

Sp1 siRNA (bovine): sc-270564

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 12q13.1.

REFERENCES

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2. Dynan, W.S., et al. 1983. The promoter-specific transcription factor Sp1 binds to upstream sequences in the SV40 early promoter. *Cell* 35: 79-87.
3. 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.
4. 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.
5. Kadonaga, J.T., et al. 1988. Distinct regions of Sp1 modulate DNA binding and transcriptional activation. *Science* 242: 1566-1570.
6. Jackson, S.P., et al. 1990. GC box binding induces phosphorylation of Sp1 by a DNA-dependent protein kinase. *Cell* 63: 155-165.
7. Ackerman, S.L., et al. 1991. Functional significance of an overlapping consensus binding motif for SP1 and Zif268 in the murine adenosine deaminase gene promoter. *Proc. Natl. Acad. Sci. USA* 88: 7523-7527.

CHROMOSOMAL LOCATION

Genetic locus: SP1 (bovine) mapping to 5.

PRODUCT

Sp1 siRNA (bovine) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Sp1 shRNA Plasmid (bovine): sc-270564-SH and Sp1 shRNA (bovine) Lentiviral Particles: sc-270564-V as alternate gene silencing products.

For independent verification of Sp1 (bovine) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270564A, sc-270564B and sc-270564C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Sp1 siRNA (bovine) is recommended for the inhibition of Sp1 expression in bovine 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 μ M in 66 μ l. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Sp1 gene expression knockdown using RT-PCR Primer: Sp1 (bovine)-PR: sc-270564-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, H.J., et al. 2020. Zearalenone-induced interaction between PXR and Sp1 increases binding of Sp1 to a promoter site of the eNOS, decreasing its transcription and NO production in BAECs. *Toxins* 12: 421.

RESEARCH USE

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

PROTOCOLS

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