

# Ran BP-4 siRNA (h): sc-62922

## BACKGROUND

The small Ras-related protein Ran, also called TC4, is a nuclear localized GTPase implicated in a diverse array of cellular processes including DNA replication, entry into and exit from mitosis and the transport of RNA and proteins through the nuclear pore complex. Like Ras, active Ran GTP and inactive Ran GDP levels are tightly regulated by guanine nucleotide exchange factors (GEFs) and GTPase activating proteins (GAPs). The abundant GEF, RCC1 (regulator of chromosome condensation 1), increases the rate at which Ran exchanges GDP for GTP. Ran BP-4 (Ran binding protein 4) also known as importin 4, is a nuclear transport receptor and chaperone for Ribosomal Protein S3A. Ran BP-4 mediates active transport through nuclear pore complexes. It is also responsible for ligand-independent nuclear translocation of VDR (vitamin D receptor).

## REFERENCES

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2. Beddow, A.L., et al. 1995. The Ran/TC4 GTPase-binding domain: identification by expression cloning and characterization of a conserved sequence motif. *Proc. Natl. Acad. Sci. USA* 92: 3328-3332.
3. Ren, M., et al. 1995. Separate domains of the Ran GTPase interact with different factors to regulate nuclear protein import and RNA processing. *Mol. Cell. Biol.* 15: 2117-2124.
4. Bischoff, F.R., et al. 1995. Co-activation of RanGTPase and inhibition of GTP dissociation by Ran-GTP binding protein Ran BP-1. *EMBO J.* 14: 705-715.
5. Nemergut, M.E., et al. 2002. Ran-binding protein 3 links CRM1 to the Ran guanine nucleotide exchange factor. *J. Biol. Chem.* 277: 17385-17388.
6. Jäkel, S., et al. 2002. Importins fulfil a dual function as nuclear import receptors and cytoplasmic chaperones for exposed basic domains. *EMBO J.* 21: 377-386.
7. Petosa, C., et al. 2004. Architecture of CRM1/Exportin 1 suggests how cooperativity is achieved during formation of a nuclear export complex. *Mol. Cell* 16: 761-775.

## CHROMOSOMAL LOCATION

Genetic locus: IPO4 (human) mapping to 14q12.

## PRODUCT

Ran BP-4 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 Ran BP-4 shRNA Plasmid (h): sc-62922-SH and Ran BP-4 shRNA (h) Lentiviral Particles: sc-62922-V as alternate gene silencing products.

For independent verification of Ran BP-4 (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-62922A, sc-62922B and sc-62922C.

## 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

Ran BP-4 siRNA (h) is recommended for the inhibition of Ran BP-4 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Ran BP-4 gene expression knockdown using RT-PCR Primer: Ran BP-4 (h)-PR: sc-62922-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.

## PROTOCOLS

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