**Report from Aktion project 67p7**

I participated in the Aktion projectfrom 4.11. to 29.11.2013 in the laboratory of Core Facility Cell Imaging and Ultrastructure Research (Vienna University), under supervision of Prof. I. Lichtscheidl. The goal of the project was to work with light and electron microscopy of plants and to learn about other microscopy techniques. An equally important goal was a detailed study of the plants structure of various degrees of complexity mainly during mitosis, which contribute to a better understanding of function and physiological processes.

Study plan included participation in lectures and seminars, practical courses and independent work in laboratory. I joined a group of Bachelor students for practical courses which were combined with lectures. I attended courses from Plant Cell Biology, Concepts of Plant Physiology and Plant Anatomy. During these courses I learnt about and provided experiments on cell features (membrane permeability, plasmolysis, osmotic values, organelle motility, mitosis) and on the preparation of plant cells (fixation, staining, sectioning, in vitro plant growth).

Work in laboratory was related to investigation of mitosis in plant cells using different microscopy techniques such as contrast (phase contrast, dark field, polarization) and fluorescence. As an object were chosen roots of *Wheat* and *Arabidopsis Thaliana* (wild type and GFP MAP4) and stamen hair cells of *Tradescantia*. For investigation of root growth the seeds were planted every 3 – 5 days. Stamen hair cells were taken from fresh buds of a plant. For better imaging I used dyes such as Carmine and DAPI. All phases of mitosis were captured by a camera. For time-lapse imaging of living cells growth any dye was used to not kill the cells.

Received series of images were used for image analysis in my work in Institute of Complex Systems. During the practice all goals were realized and acquired skills helped and will help me in my future work.

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