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REF6, an *Arabidopsis* H3K27me3 demethylase, functions in high temperature response

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As the sessile organisms, plants have developed a series of mechanisms to cope with the changeable environment, such as ambient temperature. Epigenetic regulation plays fundamental roles in modulating chromatin-based processes and shaping the epigenome in multicellular eukaryotes. Arabidopsis Relative of Early Flowering 6 (REF6), a Jumonji C domain-containing histone demethylase1, directly recognizes the CTCTGYTY motif by its zinc-finger domains to demethylate H3K27me3 at specific loci in Arabidopsis genome2. Phenotypic analysis shows that ref6 mutant displays insensitivity to high ambient temperature, showing shorter hypocotyl length than that of Col at 28□, indicating that REF6 may function in plant thermo-morphogenesis. Using ChIP-seq and RNA-seq analysis, we identified several REF6 targets involved in thermo-morphogenesis process. Further study will help us to uncover the essential role for H3K27me3 dynamics in diverse abiotic stresses.

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