

INVITED LECTURE H8

Transcriptional cascades in floral organ identity control

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It is a long-standing mystery how homeotic proteins specify the identity of different organs during morphogenesis in the study of not only plant but also animal development. The *Arabidopsis* homeotic gene *AGAMOUS* (*AG*), a MADS-box transcription factor, is necessary for the specification of reproductive organs. We aim to elucidate the transcriptional cascades from *AG* to downstream genes that control the morphogenesis of reproductive organs in *Arabidopsis*. First, we produced a transgenic plant with an inducible *AG* activity by a gene coding for a fusion of the *AG* protein and the steroid binding domain of the rat glucocorticoid receptor, in an *ag* homozygous mutant background. Then we performed a series of time course experiments using the plant line, showing that long duration of *AG* activity is necessary to form normal stamen. This suggests that stamen identity and differentiation control by *AG* are achieved by the regulation of different transcriptional cascades in different floral stages. I will also present *AG* target genes identified by high-throughput screening of microarray and chromatin immunoprecipitation.