S008 Interaction with the stigma and style induces significant changes in the *Arabidopsis* pollen tube transcriptome

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Pistil tissues enhance pollen tube length, stimulate growth rate and render pollen tubes competent to perceive and respond to guidance cues secreted by embryo sac cells within ovules. The molecular basis of pollen tube transformation induced by the pistil remains uncharacterized. Using microarray analysis in *Arabidopsis*, we demonstate that compared to pollen or pollen tubes grown *in vitro*, pollen tubes that have grown through stigma and style tissues of a pistil have a distinct gene expression profile and express a substantially larger fraction of the *Arabidopsis* genome. Fifty mutants in 33 genes induced during pollen tube growth were characterized and disruptions in seven previously uncharacterized genes resulted in aberrant pollen tube growth. Two of these genes are required for pollen tube guidance in a pistil and five genes are required for pollen tube growth *in vitro*. Our findings form the basis for functional genomic analysis of pollentube-pistil interactions.