SANTA CRUZ BIOTECHNOLOGY, INC.

EF-CAB7 siRNA (h): sc-88682

BACKGROUND

The intracellular calcium-binding superfamily of proteins consists of EF-hand calcium binding domains and are often involved in the regulation of many different cellular processes. An EF-hand calcium binding domain is made up of approximately 40 amino acids and can bind to two intracellular calcium ions. Two types of EF-hand calcium binding motifs exist: regulatory and structural. Proteins containing the regulatory EF-hand domain induce conformational change, allowing interaction with target proteins and catalyzing enzymatic reactions, whereas structural EF-hand domain containing proteins do not undergo conformational change and may play a role in buffering intracellular calcium levels. EF-CAB7 (EF-hand calcium binding domain 7) is a 629 amino acid protein that contains three EH-hand domains. EF-CAB7 contains two alternatively spliced isoforms and is encoded by a gene located on human chromosome 1p31.3.

REFERENCES

1. Babitch, J.A. and Anthony, F.A. 1987. Grasping for calcium binding sites in sodium channels with an EF hand. J. Theor. Biol. 127: 451-459.
2. Perret, C., Lomri, N. and Thomasset, M. 1988. Evolution of the EF-hand calcium-binding protein family: evidence for exon shuffling and intron insertion. J. Mol. Evol. 27: 351-364.
3. Taylor, D.A., Sack, J.S., Maune, J.F., Beckingham, K. and Quiocho, F.A. 1991. Structure of a recombinant calmodulin from *Drosophila melanogaster* refined at 2.2-A resolution. J. Biol. Chem. 266: 21375-21380.
4. Drake, S.K., Lee, K.L. and Falke, J.J. 1996. Tuning the equilibrium ion affinity and selectivity of the EF-hand calcium binding motif: substitutions at the gateway position. Biochemistry 35: 6697-6705.
5. Drake, S.K., Zimmer, M.A., Kundrot, C. and Falke, J.J. 1997. Molecular tuning of an EF-hand-like calcium binding loop. Contributions of the coordinating side chain at loop position 3. J. Gen. Physiol. 110: 173-184.
6. Atkinson, R.A., Joseph, C., Kelly, G., Muskett, F.W., Frenkiel, T.A., Nietlispach, D. and Pastore, A. 2001. Ca^{2+}-independent binding of an EF-hand domain to a novel motif in the α-actinin-titin complex. Nat. Struct. Biol. 8: 853-857.
7. Julenius, K., Robblee, J., Thulin, E., Finn, B.E., Fairman, R. and Linse, S. 2002. Coupling of ligand binding and dimerization of helix-loop-helix peptides: spectroscopic and sedimentation analyses of calbindin D9k EF-hands. Proteins 47: 323-333.
8. Grabarek, Z. 2006. Structural basis for diversity of the EF-hand calcium-binding proteins. J. Mol. Biol. 359: 509-525.
9. Gifford, J.L., Walsh, M.P. and Vogel, H.J. 2007. Structures and metal-ion-binding properties of the Ca^{2+}-binding helix-loop-helix EF-hand motifs. Biochem. J. 405: 199-221.

CHROMOSOMAL LOCATION

Genetic locus: EFCAB7 (human) mapping to 1p31.3.

RESEARCH USE

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

PRODUCT

EF-CAB7 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 EF-CAB7 shRNA Plasmid (h): sc-88682-SH and EF-CAB7 shRNA (h) Lentiviral Particles: sc-88682-V as alternate gene silencing products.

For independent verification of EF-CAB7 (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-88682A, sc-88682B and sc-88682C.

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

EF-CAB7 siRNA (h) is recommended for the inhibition of EF-CAB7 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor EF-CAB7 gene expression knockdown using RT-PCR Primer: EF-CAB7 (h)-PR: sc-88682-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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