

P008 Genetic dissection of imprinting in seed development
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Parent of origin dependent gene expression is crucial in the offspring of animals and flowering plants, and mutations in the imprinting machinery can lead to embryonic lethality. We are using a mutant in the *Arabidopsis* Cdc28 homologue, CDKA;1 as a tool to dissect the involvement of imprinting in seed development. *cdka;1* mutant pollen have only one sperm cell that exclusively fertilize the egg cell. Although not fertilized, the central cell in *cdka;1* ovules is triggered to initiate endosperm development without the presence of the paternal genome. In order to identify factors involved in parent of origin specific regulation of seed development, we have generated microarray transcriptional profiles of seeds with only maternal endosperm. Here, genes that are regulated when the paternal genome is missing are thought to identify imprinted transcripts or targets of such genes. Using this approach, we have identified *AGAMOUS-LIKE36 (AGL36)* as a novel imprinted gene. *AGL36* is a member of the MADS-Box (Mcm1/SRF) transcription factor family and is expressed only from the maternal genome after fertilization. *AGL36* imprinting requires MET1, the major *Arabidopsis* Dnmt1-class maintenance DNA methyltransferase. In addition, maternal Polycomb chromatin remodelling factors (PRC2) act as repressors of maternal *AGL36* expression during seed development.