

# Ran (ARAN1): sc-58467

## 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

Ran (ARAN1) is a mouse monoclonal antibody raised against denatured recombinant Ran of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## APPLICATIONS

Ran (ARAN1) is recommended for detection of Ran of mouse, rat, human, *Xenopus* and bovine 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

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.

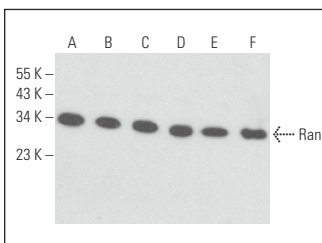
Molecular Weight of Ran: 28 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, C6 whole cell lysate: sc-364373 or Hep G2 cell lysate: sc-2227.

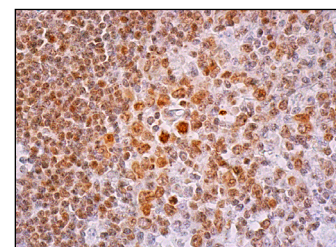
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



Ran (ARAN1): sc-58467. Western blot analysis of Ran expression in NIH/3T3 (A), Hep G2 (B), C6 (C), RAW 264.7 (D), PC-12 (E) and HEK293 (F) whole cell lysates.



Ran (ARAN1): sc-58467. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear and cytoplasmic staining of cells in germinal center and cells in non-germinal center. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detected with m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216.

## SELECT PRODUCT CITATIONS

- Zhong, Y., et al. 2011. Importin β interacts with the endoplasmic reticulum-associated degradation machinery and promotes ubiquitination and degradation of mutant α1-antitrypsin. *J. Biol. Chem.* 286: 33921-33930.
- Kushwaha, D., et al. 2015. USP9X inhibition promotes radiation-induced apoptosis in non-small cell lung cancer cells expressing mid-to-high MCL1. *Cancer Biol. Ther.* 16: 392-401.
- Jones, D.S., et al. 2017. Profiling drugs for rheumatoid arthritis that inhibit synovial fibroblast activation. *Nat. Chem. Biol.* 13: 38-45.
- Bao, X., et al. 2018. Mitosis-specific acetylation tunes Ran effector binding for chromosome segregation. *J. Mol. Cell Biol.* 10: 18-32.
- Chatzifrangkeskou, M., et al. 2019. RASSF1A is required for the maintenance of nuclear Actin levels. *EMBO J.* 38: e101168.
- Song, X., et al. 2021. Dynamic crotonylation of EB1 by TIP60 ensures accurate spindle positioning in mitosis. *Nat. Chem. Biol.* 17: 1314-1323.

## RESEARCH USE

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