

Sp3 (F-11): sc-55479



The Power to Question

BACKGROUND

The Sp transcription factor family includes Sp1, Sp2, Sp3 (SPR-2) and Sp4 (SPR-1). Sp transcription factors share similar structures but do not share similar functions. All four proteins contain a highly conserved DNA-binding domain composed of three zinc fingers at the C-terminus. Sp family members bind the consensus sequence GGGGCGGGGC and other closely related sequences which are known as GC boxes. Sp1, Sp3 and Sp4 share a high affinity for GC boxes while Sp2 does not. Sp2 only weakly binds to GT boxes. Sp1, Sp2 and Sp3 are ubiquitously expressed, while Sp4 is abundantly expressed in brain with limited expression in other tissues. Sp1 and Sp3, but not Sp2 or Sp4, interact with E2, a regulatory element for the $\beta 4$ subunit of neuronal nicotinic acetylcholine receptors. Sp3 is the only Sp member to inhibit Sp1 and Sp4 mediated transcription. Multiple isoforms of Sp3 exist due to alternative splicing events.

REFERENCES

1. Dynan, W.S., et al. 1983. Isolation of transcription factors that discriminate between different promoters recognized by RNA polymerase II. *Cell* 32: 669-680.
2. Kadonaga, J.T., et al. 1987. Isolation of cDNA encoding transcription factor Sp1 and functional analysis of the DNA binding domain. *Cell* 51: 1079-1090.
3. Kadonaga, J.T., et al. 1988. Promoter-selective activation of transcription by Sp1. In Franza, B.R., Jr., et al, eds., *The control of human retrovirus gene expression*. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory, 239-250.
4. Jackson, S.P., et al. 1990. GC box binding induces phosphorylation of Sp1 by a DNA-dependent protein kinase. *Cell* 63: 155-165.
5. Kingsley, C., et al. 1992. Cloning of GT box-binding proteins: a novel Sp1 multigene family regulating T cell receptor gene expression. *Mol. Cell. Biol.* 12: 4251-4261.
6. Hagen, G., et al. 1994. Sp1-mediated transcriptional activation is repressed by Sp3. *EMBO J.* 13: 3843-3851.
7. Bigger, C.B., et al. 1997. Sp1 and Sp3 regulate expression of the neuronal nicotinic acetylcholine receptor $\beta 4$ subunit gene. *J. Biol. Chem.* 272: 25976-25982.
8. Ishimaru, N., et al. 2007. Regulation of neurotrophin-3 gene transcription by Sp3 and Sp4 in neurons. *J. Neurochem.* 100: 520-531.
9. Zeissig, S., et al. 2007. Butyrate induces intestinal sodium absorption via Sp3-mediated transcriptional upregulation of epithelial sodium channels. *Gastroenterology* 132: 236-248.

CHROMOSOMAL LOCATION

Genetic locus: SP3 (human) mapping to 2q31.1; Sp3 (mouse) mapping to 2 C3.

SOURCE

Sp3 (F-11) is a mouse monoclonal antibody raised against amino acids 126-350 of Sp3 of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Sp3 (F-11) is recommended for detection of Sp3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Sp3 siRNA (h): sc-29490, Sp3 siRNA (m): sc-36544, Sp3 shRNA Plasmid (h): sc-29490-SH, Sp3 shRNA Plasmid (m): sc-36544-SH, Sp3 shRNA (h) Lentiviral Particles: sc-29490-V and Sp3 shRNA (m) Lentiviral Particles: sc-36544-V.

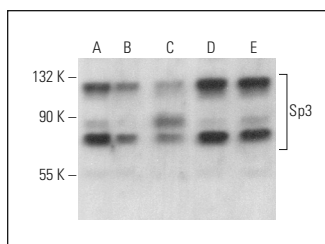
Molecular Weight of Sp3 isoforms: 78/100/115 kDa.

Positive Controls: TF-1 cell lysate: sc-2412, Sp3 (m): 293T Lysate: sc-127572 or K-562 nuclear extract: sc-2130.

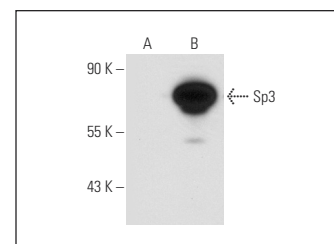
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Sp3 (F-11): sc-55479. Western blot analysis of Sp3 expression in K-562 (A) and HeLa (B) nuclear extracts and MDA-MB-231 (C), TF-1 (D) and HEL 92.1.7 (E) whole cell lysates.



Sp3 (F-11): sc-55479. Western blot analysis of Sp3 expression in non-transfected: sc-117752 (A) and mouse Sp3 transfected: sc-127572 (B) 293T whole cell lysates.

STORAGE

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

RESEARCH USE

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