

Two Key-elements in BABY BOOM-mediated Somatic Embryogenesis

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Abstract

BABY BOOM (BBM), an AP2/ERF transcription factor of the AINTEGUMENTA-LIKE (AIL) sub-clade, identified as a highly up-regulated gene in gametophytic embryogenesis in microspores of *Brassica napus*, induces somatic embryogenesis (SE) in various species when ectopically expressed. AIL transcription factors have multiple roles during plant development e.g. zygotic embryo development, root meristem maintenance, ovule development, phytotaxis, and six of the eight AIL members are able to induce SE. Similar to classical tissue culture experiments SE induction by BBM is more efficient in younger than in older tissues. By following the histological developments, spatial and temporal expression of specific markers, expression analysis of BBM targets, genetic and biochemical inhibition experiments, we identified two essential pathways for BBM-mediated SE explaining the differences between and consequences of early and late BBM activations.