S006 An *Arabidopsis* LTP knockout reveals functions in pollination/fertilization

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Lily SCA (Stigma/style Cysteine-rich Adhesin) is a plant nonspecific lipid transfer protein, which functions in pollen tube adhesion and guidance during lily pollination. As an attempt to understand the role of SCA-like AtLTPs in *Arabidopsis thaliana*, we utilized SALK T-DNA insertion lines. One mutant showed significantly delayed plant growth with a dwarfed stature at maturity and defects in pollination/fertilization. In reciprocal cross-pollinations to wild-type, *in vivo* growth of the mutant pollen tubes was significantly decreased, resulting in decreased seed set. In addition, the mutant pistil showed defects in fertilization, even when wild-type pollen was used. These phenotypes suggest that this *AtLTP* gene may play a role in both pollen and pistil function in seed production. RT-PCR analysis showed that gene expression was found in pollen, the first such evidence for an LTP in pollen, as well as the transmitting track of the pistil. The mutant pollen showed abnormal tip morphology *in vitro*. Heterozygous plants showed normal plant stature, but maintained the abnormal pollen phenotype. Our results suggest that this *AtLTP* gene plays a dominant role in pollination/fertilization.