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The TARGET System: Rapid Identification of Direct Targets of Transcription Factors by Gene Regulation in Plant Cells V.2

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The TARGET system allows for the rapid identification of direct regulated gene targets of transcription factors (TFs). It employs the transient transformation of plant protoplasts with inducible nuclear entry of the TF and subsequent transcriptomic and/or ChIP-seq analysis. The ability to separate direct TF-target gene regulatory interactions from indirect downstream responses and the significantly shorter amount of time required to perform the assay, compared to the generation of transgenics, makes this plant cell-based approach a valuable tool for a higher through-put approach to identify the genome-wide targets of multiple TFs, to build validated transcriptional networks in plants. Here, we describe the use of the TARGET system in Arabidopsis seedling root protoplasts to map the gene regulatory network downstream of transcription factors-of-interest.

NB. The original uploaded pdf contained a typo; PEG solution contains 0.4 M mannitol (not 0.4 mM).

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