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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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TARGET

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We use this protocol and it's working

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Keywords: gene targets of transcription factor, transcriptional networks in plant, gene regulatory network downstream of transcription factor, transcription factors by gene regulation, transcription factor, target gene regulatory interactions from indirect downstream response, regulated gene target, plant cells the target system, target gene, gene regulation, validated transcriptional network, transient transformation of plant protoplast, seedling root protoplast, subsequent transcriptomic, transcription, arabidopsi, plant protoplast, generation of transgenic, plant cell, regulatory network, root protoplast, rapid identification of direct target, transgenic, gene, inducible nuclear entry of the tf, genome, regulatory interaction, direct target, use of the target system, wide targets of multiple tf, target system, indirect downstream response, inducible nuclear entry

Abstract

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).

Attachments

PDF

The TARGET System pr...

862KB

Troubleshooting