

**P019** Pollen tube guidance in *Solanum* species: identification of glycoproteins as the ovule-derived chemoattractant signal  
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Pollen tube guidance is part of a complex breeding barrier system that starts from the earliest pollen-pistil interactions down to gamete delivery. One important step, micropylar guidance, relies on the production of ovule-derived chemoattractants and can be seen as the penultimate barrier before gamete fusion. As for other breeding barriers, like self-incompatibility, it is likely that plant families have recruited different signaling modules to guide pollen tubes towards the ovules. To decipher how solanaceous species have solved this problem we devised a semi *in vivo* guidance system and used a MAPKKK mutant in *Solanum chacoense* that is affected in megagametogenesis. As expected, guidance was severely affected in this mutant, confirming the involvement of the egg apparatus cells as the source of attracting molecules. In WT plants, attraction competence was developmentally regulated and not pollination-induced. Species-specificity of the attraction signal was also tested and was robust even with very close *S. chacoense* relatives from the *Solanum Petota* section, hinting towards a proteinaceous nature for the attractant. This was further demonstrated with the use of crude and purified protein extracts. Proteomic as well as genomic strategies currently used to isolate the Solanaceous pollen tube guidance protein chemoattractant will be discussed.