



Ran GAP1 (m2): 293T Lysate: sc-122960

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 BP1 has no intrinsic GAP activity and functions as a GEF inhibitor deactivating RCC1 and thereby indirectly increasing the ratio of Ran GDP to Ran GTP. Ran BP2 has been proposed as the Ran GTP docking site at the periphery of the nuclear pore complex.

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 RanGTPase and inhibition of GTP dissociation by Ran-GTP binding protein RanBP1. *EMBO J.* 14: 705-715.
5. Klebe, C., Bischoff, F.R., Ponstingl, H. and Wittinghofer, A. 1995. Interaction of the nuclear GTP-binding protein Ran with its regulatory proteins RCC1 and Ran GAP1. *Biochem.* 34: 639-647.
6. 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.
7. Melchior, F., Guan, T., Yokoyama, N., Nishimoto, T. and Gerace, L. 1995. GTP hydrolysis by Ran occurs at the nuclear pore complex in an early step of protein import. *J. Cell Biol.* 131: 571-581.

CHROMOSOMAL LOCATION

Genetic locus: Rangap1 (mouse) mapping to 15 E1.

PRODUCT

Ran GAP1 (m2): 293T Lysate represents a lysate of mouse Ran GAP1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

Ran GAP1 (m2): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive Ran GAP1 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

RESEARCH USE

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

PROTOCOLS

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