SANTA CRUZ BIOTECHNOLOGY, INC.

Sp1 siRNA (h): sc-29487

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Sp1 is a sequence-specific transcription factor that recognizes GGGGCGGGGC and closely related sequences, which are often referred to as GC boxes. Sp1 was initially identified as a HeLa cell-derived factor that selectively activates *in vitro* transcription from the SV40 promoter and binds to the multiple GC boxes in the 21-bp repeated elements in SV40. The sequence specificity of DNA binding is conferred by Zn (II) fingers, whereas a different region of Sp1 appears to regulate the affinity of DNA binding. Sp1 belongs to a subgroup of transcription factors that are phosphorylated upon binding to promoter sequences. Evidence suggests that the early growth response gene, Erg-1 (also known as Zif268 or NGF1-A), may downregulate certain mammalian gene promoters by competing with Sp1 for binding to an overlapping binding motif. The gene encoding human Sp1 maps to chromosome 12q13.13.

CHROMOSOMAL LOCATION

Genetic locus: SP1 (human) mapping to 12q13.13.

PRODUCT

Sp1 siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Sp1 shRNA Plasmid (h): sc-29487-SH and Sp1 shRNA (h) Lentiviral Particles: sc-29487-V as alternate gene silencing products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Sp1 siRNA (h) is recommended for the inhibition of Sp1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

PROTOCOLS

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

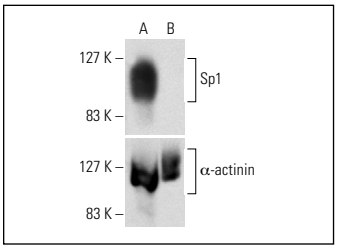
GENE EXPRESSION MONITORING

Sp1 (1C6): sc-420 is recommended as a control antibody for monitoring of Sp1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

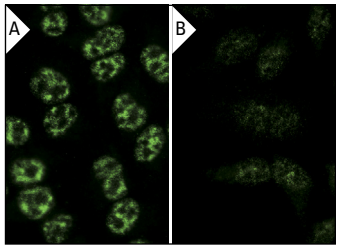
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Sp1 gene expression knockdown using RT-PCR Primer: Sp1 (h)-PR: sc-29487-PR (20 µl, 416 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Sp1 siRNA (h): sc-29487. Western blot analysis of Sp1 expression in non-transfected control (**A**) and Sp1 siRNA transfected (**B**) A-431 cells. Blot probed with Sp1 (PEP 2): sc-59. α-actinin (H-2): sc-17829 used as specificity and loading control.



Sp1 siRNA (h): sc-29487. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and Sp1 siRNA silenced HeLa (**B**) cells showing diminished nuclear staining in the siRNA silenced cells. Cells probed with Sp1 (PEP 2): sc-59.

SELECT PRODUCT CITATIONS

1. Wooten, L.G. and Ogretmen, B. 2005. Sp1/Sp3-dependent regulation of human telomerase reverse transcriptase promoter activity by the bioactive sphingolipid ceramide. J. Biol. Chem. 280: 28867-28876.
2. Zhu, Y., et al. 2014. Role of tumor necrosis factor α-induced protein 1 in paclitaxel resistance. Oncogene 33: 3246-3255.
3. Shin, S.W., et al. 2015. Overexpression of PGC-1α enhances cell proliferation and tumorigenesis of HEK293 cells through the upregulation of Sp1 and acyl-CoA binding protein. Int. J. Oncol. 46: 1328-1342.
4. Ochiai, A., et al. 2016. Kaempferol stimulates gene expression of low-density lipoprotein receptor through activation of Sp1 in cultured hepatocytes. Sci. Rep. 6: 24940.
5. Huang, S., et al. 2017. Isolation and characterization of the 5'-flanking region of the human PDXK gene. Gene 628: 218-223.
6. Liu, W., et al. 2018. Hepatitis B virus core protein promotes hepatocarcinogenesis by enhancing Src expression and activating the Src/PI3K/Akt pathway. FASEB J. 32: 3033-3046.
7. Park, J.S., et al. 2019. Targeting of dermal myofibroblasts through death receptor 5 arrests fibrosis in mouse models of scleroderma. Nat. Commun. 10: 1128.

RESEARCH USE

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