



FKBP7 siRNA (m): sc-145193

BACKGROUND

The EF-hand domain is a 12 amino acid loop motif that is commonly found in proteins that participate in calcium-binding events within the cell. EF-hand domains generally exist in a pair that, together, form a stable four-helix bundle that enables the binding of calcium ions. FKBP7 (FK506-binding protein 7), also known as FKBP23, is a 259 amino acid protein that localizes to the lumen of the endoplasmic reticulum and contains one PPIase FKBP-type domain and two EF-hand domains. One of several members of the FKBP-type peptidyl-prolyl *cis/trans* isomerase (PPIase) family, FKBP7 binds calcium and functions as a molecular chaperone, possibly accelerating the folding of proteins during protein synthesis. Multiple isoforms of FKBP7 exist due to alternative splicing events.

REFERENCES

1. Nakamura, T., Yabe, D., Kanazawa, N., Tashiro, K., Sasayama, S. and Honjo, T. 1998. Molecular cloning, characterization, and chromosomal localization of FKBP23, a novel FK506-binding protein with Ca²⁺-binding ability. *Genomics* 54: 89-98.
2. Michalak, M., Robert Parker, J.M. and Opas, M. 2002. Ca²⁺ signaling and calcium binding chaperones of the endoplasmic reticulum. *Cell Calcium* 32: 269-278.
3. Patterson, C.E., Gao, J., Rooney, A.P. and Davis, E.C. 2002. Genomic organization of mouse and human 65 kDa FK506-binding protein genes and evolution of the FKBP multigene family. *Genomics* 79: 881-889.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607062. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Zhang, X., Wang, Y., Li, H., Zhang, W., Wu, D. and Mi, H. 2004. The mouse FKBP23 binds to BiP in ER and the binding of C-terminal domain is interrelated with Ca²⁺ concentration. *FEBS Lett.* 559: 57-60.
6. Wang, Y., Han, R., Wu, D., Li, J., Chen, C., Ma, H. and Mi, H. 2007. The binding of FKBP23 to BiP modulates BiP's ATPase activity with its PPIase activity. *Biochem. Biophys. Res. Commun.* 354: 315-320.
7. Chen, C., Ma, H., Wang, Y. and Mi, H. 2007. Binding of FKBP23 to BiP in ER shown by gel filtration chromatography. *Z. Naturforsch., C, J. Biosci.* 62: 133-137.

CHROMOSOMAL LOCATION

Genetic locus: *Fkbp7* (mouse) mapping to 2 C3.

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.

PRODUCT

FKBP7 siRNA (m) 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 FKBP7 shRNA Plasmid (m): sc-145193-SH and FKBP7 shRNA (m) Lentiviral Particles: sc-145193-V as alternate gene silencing products.

For independent verification of FKBP7 (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-145193A, sc-145193B and sc-145193C.

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

FKBP7 siRNA (m) is recommended for the inhibition of FKBP7 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FKBP7 gene expression knockdown using RT-PCR Primer: FKBP7 (m)-PR: sc-145193-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.