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S-100 β chain siRNA (m): sc-43357

BACKGROUND

The family of EF-hand type Ca^{2+} -binding proteins includes Calbindin (previously designated vitamin D-dependent Ca^{2+} -binding protein), S-100 α and β , calgranulins A (also designated MRP8), B (also designated MRP14) and C (S-100 like proteins), and the parvalbumin family members, including parvalbumin α and parvalbumin β (also designated oncomodulin). The S-100 protein is involved in the regulation of cellular processes such as cell cycle progression and differentiation. Research also indicates that the S-100 protein may function in the activation of Ca^{2+} induced Ca^{2+} release, inhibition of microtubule assembly and inhibition of protein kinase C mediated phosphorylation. Two S-100 subunits, sharing 60% sequence identity, have been described as S-100 α chain and S-100 β chain. Three S-100 dimeric forms have been characterized, differing in their subunit composition of either two α chains, two β chains or one α and one β chain. S-100 localizes to the cytoplasm and nuclei of astrocytes, Schwann's cells, ependymomas and astroglomas. S-100 is also detected in almost all benign naevi, malignant melanocytic tumours and in Langerhans cells in the skin. Calbindin, S-100 proteins and parvalbumin proteins are each expressed in neural tissues. In addition, S-100 α and β are present in a variety of other tissues and Calbindin is present in intestine and kidney.

REFERENCES

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2. Heizmann, C.W. 1988. Calcium-binding proteins of the EF-type. *J. Cardiovasc. Pharmacol.* 5: S30-S37.
3. Kagi, U., et al. 1988. Developmental appearance of the Ca^{2+} -binding proteins parvalbumin, Calbindin D28K, S-100 proteins and Calmodulin during testicular development in the rat. *Cell Tissue Res.* 252: 359-365.
4. Zimmer, D.B., et al. 1991. Isolation of a rat S-100 α cDNA and distribution of its mRNA in rat tissues. *Brain Res. Bull.* 27: 157-162.
5. Rickmann, M. and Wolff, J.R. 1995. S-100 protein expression in subpopulations of neurons of rat brain. *Neuroscience* 67: 977-991.
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CHROMOSOMAL LOCATION

Genetic locus: S100b (mouse) mapping to 10 C1.

PRODUCT

S-100 β chain siRNA (m) is a pool of 2 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 S-100 β chain shRNA Plasmid (m): sc-43357-SH and S-100 β chain shRNA (m) Lentiviral Particles: sc-43357-V as alternate gene silencing products.

For independent verification of S-100 β chain (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-43357A and sc-43357B.

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

S-100 β chain siRNA (m) is recommended for the inhibition of S-100 β chain 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 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.

GENE EXPRESSION MONITORING

S-100 β chain (C-3): sc-393919 is recommended as a control antibody for monitoring of S-100 β chain 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).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor S-100 β chain gene expression knockdown using RT-PCR Primer: S-100 β chain (m)-PR: sc-43357-PR (20 μ l, 457 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

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.