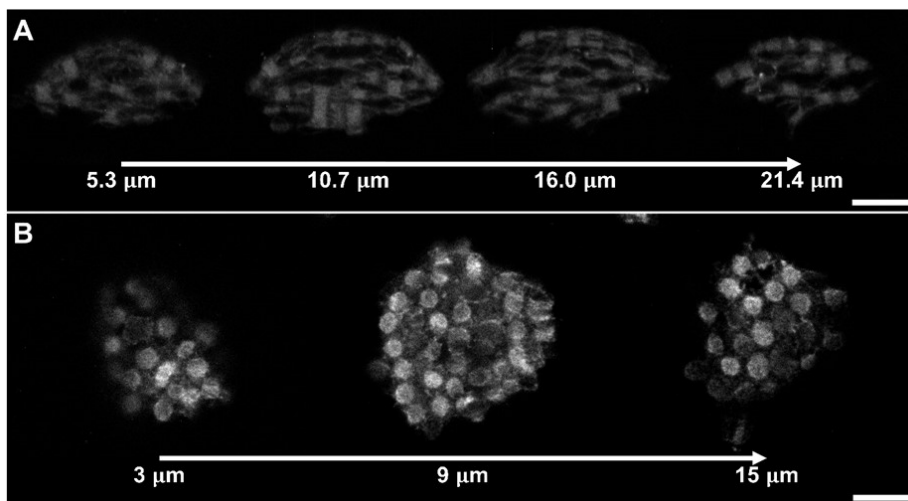


Elucidating the thylakoid organisation

Thesis about photosynthesis and the ability of plants to adapt to light conditions, as part of a BSc/MSc in the programs of Molecular Life Sciences, Biotechnology or related subjects.

Photosynthesis is the process of converting solar energy into chemical energy. In plants, this reaction happens in the chloroplasts. More specifically, the light reaction of photosynthesis takes place on the thylakoid membrane, which is the inner membrane of the chloroplast. This membrane is known to change its organisation, i.e. folding, protein content and interactions, in response to short and long term changes in light conditions. In this project, you will investigate these responses.

In this lab, we implemented a new microscopy technique called expansion microscopy (ExM) in which chloroplasts are physically expanded to increase the resolution of optical imaging. You will use this technique on plants adapted to different light conditions to study 1) what the changes are, 2) how the localisation of certain proteins is modified and 3) how the membrane is able to adapt so dynamically.



Side view (A) and top view (B) of a chloroplast subjected to ExM. Images recorded by a former MSc thesis student in the lab of Biophysics.

In this project you will be on the cutting-edge of science while learning:

- Biochemical techniques for isolation of chloroplasts, gel expansion and immunostaining
- To use state-of-the-art optical microscopes
- Image analysis with the option to implement ImageJ programming
- Literature research and data analysis

BSc/MSc project: Unravelling the dynamic light responses of plants using expansion microscopy



Further information:

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