

EFP1 siRNA (h): sc-93003

BACKGROUND

EFP1 (EF-hand-binding protein 1), also known as TXNDC11 (thioredoxin domain-containing protein 11), is a 985 amino acid single-pass membrane protein belonging to the protein disulfide isomerase family. Localizing to endoplasmic reticulum membrane, EFP1 is widely expressed at low levels, with high levels of expression found in thyroid and prostate. EFP1 contains two thioredoxin domains and may act as a redox regulator involved in DUOX protein folding, interacting with the cytoplasmic region of DUOX1 and DUOX2. Existing as three alternatively spliced isoforms, the gene encoding EFP1 maps to human chromosome 16p13.13. Encoding over 900 genes, chromosome 16 makes up nearly 3% of human cellular DNA. The GAN gene is located on chromosome 16 and, with mutation, may lead to giant axonal neuropathy, a nervous system disorder characterized by increasing malfunction with growth. The rare disorder Rubinstein-Taybi syndrome and Crohn's disease are also associated with chromosome 16.

REFERENCES

1. Ben Hamida, C., Cavalier, L., Belal, S., Sanhaji, H., Nadal, N., Barhoumi, C., M'Rissa, N., Marzouki, N., Mandel, J.L., Ben Hamida, M., Koenig, M. and Hentati, F. 1997. Homozygosity mapping of giant axonal neuropathy gene to chromosome 16q24.1. *Neurogenetics* 1: 129-133.
2. Karlsson, J., Zhao, X., Lonskaya, I., Neptin, M., Holmdahl, R. and Andersson, A. 2003. Novel quantitative trait loci controlling development of experimental autoimmune encephalomyelitis and proportion of lymphocyte subpopulations. *J. Immunol.* 170: 1019-1026.
3. Wang, D., De Deken, X., Milenkovic, M., Song, Y., Pirson, I., Dumont, J.E. and Miot, F. 2005. Identification of a novel partner of duox: EFP1, a thioredoxin-related protein. *J. Biol. Chem.* 280: 3096-3103.
4. Forabosco, P., Gorman, J.D., Cleveland, C., Kelly, J.A., Fisher, S.A., Ortmann, W.A., Johansson, C., Johanneson, B., Moser, K.L., Gaffney, P.M., Tsao, B.P., Cantor, R.M., Alarcón-Riquelme, M.E., Behrens, T.W., et al. 2006. Meta-analysis of genome-wide linkage studies of systemic lupus erythematosus. *Genes Immun.* 7: 609-614.
5. King, K., Bagnall, R., Fisher, S.A., Sheikh, F., Cuthbert, A., Tan, S., Mundy, N.I., Rosenstiel, P., Schreiber, S., Mathew, C.G. and Roberts, R.G. 2007. Identification, evolution, and association study of a novel promoter and first exon of the human NOD2 (CARD15) gene. *Genomics* 90: 493-501.
6. Gervasini, C., Castronovo, P., Bentivegna, A., Mottadelli, F., Faravelli, F., Giovannucci-Uzielli, M.L., Pessagno, A., Lucci-Cordisco, E., Pinto, A.M., Salvati, L., Selicorni, A., Tenconi, R., Neri, G. and Larizza, L. 2007. High frequency of mosaic CREBBP deletions in Rubinstein-Taybi syndrome patients and mapping of somatic and germ-line breakpoints. *Genomics* 90: 567-573.
7. Koop, O., Schirmacher, A., Nelis, E., Timmerman, V., De Jonghe, P., Ringelstein, B., Rasic, V.M., Evrard, P., Gärtner, J., Claeys, K.G., Appenzeller, S., Rautenstrauss, B., Hühne, K., Ramos-Arroyo, M.A., Wörle, H., et al. 2007. Genotype-phenotype analysis in patients with giant axonal neuropathy (GAN). *Neuromuscul. Disord.* 17: 624-630.
8. Tattoli, I., Travassos, L.H., Carneiro, L.A., Magalhaes, J.G. and Girardin, S.E. 2007. The nodosome: NOD1 and NOD2 control bacterial infections and inflammation. *Semin. Immunopathol.* 29: 289-301.

CHROMOSOMAL LOCATION

Genetic locus: TXNDC11 (human) mapping to 16p13.13.

PRODUCT

EFP1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see EFP1 shRNA Plasmid (h): sc-93003-SH and EFP1 shRNA (h) Lentiviral Particles: sc-93003-V as alternate gene silencing products.

For independent verification of EFP1 (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-93003A, sc-93003B and sc-93003C.

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

EFP1 siRNA (h) is recommended for the inhibition of EFP1 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 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 EFP1 gene expression knockdown using RT-PCR Primer: EFP1 (h)-PR: sc-93003-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° 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.