Dharmacon™
RNAi, Gene Expression & Gene Editing

Technical Manual

C. elegans Transcription Factors

Cat. #OCE4819, OCE4821, OCE4818, OCE4820

Product Description:

The *C. elegans* Transcription Factor Collection is a genomic resource for the discovery of transcription factor – promoter interactions by means of yeast one-hybrid (Y1H) screens (Vermeissen *et al.*, 2007). Each prey construct contains one of 755 plasmid-encoded *C. elegans* transcription factor ORFs fused with the GAL4p activation domain. The expressed fusion-protein product will induce a GAL4-dependent reporter when the transcription factor domain binds to a promoter bait immediately upstream of the reporter (Deplancke *et al.*, 2006). Each construct is available in yeast (Cat #OCE4820 and OCE4821) for mating with bait strains or in an *E. coli* host (Cat #OCE4818 and OCE4819) for transformation into bait strains.

Plasmid: $pDEST_{AD}$

Yeast strain: Y1Hα001 (MATα) is derived from Y187.

Genotype: MATα ura3-52, his3-200, ade2-101, trp1-901, leu2-3, 112, met$^-$, gal4Δ, gal80Δ, URA3::$GAL1_{UAS}$-$GAL1_{TATA}$-LacZ)
(see Vermeissen *et al.*, 2007 Supplementary Methods for details)

Product Applications:

The *C. elegans* Transcription Factor Collection was created to enable the discovery of transcription factor–promoter interactions by means of yeast one-hybrid (Y1H) assays (Vermeissen *et al.*, 2007). Bait reporter strains are not included in this collection, but may be constructed from any of the cloned promoters in the *C. elegans* Promoter Collection (Cat #PCE1181) by recombinational cloning. See Deplancke *et al.*, (2007) for details.

Alternatively, the *C. elegans* Transcription Factor Collection can be used as prey strains in yeast two-hybrid (Y2H) assays for the purpose of discovering homodimer and heterodimer transcription factor complexes. Appropriate bait strains may be constructed from the *C. elegans* ORF Collection (Cat #OCE4518) by recombinational cloning.

Protocols:

1. For information on recombinational cloning using the Gateway™ Cloning System, please visit the Gateway™ Technology webpage on Invitrogen™'s website.
2. For information on constructing promoter bait strains, please see the reference Deplancke *et al.*, 2004.
3. For information on performing library screens, matrix assays or pooled assays please see the reference Vermeissen *et al.*, 2007.

Protocols:

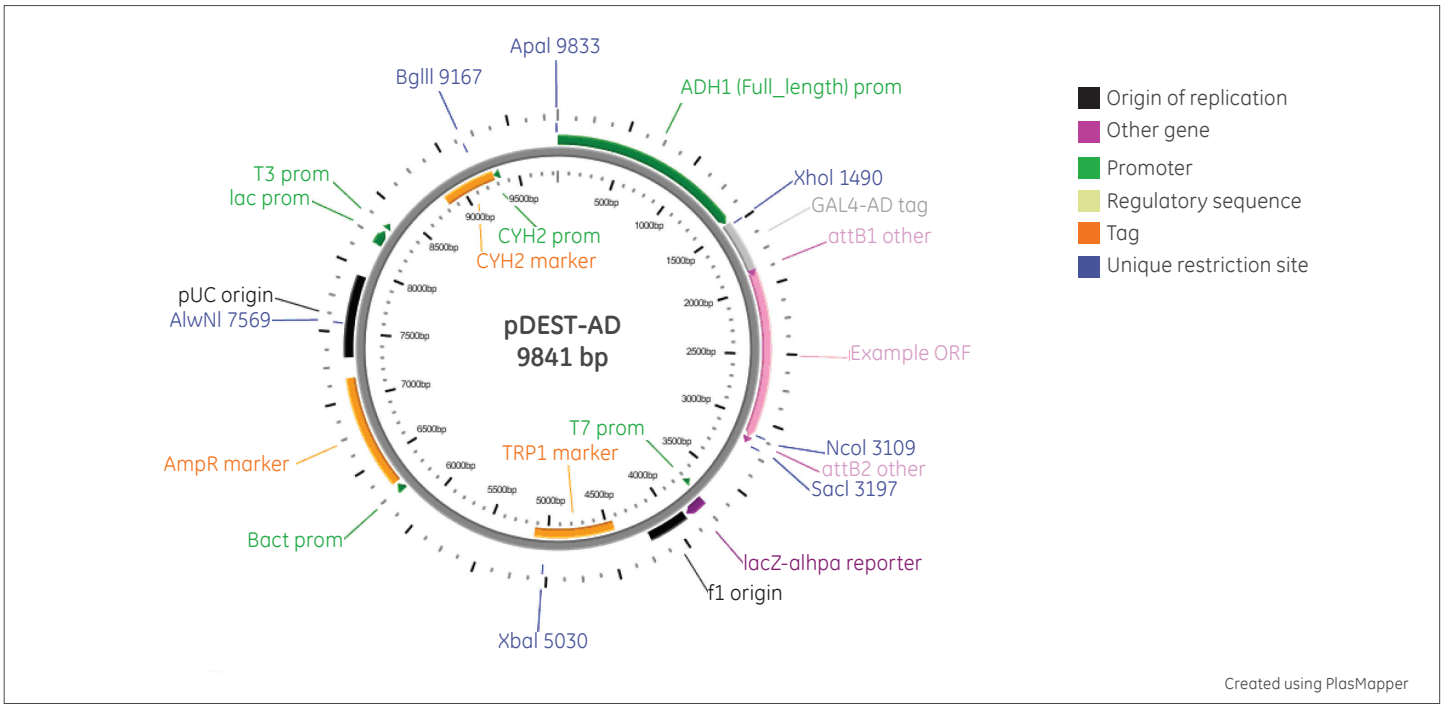

Figure 1. Vector map of pDEST-AD.

References and Suggested Reading:

1. Deplancke B *et al.* (2004). A Gateway-compatible yeast one-hybrid system. *Genome Research* **14**, 2093–2101.
2. Deplancke B *et al.* (2006). A gene-centered *C. elegans* protein-DNA interaction network. *Cell* **125**, 1193–1205.
3. Vermeirssen V *et al.* (2007). Matrix and Steiner-triple-system smart pooling assays for high-performance transcription regulatory network mapping. *Nature Methods* **4**, 659–664.
4. Walhout *et al.* (2000). GATEWAY recombinational cloning: application to the cloning of large numbers of open reading frames or ORFeomes. *Methods Enzymol.* **328**, 575–592.

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