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# Ran BP-M siRNA (m): sc-45590

## BACKGROUND

The small Ras-related protein Ran, also designated 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). Ran BP-M, also designated Ran-binding protein 9, is involved in the nucleation of microtubule networks and may also act as an adapter protein in the coupling of membrane receptors to intracellular signaling pathways. It has been implicated in the activation of androgen and glucocorticoid receptor. Ran BP-M contains phosphorylated Serine residues. It can localize to both the nucleus and the cytoplasm, and a phosphorylated form can be associated with the plasma membrane. Ran BP-M is ubiquitously expressed, with highest expression levels in heart, testis, muscle and placenta. The enzymatic activity of the Ran BP-M protein is associated with breast cancer progression and fragile-X mental retardation.

## REFERENCES

1. Scheffzek, K., et al. 1995. Crystal structure of the nuclear Ras-related protein Ran in its GDP-bound form. *Nature* 374: 378-381.
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. Nakamura, M., et al. 1998. When overexpressed, a novel centrosomal protein, Ran BP-M, causes ectopic microtubule nucleation similar to  $\gamma$ -tubulin. *J. Cell Biol.* 143: 1041-1052.
5. Rao, M.A., et al. 2002. Ran BP-M, a nuclear protein that interacts with and regulates transcriptional activity of androgen receptor and glucocorticoid receptor. *J. Biol. Chem.* 277: 48020-480207.
6. Denti, S., et al. 2004. Ran BP-M is a phosphoprotein that associates with the plasma membrane and interacts with the integrin LFA-1. *J. Biol. Chem.* 279: 13027-13034.

## CHROMOSOMAL LOCATION

Genetic locus: Ranbp9 (mouse) mapping to 13 A4.

## PRODUCT

Ran BP-M 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Ran BP-M shRNA Plasmid (m): sc-45590-SH and Ran BP-M shRNA (m) Lentiviral Particles: sc-45590-V as alternate gene silencing products.

For independent verification of Ran BP-M (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-45590A, sc-45590B and sc-45590C.

## 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-M siRNA (m) is recommended for the inhibition of Ran BP-M 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  $\mu$ 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

Ran BP-M (F-1): sc-271727 is recommended as a control antibody for monitoring of Ran BP-M 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Ran BP-M gene expression knockdown using RT-PCR Primer: Ran BP-M (m)-PR: sc-45590-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.