SANTA CRUZ BIOTECHNOLOGY, INC.

Ran (A-7): sc-271376

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 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 (A-7) is a mouse monoclonal antibody raised against amino acids 121-216 mapping at the C-terminus of Ran of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Ran (A-7) is available conjugated to agarose (sc-271376 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271376 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either fluorescein (sc-271376 FITC), Alexa Fluor® 488 (sc-271376 AF488), Alexa Fluor® 546 (sc-271376 AF546), Alexa Fluor® 594 (sc-271376 AF594) or Alexa Fluor® 647 (sc-271376 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271376 AF680) or Alexa Fluor® 790 (sc-271376 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Ran (A-7) is recommended for detection of Ran of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 (A-7) is also recommended for detection of Ran in additional species, including equine, canine, bovine and porcine.

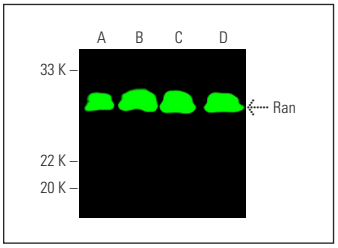
Suitable for use as control antibody for Ran siRNA (h): sc-36382, Ran siRNA (m): sc-152698, Ran shRNA Plasmid (h): sc-36382-SH, Ran shRNA Plasmid (m): sc-152698-SH, Ran shRNA (h) Lentiviral Particles: sc-36382-V and Ran shRNA (m) Lentiviral Particles: sc-152698-V.

Molecular Weight of Ran: 28 kDa.

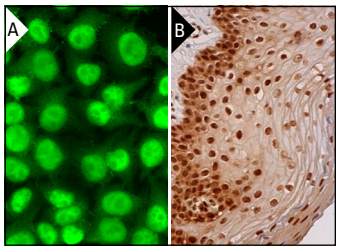
STORAGE

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

DATA



Ran (A-7): sc-271376. Near-infrared western blot analysis of Ran expression in HeLa (**A**), NIH/3T3 (**B**), Jurkat (**C**) and HEK293 (**D**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



Ran (A-7): sc-271376. Immunofluorescence staining of formalin-fixed HeLa cells showing nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human tonsil tissue showing nuclear and cytoplasmic staining of squamous epithelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Hori, K., et al. 2012. Vasopressin V1a receptor is required for nucleocytoplasmic transport of mineralocorticoid receptor. Am. J. Physiol. Renal Physiol. 303: F1080-F1088.
2. Manohar, M., et al. 2014. Alteration in endometrial proteins during early- and mid-secretory phases of the cycle in women with unexplained infertility. PLoS ONE 9: e111687.
3. Zaoui, K., et al. 2019. Ran promotes membrane targeting and stabilization of RhoA to orchestrate ovarian cancer cell invasion. Nat. Commun. 10: 2666.
4. Rogerson, C., et al. 2021. Akt1-associated actomyosin remodelling is required for nuclear lamina dispersal and nuclear shrinkage in epidermal terminal differentiation. Cell Death Differ. 28: 1849-1864.
5. Liu, X., et al. 2022. RSL1D1 promotes the progression of colorectal cancer through Ran-mediated autophagy suppression. Cell Death Dis. 13: 43.
6. Chiappa, M., et al. 2022. Combinations of ATR, Chk1 and Wee1 inhibitors with olaparib are active in olaparib resistant Brca1 proficient and deficient murine ovarian cells. Cancers 14: 1807.
7. Zhong, J., et al. 2023. Hyodeoxycholic acid ameliorates nonalcoholic fatty liver disease by inhibiting RAN-mediated PPARα nucleus-cytoplasm shuttling. Nat. Commun. 14: 5451.
8. Ndembe, G., et al. 2024. Caloric restriction and metformin selectively improved LKB1-mutated NSCLC tumor response to chemo- and chemo-immunotherapy. J. Exp. Clin. Cancer Res. 43: 6.

RESEARCH USE

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