SANTA CRUZ BIOTECHNOLOGY, INC.

TRAP-γ siRNA (h): sc-63149

BACKGROUND

The TRAP proteins (translocon-associated proteins), TRAP-α, TRAP-β, TRAP-γ and TRAP-δ, are transmembrane proteins that comprise a heterotetramer complex (the signal sequence receptor (SSR) or TRAP complex) that localizes to the endoplasmic reticulum (ER) and functions in regulating the retention of ER resident proteins. The TRAP complex associates with the Sec61 translocon at the ER. Sec61 is the major complex mediating protein translocation across the ER membrane. In addition, the TRAP complex is involved in ER-associated degradation (ERAD); in response to ER stress the TRAP complex subunits are simultaneously induced by the XBP-1/IRE1α pathway. TRAP-α (also known as SSR1 or SSR-α), TRAP-β (also known as SSR-β, SSR2 or TLAP) and TRAP-δ (also known as SSR4) are all single-pass membrane proteins, while TRAP-γ (also known as SSR3 or SSR-γ) contains four transmembrane domains.

REFERENCES

1. Hartmann, E., et al. 1993. A tetrameric complex of membrane proteins in the endoplasmic reticulum. Eur. J. Biochem. 214: 375-381.
2. Brenner, V., et al. 1997. Genomic organization of two novel genes on human Xq28: compact head to head arrangement of IDH γ and TRAP-δ is conserved in rat and mouse. Genomics 44: 8-14.
3. Wang, L. and Dobberstein, B. 1999. Oligomeric complexes involved in translocation of proteins across the membrane of the endoplasmic reticulum. FEBS Lett. 457: 316-322.
4. Mangos, S., et al. 2000. The translocon-associated protein β (TRAP-β) in zebrafish embryogenesis. I. Enhanced expression of transcripts in notochord and hatching gland precursors. Mol. Cell. Biochem. 215: 93-101.
5. Fons, R.D., et al. 2003. Substrate-specific function of the translocon-associated protein complex during translocation across the ER membrane. J. Cell Biol. 160: 529-539.
6. Wang, Z. and VandeBerg, J.L. 2004. Cloning and molecular characterization of a human ortholog of Monodelphis TRAPD in ultraviolet B-induced melanoma. Melanoma Res. 14: 107-114.
7. Ménétret, J.F., et al. 2005. Architecture of the ribosome-channel complex derived from native membranes. J. Mol. Biol. 348: 445-457.
8. Mesbah, K., et al. 2006. Mutation in the Trapα/Ssr1 gene, encoding translocon-associated protein α, results in outflow tract morphogenetic defects. Mol. Cell. Biol. 26: 7760-7771.
9. Nagasawa, K., et al. 2007. Simultaneous induction of the four subunits of the TRAP complex by ER stress accelerates ER degradation. EMBO Rep. 8: 483-489.

CHROMOSOMAL LOCATION

Genetic locus: SSR3 (human) mapping to 3q25.31.

PROTOCOLS

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

PRODUCT

TRAP-γ 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 TRAP-γ shRNA Plasmid (h): sc-63149-SH and TRAP-γ shRNA (h) Lentiviral Particles: sc-63149-V as alternate gene silencing products.

For independent verification of TRAP-γ (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-63149A, sc-63149B and sc-63149C.

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

TRAP-γ siRNA (h) is recommended for the inhibition of TRAP-γ 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 TRAP-γ gene expression knockdown using RT-PCR Primer: TRAP-γ (h)-PR: sc-63149-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zábranská, H., et al. 2022. Biogenesis of hepatitis B virus e antigen is driven by translocon-associated protein complex and regulated by conserved cysteine residues within its signal peptide sequence. FEBS J. 289: 2895-2914.

RESEARCH USE

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