

S004 Establishing compatibility in Arabidopsis pollen-stigma interactions: a role for AtPCP-B proteins in early pollination events

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Successful fertilisation is the culmination of a complex series of highly regulated events involving communication between the male gametophyte and female reproductive structures / specialised cell types. In Arabidopsis, molecular compatibility between the interacting partners is established within minutes of pollen contacting the stigmatic papillar cells and results in regulated hydration of pollen followed shortly thereafter by germination. This process is influenced by many factors, both at the biophysical and molecular levels, and it is becoming increasingly clear that the polypeptide complement of the pollen coating plays a crucial role in the pollen-stigma interaction. Previous studies have highlighted the importance of a diverse group of small cysteine-rich pollen coat proteins (PCPs) in pollen-stigma recognition. For example in self-incompatible *Brassica oleracea* one such protein, SCR, determines compatibility between pollen and stigma through interaction with a stigmatic receptor, SRK. We have identified a family of similar ligand-like proteins, the PCP-Bs, in the pollen coat of *B. oleracea* and Arabidopsis. In Arabidopsis there are four members of this gene family all of which are expressed specifically in pollen. Data will be presented that demonstrates an important role for the Arabidopsis AtPCP-B proteins in early pollination events and suggests they may act as signals in the regulation of pollen hydration.