

**P027** Post-translational regulation of sperm-activating EC1 proteins

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Sexually reproducing organisms require an orchestrated communication between the two gametes of opposite sex to accomplish cell-cell fusion. In vertebrate and non-vertebrate species egg-sperm interactions mainly depend on cell surface proteins. However, flowering plants have evolved the unique reproductive strategy of double fertilization, where two gamete fusion events take place in a coordinated manner. Details on the underlying molecular mechanisms are largely unknown.

Recently, we reported about the identification of a small family of egg cell-secreted cysteine-rich proteins (CRPs), which turned out to be essential signalling molecules for successful double fertilization in *Arabidopsis thaliana*. EC1 proteins accumulate within the egg cell and become exocytosed upon sperm arrival. Bioassays using synthetic EC1 peptides suggest that this protein family is involved in activating the sperm endomembrane system, leading to surface exposure of membrane-active fusion-essential sperm proteins.

Notably, we found the EC1 proteins to be highly unstable molecules. The expression of EC1 proteins is not only regulated on the transcriptional but also on the posttranslational level. I will report about our recent results regarding EC1 stability, EC1 function, and the identification of an EC1-interacting protein involved in posttranslational protein modification.