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S-100 β chain siRNA (h): sc-43356

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

1. Pfyffer, G.E., et al. 1987. Developmental and functional studies of parvalbumin and Calbindin D28K in hypothalamic neurons grown in serum-free medium. *J. Neurochem.* 49: 442-451.
2. Heizmann, C.W. 1988. Calcium-binding proteins of the EF-type. *J. Cardiovasc. Pharmacol.* 5: S30-S37.

CHROMOSOMAL LOCATION

Genetic locus: S100B (human) mapping to 21q22.3.

PRODUCT

S-100 β chain siRNA (h) 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 μM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see S-100 β chain shRNA Plasmid (h): sc-43356-SH and S-100 β chain shRNA (h) Lentiviral Particles: sc-43356-V as alternate gene silencing products.

For independent verification of S-100 β chain (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43356A, sc-43356B and sc-43356C.

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

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

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 (h)-PR: sc-43356-PR (20 μl). Annealing temperature for the primers should be 55-60 $^\circ\text{C}$ and the extension temperature should be 68-72 $^\circ\text{C}$.

SELECT PRODUCT CITATIONS

1. Jiang, W., et al. 2011. S100B promotes the proliferation, migration and invasion of specific brain metastatic lung adenocarcinoma cell line. *Cell Biochem. Funct.* 29: 582-588.
2. Meghni, V., et al. 2014. RAGE overexpression confers a metastatic phenotype to the WM115 human primary melanoma cell line. *Biochim. Biophys. Acta* 1842: 1017-1027.

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.