

Department of Biological Sciences
Seminar Announcement



Floral homeotic genes are targets of gibberellin signaling in flower development

Gibberellins (GAs) are a class of plant hormones involved in the regulation of flower development in *Arabidopsis*. The GA-deficient *ga1-3* mutant shows retarded growth of all floral organs, especially abortive stamen development that results in complete male sterility. Until now, it has not been clear how GA regulates the late-stage development of floral organs after the establishment of their identities within floral meristems. Various combinations of null mutations of DELLA proteins can gradually rescue floral defects in *ga1-3*. In particular, the synergistic effect of *rga-t2* and *rgl2-1* can substantially restore flower development in *ga1-3*. We find that the transcript levels of floral homeotic genes *APETALA3* (*AP3*), *PISTILLATA* (*PI*), and *AGAMOUS* (*AG*) are immediately upregulated in young flowers of *ga1-3* upon GA treatment. Using a steroid-inducible activation of RGA, we further demonstrated that these floral homeotic genes are transcriptionally repressed by RGA activity in young flowers whereas the expression of *LEAFY* (*LFY*) and *APETALA1* (*AP1*) is not substantially affected. In addition, we observed the partial rescue of floral defects in *ga1-3* by overexpression of *AG*. Our results indicate that GA promotes the expression of floral homeotic genes by antagonizing the effects of DELLA proteins, thereby allowing continued flower development.

by

Yu Hao

*Assistant Professor,
Department of Biological Sciences,
NUS*

Date: 12 Nov 2004, Fri
Time: 4 pm
Venue: DBS Conference Room (Blk S3)
Host: A/P Prakash Kumar

All are welcome

