

**P010** Cell-to-cell communication in pollen tube reception.

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During plant reproduction the male gametophyte (pollen) interacts with both sporophytic and gametophytic tissue of the female reproductive organs: the pollen is recognized at the stigma, germinates, grows through style and transmitting tract and finally into the micropyle of the ovule, attracted by a chemotactic signal produced by the female gametophyte. The final step of pollination is the reception of the pollen tube at one of the synergid cells which flank the egg cell followed by the cessation of pollen tube growth and subsequent rupture to release the sperm so that double fertilization can occur. In *Arabidopsis thaliana feronia (fer)* mutants, pollen tubes are received at the synergid cell, but continue to grow instead of bursting to release the sperm. FERONIA encodes a receptor-like kinase that is expressed in synergid cells in female gametophyte. The protein is concentrated in the membrane rich region at the bottom of the synergid cell known as the filiform apparatus. We predict that FER is responsible for setting off signal transduction cascades upon binding of a ligand from the growing pollen tube. Progress towards identifying other members of this FER signaling pathway will be discussed.