SANTA CRUZ BIOTECHNOLOGY, INC.

Ran GAP1 (N-19): sc-1862

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. The protein Ran BP2 has been proposed as the Ran GTP docking site at the periphery of the nuclear pore complex.

CHROMOSOMAL LOCATION

Genetic locus: RANGAP1 (human) mapping to 22q13.2; Rangap1 (mouse) mapping to 15 E1.

SOURCE

Ran GAP1 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Ran GAP1 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-1862 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Ran GAP1 (N-19) is recommended for detection of Ran GAP1 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), immunohistochemistry (including paraffin-embedded sections) (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 GAP1 (N-19) is also recommended for detection of Ran GAP1 in additional species, including equine, canine and bovine. Suitable for use as control antibody for Ran GAP1 siRNA (h): sc-37159, Ran GAP1 siRNA (m): sc-37160, Ran GAP1 shRNA Plasmid (h): sc-37159-SH, Ran GAP1 shRNA Plasmid (m): sc-37160-SH, Ran GAP1 shRNA (h) Lentiviral Particles: sc-37159-V and Ran GAP1 shRNA (m) Lentiviral Particles: sc-37160-V.

Molecular Weight of cytoplasmic Ran GAP1: 70 kDa.

Molecular Weight of SUMO-1 modified Ran GAP1: 90 kDa.

Positive Controls: Ran GAP1 (m2): 293T Lysate: sc-122960, NTERA-2 cl.D1 whole cell lysate: sc-364181 or MCF7 whole cell lysate: sc-2206.

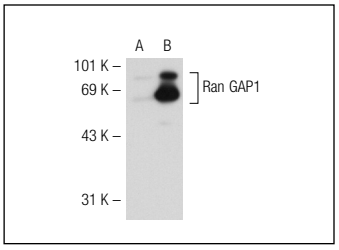
RESEARCH USE

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

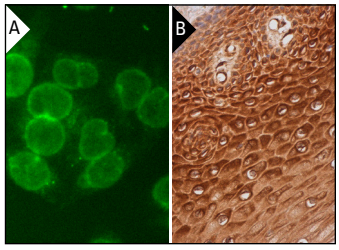
STORAGE

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

DATA



Ran GAP1 (N-19): sc-1862. Western blot analysis of Ran GAP1 expression in non-transfected: sc-117752 (**A**) and mouse Ran GAP1 transfected: sc-122960 (**B**) 293T whole cell lysates.



Ran GAP1 (N-19): sc-1862. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear envelope localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human uterine cervix tissue showing cytoplasmic and nuclear staining of squamous epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Di Fiore, B., et al. 2003. Mammalian Ran BP1 regulates centrosome cohesion during mitosis. J. Cell Sci. 116: 3399-3411.
2. Sylvius, N., et al. 2008. Specific contribution of lamin A and lamin C in the development of laminopathies. Exp. Cell Res. 314: 2362-2375.
3. Platani, M., et al. 2009. The Nup107-160 nucleoporin complex promotes mitotic events via control of the localization state of the chromosome passenger complex. Mol. Biol. Cell 20: 5260-5275.
4. Ciciarello, M., et al. 2010. Nuclear reformation after mitosis requires downregulation of the Ran GTPase effector Ran BP1 in mammalian cells. Chromosoma 119: 651-668.
5. Chadrin, A., et al. 2010. Pom33, a novel transmembrane nucleoporin required for proper nuclear pore complex distribution. J. Cell Biol. 189: 795-811.
6. Hamada, M., et al. 2011. Ran-dependent docking of importin-β to RanBP2/Nup358 filaments is essential for protein import and cell viability. J. Cell Biol. 194: 597-612.
7. Roscioli, E., et al. 2012. Importin-β negatively regulates multiple aspects of mitosis including RANGAP1 recruitment to kinetochores. J. Cell Biol. 196: 435-450.
8. Guarguaglini, G., et al. 2014. Immunofluorescence methods in studies of the GTPase RAN and its effectors in interphase and in mitotic cells. Methods Mol. Biol. 1120: 241-252.