

IRN-FJFPB

Webinar « Genome dynamics and epigenetics »

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Epigenetic priming in plant regeneration

Epigenetic priming is one of the potential systems in that genes are poised for activation by external signal inputs. Although the priming does not alter the gene expression, it is considered to induce the open structure of chromatin and the poised state for future transcription. This priming is involved in stem cell differentiation, cancer development, and drug action but remains unclear in plant regeneration. We successfully identified epigenetic priming by LYSINE-SPECIFIC DEMETHYLASE 1-LIKE 3 (LDL3) that specifically eliminates H3K4me2 during the formation of callus derived from roots of *Arabidopsis thaliana*. While LDL3-mediated H3K4me2 removal does not immediately affect gene expression, it does facilitate the later activation of genes that act to form shoot progenitors after shoot induction. This finding gives insights into plant regenerative competency with epigenetic priming.



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