SANTA CRUZ BIOTECHNOLOGY, INC.

# RCC1 (E-6): sc-55559

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

## CHROMOSOMAL LOCATION

Genetic locus: RCC1 (human) mapping to 1p35.3; Rcc1 (mouse) mapping to 4 D2.3.

## SOURCE

RCC1 (E-6) is a mouse monoclonal antibody raised against amino acids 122-421 mapping at the C-terminus of RCC1 of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RCC1 (E-6) is available conjugated to agarose (sc-55559 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55559 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55559 PE), fluorescein (sc-55559 FITC), Alexa Fluor® 488 (sc-55559 AF488), Alexa Fluor® 546 (sc-55559 AF546), Alexa Fluor® 594 (sc-55559 AF594) or Alexa Fluor® 647 (sc-55559 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55559 AF680) or Alexa Fluor® 790 (sc-55559 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

RCC1 (E-6) is recommended for detection of RCC1 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).

Suitable for use as control antibody for RCC1 siRNA (h): sc-36399, RCC1 siRNA (m): sc-36400, RCC1 shRNA Plasmid (h): sc-36399-SH, RCC1 shRNA Plasmid (m): sc-36400-SH, RCC1 shRNA (h) Lentiviral Particles: sc-36399-V and RCC1 shRNA (m) Lentiviral Particles: sc-36400-V.

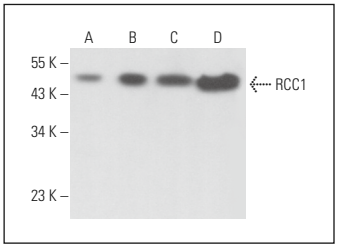
Molecular Weight of RCC1: 47 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, Raji whole cell lysate: sc-364236 or KNRK whole cell lysate: sc-2214.

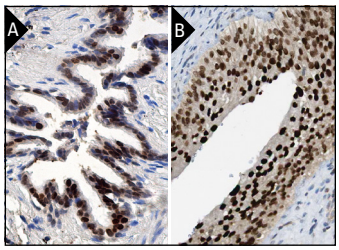
## STORAGE

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

## DATA




RCC1 (E-6): sc-55559. Western blot analysis of RCC1 expression in KNRK (**A**), NIH/3T3 (**B**), MOLT-4 (**C**) and Raji (**D**) whole cell lysates.




RCC1 (E-6): sc-55559. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bronchus tissue showing nuclear staining of respiratory epithelial cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear staining of urothelial 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. Oldrini, B., et al. 2017. EGFR feedback-inhibition by Ran-binding protein 6 is disrupted in cancer. Nat. Commun. 8: 2035.
3. Skucha, A., et al. 2018. MLL-fusion-driven leukemia requires SETD2 to safeguard genomic integrity. Nat. Commun. 9: 1983.
4. Schick, S., et al. 2019. Systematic characterization of BAF mutations provides insights into intracomplex synthetic lethalities in human cancers. Nat. Genet. 51: 1399-1410.
5. De Munter, S., et al. 2020. RepoMan stimulates the chromosome-dependent pathway of microtubule assembly. Cell Cycle 19: 3029-3041.
6. Hou, X., et al. 2021. Phosphorylation of RCC1 on serine 11 facilitates $G_1$/S transition in HPV E7-expressing cells. Biomolecules 11: 995.
7. Mehta, S., et al. 2022. Temporal resolution of gene derepression and proteome changes upon PROTAC-mediated degradation of BCL11A protein in erythroid cells. Cell Chem. Biol. 29: 1273-1287.e8.
8. Park, D., et al. 2023. Suboptimal mitochondrial activity facilitates nuclear heat shock responses for proteostasis and genome stability. Mol. Cells 46: 374-386.
9. Bannoura, S.F., et al. 2024. RCC1 regulation of subcellular protein localization via Ran GTPase drives pancreatic ductal adenocarcinoma growth. Cancer Lett. 604: 217275.


## RESEARCH USE

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