressing the new constructs
4. High-throughput phenotyping of transgenic plant seedlings using our new robotic system [SPIRO](#)

You will acquire skills in:

- Genetic engineering and cloning
- Advanced fluorescence microscopy
- Working with one of the most popular plant model organism *Arabidopsis thaliana*
- Transient expression in plants
- Working on stable transgenic plant lines
- Use of automated assays for plant phenotyping
- Working in a research team