

Ran BP-4 (H-300): sc-292402

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. It mediates active transport through nuclear pore complexes. It is also responsible for ligand-independent nuclear translocation of VDR (vitamin D receptor).

REFERENCES

1. Scheffzek, K., Klebe, C., Fritz-Wolf, K., Kabsch, W. and Wittinghofer, A. 1995. Crystal structure of the nuclear Ras-related protein Ran in its GDP-bound form. *Nature* 374: 378-381.
2. Beddow, A.L., Richards, S.A., Orem, N.R. and Macara, I.G. 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., Villamarin, A., Shih, A., Coutavas, E., Moore, M.S., LoCurcio, M., Clarke, V., Oppenheim, J.D., D'Eustachio, P. and Rush, M.G. 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., Krebber, H., Smirnova, E., Dong, W. and Ponstingl, H. 1995. Co-activation of Ran GTPase and inhibition of GTP dissociation by Ran GTP binding protein Ran BP-1. *EMBO J.* 14: 705-715.
5. Nemergut, M.E., Lindsay, M.E., Brownawell, A.M. and Macara, I.G. 2002. Ran binding protein 3 links CRM1 to the Ran guanine nucleotide exchange factor. *J. Biol. Chem.* 277: 17385-17388.
6. Jäkel, S., Mingot, J.M., Schwarzmaier, P., Hartmann, E. and Görlich, D. 2002. Importins fulfill a dual function as nuclear import receptors and cytoplasmic chaperones for exposed basic domains. *EMBO J.* 21: 377-386.
7. Petosa, C., Schoehn, G., Askjaer, P., Bauer, U., Moulin, M., Steuerwald, U., Soler-López, M., Baudin, F., Mattaj, I.W. and Müller, C.W. 2004. Architecture of CRM1/Exportin 1 suggests how cooperativity is achieved during formation of a nuclear export complex. *Mol. Cell* 16: 761-775.
8. Tagami, H., Ray-Gallet, D., Almouzni, G. and Nakatani, Y. 2004. Histone H3.1 and H3.3 complexes mediate nucleosome assembly pathways dependent or independent of DNA synthesis. *Cell* 116: 51-61.
9. Miyauchi, Y., Michigami, T., Sakaguchi, N., Sekimoto, T., Yoneda, Y., Pike, J.W., Yamagata, M. and Ozono, K. 2005. Importin-4 is responsible for ligand-independent nuclear translocation of vitamin D receptor. *J. Biol. Chem.* 280: 40901-40908.

CHROMOSOMAL LOCATION

Genetic locus: IPO4 (human) mapping to 14q12; Ipo4 (mouse) mapping to 14 C3.

SOURCE

Ran BP-4 (H-300) is a rabbit polyclonal antibody raised against amino acids 1-300 mapping at the N-terminus of Ran BP-4 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Ran BP-4 (H-300) is recommended for detection of Ran BP-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Ran BP-4 (H-300) is also recommended for detection of Ran BP-4 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Ran BP-4 siRNA (h): sc-62922, Ran BP-4 siRNA (m): sc-62923, Ran BP-4 shRNA Plasmid (h): sc-62922-SH, Ran BP-4 shRNA Plasmid (m): sc-62923-SH, Ran BP-4 shRNA (h) Lentiviral Particles: sc-62922-V and Ran BP-4 shRNA (m) Lentiviral Particles: sc-62923-V.

Molecular Weight of Ran BP-4: 119 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

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