

P020 Pollen tube guidance by ZmEA1 signalling in maize and *Arabidopsis*

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Sperm cells of flowering plants are non-motile and are transported via the pollen tube from the stigma to the female gametophyte (embryo sac) to achieve double fertilization. The last phase of pollen tube guidance requires extensive cross-talk between both male and female gametophytes, and until recently little was known about the molecules produced by the female gametophyte that are involved in this process. *Zea mays* *EGG APPARATUS1* (*ZmEA1*) was the first gene identified encoding a candidate extracellular ligand involved in micropylar pollen tube attractance controlled by the female gametophyte. *ZmEA1* encodes a polymorphic precursor protein of 94 amino acids that was shown to be secreted to the cell walls of micropylar nucellus cells. Pollen tubes arrived at the micropyle of *ZmEA1* knock-down plants without penetrating the intercellular space of micropylar nucellus cells suggesting a role for *ZmEA1* in micropylar pollen tube guidance. Here, we will show that an N-terminal cleaved predicted mature *ZmEA1* protein of 49 amino acids is able to directly attract maize pollen tubes *in vitro* at a concentration of <10 μ M. Moreover, *Arabidopsis* ovules expressing *ZmEA1*-GFP fusion protein driven by the synergid cell-specific *Myb98* promoter are capable to attract maize pollen tubes *in vitro*. Current work is focussed on the identification of the mature *ZmEA1* peptide and its receptor.