SANTA CRUZ BIOTECHNOLOGY, INC.

GAL4 (DBD) (N-19): sc-729

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The Power to Question

BACKGROUND

The GAL4 protein of *Saccharomyces cerevisiae* is one of the most thoroughly characterized transcriptional activators. Since the N-terminal 147 amino acid residues of GAL4 are sufficient to mediate specific and strong binding to DNA, but are incapable of efficient transcriptional activation, this protein fragment has frequently been used to confer specific DNA binding in experiments examining transcriptional activation functions of heterologous proteins. This approach is facilitated by the finding that higher eukaryotes lack endogenous proteins that enhance transcription from the consensus GAL4-binding site. Fusions between GAL4 (an amino acid sequence) and activating domains from a variety of transcriptional regulatory proteins can activate transcription in yeast, plant, insects and mammalian cells. A unique "two-hybrid" system has been developed using GAL4 fusions in yeast to identify specific protein-protein interactions.

REFERENCES

1. Johnston, M. 1987. A model fungal gene regulatory mechanism: the GAL genes of *Saccharomyces cerevisiae*. Microbiol. Rev. 51: 458-476.
2. Ma, J. and Ptashne, M. 1987. Deletion analysis of GAL4 defines two transcriptional activating segments. Cell 48: 847-853.
3. Fields, S. and Song, O. 1989. A novel genetic system to detect protein-protein interactions. Nature 340: 245-246.

SOURCE

GAL4 (DBD) (N-19) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the N-terminal DNA binding domain of GAL4.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-729 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for ChIP application, sc-729 X, 200 µg/0.1 ml.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

GAL4 (DBD) (N-19) is recommended for detection of GAL4 DNA binding domain by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

GAL4 (DBD) (N-19) X TransCruz antibody is recommended for ChIP assays.

Molecular Weight of GAL4 (DBD): 99 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/ 2.0 ml).

SELECT PRODUCT CITATIONS

1. Yang, S.H., et al. 1998. Differential targetting of MAP kinases to the ETS-domain transcription factor Elk-1. EMBO J. 17: 1740-1749.
2. Bowe, D.B., et al. 2006. O-GlcNAc integrates the proteasome and transcriptome to regulate nuclear hormone receptors. Mol. Cell. Biol. 26: 8539-8550.
3. Pagan, J.K., et al. 2007. A novel corepressor, BCoR-L1, represses transcription through an interaction with CtBP. J. Biol. Chem. 282: 15248-15257.
4. Hsieh, S.C., et al. 2010. The length of and nonhydrophobic residues in the transmembrane domain of dengue virus envelope protein are critical for its retention and assembly in the endoplasmic reticulum. J. Virol. 84: 4782-4797.
5. Barhoover, M.A., et al. 2010. Aryl hydrocarbon receptor regulates cell cycle progression in human breast cancer cells via a functional interaction with cyclin-dependent kinase 4. Mol. Pharmacol. 77: 195-201.
6. Qu, B.X., et al. 2010. Analysis of three plasmid systems for use in DNA A β 42 immunization as therapy for Alzheimer's disease. Vaccine 28: 5280-5287.
7. Deacon, K., et al. 2012. Elevated SP-1 transcription factor expression and activity drives basal and hypoxia-induced vascular endothelial growth factor (VEGF) expression in non-small cell lung cancer. J. Biol. Chem. 287: 39967-39981.
8. Yang, C., et al. 2013. PTEN suppresses the oncogenic function of AIB1 through decreasing its protein stability via mechanism involving Fbw7 α. Mol. Cancer 12: 21.
9. Harrison, D., et al. 2014. RAF1 activation reduces neuroendocrine tumor markers in lung carcinoid tumor UMC-11 cells. ScienceJet 3: 53-57.

RESEARCH USE

For research use only, not for use in diagnostic procedures.