

Mon, 15 April 2013 | 11am | Seminar Rm 2 (S2 Level 4)

Hosted by A/P Yu Hao



Linking chromatin regulation and antisense RNAs in the control of flowering

Caroline Dean

John Innes Centre, Norwich, UK

Due to its importance in determining reproductive success the timing of flowering in plants is tightly controlled. A central repressor of flowering is FLC, a gene encoding a MADS transcriptional regulator. We study pathways involving FLC antisense transcripts and chromatin dynamics that independently repress FLC expression.

One of these pathways is vernalization, the acceleration of flowering through repression of FLC by prolonged cold. This involves up-regulated antisense transcripts to FLC, followed by a cold-induced Polycomb silencing. We are investigating the role of the antisense RNAs in the Polycomb mechanism and the link between initial cold silencing and accumulation of the epigenetic memory.

We also study the developmental regulation of FLC, whereby alternative 3' processing and splicing of the antisense transcripts trigger histone demethylation, resulting in transcriptional down-regulation. The talk will describe our latest understanding of these conserved mechanisms and how they intersect to give robust and quantitative regulation of this developmental regulator.