

Ran (N-19): sc-1155

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 GAP1 opposes the effects of RCC1 by increasing the rate at which Ran hydrolyzes GTP to GDP. A protein designated Ran BP-1 has no intrinsic GAP activity and functions as a GEF inhibitor deactivating RCC1, thereby indirectly increasing the ratio of Ran GDP to Ran GTP. The protein Ran BP-2 has been proposed as the Ran GTP docking site at the periphery of the nuclear pore complex.

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. Moroianu, J. and Blobel, G. 1995. Protein export from the nucleus requires the GTPase Ran and GTP hydrolysis. *Proc. Natl. Acad. Sci. USA* 92: 4318-4322.
4. 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.
5. Bischoff, F.R., et al. 1995. Co-activation of RanGTPase and inhibition of GTP dissociation by Ran-GTP binding protein RanBP1. *EMBO J.* 14: 705-715.
6. Klebe, C., et al. 1995. Interaction of the nuclear GTP-binding protein Ran with its regulatory proteins RCC1 and RanGAP1. *Biochemistry* 34: 639-647.

CHROMOSOMAL LOCATION

Genetic locus: RAN (human) mapping to 12q24.33; Ran (mouse) mapping to 5 G1.3.

SOURCE

Ran (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Ran 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.

Blocking peptide available for competition studies, sc-1155 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

Ran (N-19) is recommended for detection of Ran of mouse, rat and human origin by 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 (N-19) is also recommended for detection of Ran in additional species, including canine, bovine, porcine and avian.

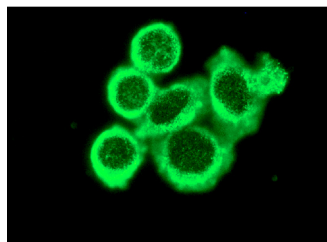
Suitable for use as control antibody for Ran siRNA (h): sc-36382, Ran siRNA (m): sc-152698, Ran shRNA Plasmid (h): sc-36382-SH, Ran shRNA Plasmid (m): sc-152698-SH, Ran shRNA (h) Lentiviral Particles: sc-36382-V and Ran shRNA (m) Lentiviral Particles: sc-152698-V.

Molecular Weight of Ran: 28 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Ran (N-19): sc-1155. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Guarguaglini, G., et al. 2000. Regulated Ran-binding protein 1 activity is required for organization and function of the mitotic spindle in mammalian cells *in vivo*. *Cell Growth Differ.* 11: 455-465.
2. Kodiha, M., et al. 2004. Multiple mechanisms promote the inhibition of classical nuclear import upon exposure to severe oxidative stress. *Cell Death Differ.* 11: 862-874.

STORAGE

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


 MONOS
 Satisfation
 Guaranteed

Try **Ran (A-7): sc-271376** or **Ran (ARAN1): sc-58467**, our highly recommended monoclonal alternatives to Ran (N-19).