

# KNP-I siRNA (h): sc-91466

## BACKGROUND

KNP-I (ES1 protein homolog, protein GT335) is a ubiquitously expressed mitochondrial protein that belongs to the ES1 family of proteins. It is a highly conserved protein with homologs identified in various species. This conserved nature suggests an important biological role for the KNP-I protein. The gene that encodes KNP-I (C21orf33) is located on human chromosome 21 in close proximity to a region (D21S25) associated with many genetic diseases. Down syndrome (DS), caused by an extra copy of chromosome 21, is the most common manifestation of trisomic chromosomes. It is likely that the overproduction of the C21orf33 gene product plays a role in the pathology of DS, while its chromosomal location suggests its likely involvement in D21S25 related diseases. While expressed in most tissue, highest expression of KNP-I is found in heart and muscle.

## REFERENCES

1. Lafrenière, R.G., et al. 1996. Isolation and characterization of GT335, a novel human gene conserved in *Escherichia coli* and mapping to 21q22.3. *Genomics* 38: 264-272.
2. Nagamine, K., et al. 1996. Isolation of cDNA for a novel human protein KNP-I that is homologous to the *E. coli* SCRP-27A protein from the autoimmune polyglandular disease type I (APECED) region of chromosome 21q22.3. *Biochem. Biophys. Res. Commun.* 225: 608-616.
3. Scott, H.S., et al. 1997. Isolation of a human gene (HES1) with homology to an *Escherichia coli* and a zebrafish protein that maps to chromosome 21q22.3. *Hum. Genet.* 99: 616-623.
4. Scott, H.S., et al. 1998. Characterization of a novel gene, C21orf2, on human chromosome 21q22.3 and its exclusion as the APECED gene by mutation analysis. *Genomics* 47: 64-70.
5. Shin, J.H., et al. 2004. Expression of cystathionine  $\beta$ -synthase, pyridoxal kinase, and ES1 protein homolog (mitochondrial precursor) in fetal Down syndrome brain. *Neurochem. Int.* 45: 73-79.

## CHROMOSOMAL LOCATION

Genetic locus: C21orf33 (human) mapping to 21q22.3.

## PRODUCT

KNP-I 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see KNP-I shRNA Plasmid (h): sc-91466-SH and KNP-I shRNA (h) Lentiviral Particles: sc-91466-V as alternate gene silencing products.

For independent verification of KNP-I (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-91466A, sc-91466B and sc-91466C.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

KNP-I siRNA (h) is recommended for the inhibition of KNP-I 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  $\mu$ M in 66  $\mu$ 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

KNP-I (D-5): sc-514347 is recommended as a control antibody for monitoring of KNP-I 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 KNP-I gene expression knockdown using RT-PCR Primer: KNP-I (h)-PR: sc-91466-PR (20  $\mu$ 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.