SANTA CRUZ BIOTECHNOLOGY, INC.

Oct-1 siRNA (m): sc-36120

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The Power to Question

BACKGROUND

POU domain proteins contain a bipartite DNA binding domain divided by a flexible linker that enables them to adopt various monomer configurations on DNA. The versatility of POU protein operation is additionally conferred at the dimerization level. The POU dimer from the Oct-1 gene formed on the palindromic Oct factor-recognition element (PORE), which is comprised of an inverted pair of homeodomain-binding sites separated by exactly 5 bp (ATTTGAAATGCAAAT), could recruit the transcriptional co-activator OBF1. Studies of tissue-specific expression of immunoglobulin promoters demonstrate the importance of an octamer, ATTTGCAT, and the proteins that bind to it. This is a regulatory element important for tissue- and cell-specific transcription, as well as for transcription of a number of housekeeping genes. The Oct-1 gene encodes one protein, NF-A1, which is found in nuclear extracts from all cell types and thus is not specific to lymphoid cells as is the protein NF-A2, which is encoded by the Oct-2 gene.

REFERENCES

1. Clerc, R.G., et al. 1988. The B-cell-specific Oct-2 protein contains POU box- and homeobox-type domains. Genes Dev. 2: 1570-1581.
2. Scheidereit, C., et al. 1988. A human lymphoid-specific transcription factor that activates immunoglobulin genes is a homeobox protein. Nature 336: 551-557.
3. Sturm, R.A., et al. 1988. The ubiquitous octamer-binding protein Oct-1 contains a POU domain with a homeobox subdomain. Genes Dev. 2: 1582-1599.

CHROMOSOMAL LOCATION

Genetic locus: Pou2f1 (mouse) mapping to 1 H2.3.

PRODUCT

Oct-1 siRNA (m) is a pool of 4 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Oct-1 shRNA Plasmid (m): sc-36120-SH and Oct-1 shRNA (m) Lentiviral Particles: sc-36120-V as alternate gene silencing products.

For independent verification of Oct-1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-36120A, sc-36120B, sc-36120C and sc-36120D.

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

Oct-1 siRNA (m) is recommended for the inhibition of Oct-1 expression in mouse 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.

GENE EXPRESSION MONITORING

Oct-1 (12F11): sc-8024 is recommended as a control antibody for monitoring of Oct-1 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 Oct-1 gene expression knockdown using RT-PCR Primer: Oct-1 (m)-PR: sc-36120-PR (20 µl, 400 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kam, K.Y., et al. 2005. Oct-1 and nuclear factor Y bind to the SURG-1 element to direct basal and gonadotropin-releasing hormone (GnRH)-stimulated mouse GnRH receptor gene transcription. Mol. Endocrinol. 19: 148-162.
2. Liu, Y., et al. 2011. POU homeodomain protein OCT1 modulates islet 1 expression during cardiac differentiation of P19CL6 cells. Cell. Mol. Life Sci. 68: 1969-1982.
3. Qian, X. and Zhao, F.Q. 2013. Interactions of the ubiquitous octamer-binding transcription factor-1 with both the signal transducer and activator of transcription 5 and the glucocorticoid receptor mediate prolactin and glucocorticoid-induced β-casein gene expression in mammary epithelial cells. Int. J. Biochem. Cell Biol. 45: 724-735.
4. Zhao, J.Y., et al. 2017. DNA methyltransferase DNMT3a contributes to neuropathic pain by repressing Kcna2 in primary afferent neurons. Nat. Commun. 8: 14712.
5. Li, M., et al. 2021. Pathological matrix stiffness promotes cardiac fibroblast differentiation through the POU2F1 signaling pathway. Sci. China Life Sci. 64: 242-254.

RESEARCH USE

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