

Rheb (B-12): sc-271509

BACKGROUND

H-, K- and N-Ras represent the prototype members of a family of small G proteins which are frequently activated to an oncogenic state in a wide variety of human tumors. Activation is due to point mutations at position 12 or 61 within their coding sequence. Such mutations cause these proteins to be constitutively converted to their active GTP-bound rather than the inactive GDP-bound state. The related human R-Ras gene was initially cloned by low stringency hybridization methods. Position 38 or 87 mutants of R-Ras (analogous to positions 12 and 61 in H-Ras) have been shown to be capable of activating oncogenic function. Ras p21 in its active GTP binding state binds to Raf-1, resulting in activation of the MAP kinase signaling cascade. An additional member of the Ras family, Rheb (Ras-related GTP-binding protein), also interacts with Raf-1. This interaction is potentiated by growth factors and agents that increase cAMP levels.

CHROMOSOMAL LOCATION

Genetic locus: RHEB (human) mapping to 7q36.1; Rheb (mouse) mapping to 5 A3.

SOURCE

Rheb (B-12) is a mouse monoclonal antibody raised against amino acids 41-110 mapping within an internal region of Rheb 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.

Rheb (B-12) is available conjugated to agarose (sc-271509 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271509 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271509 PE), fluorescein (sc-271509 FITC), Alexa Fluor® 488 (sc-271509 AF488), Alexa Fluor® 546 (sc-271509 AF546), Alexa Fluor® 594 (sc-271509 AF594) or Alexa Fluor® 647 (sc-271509 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271509 AF680) or Alexa Fluor® 790 (sc-271509 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Rheb (B-12) is recommended for detection of Rheb 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Rheb siRNA (h): sc-41859, Rheb siRNA (m): sc-41860, Rheb shRNA Plasmid (h): sc-41859-SH, Rheb shRNA Plasmid (m): sc-41860-SH, Rheb shRNA (h) Lentiviral Particles: sc-41859-V and Rheb shRNA (m) Lentiviral Particles: sc-41860-V.

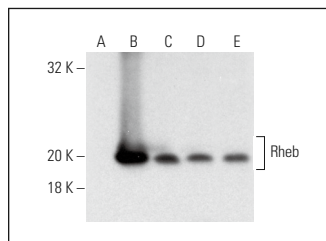
Molecular Weight of Rheb: 21 kDa.

Positive Controls: Rheb (m): 293T Lysate: sc-123114, SK-N-SH cell lysate: sc-2410 or SH-SY5Y cell lysate: sc-3812.

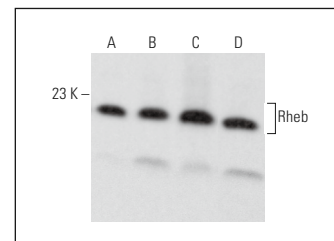
STORAGE

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

DATA



Rheb (B-12): sc-271509. Western blot analysis of Rheb expression in non-transfected 293T: sc-117752 (A), mouse Rheb transfected 293T: sc-123114 (B), SK-N-SH (C) and SH-SY5Y (D) whole cell lysates and mouse brain tissue extract (E).



Rheb (B-12): sc-271509. Western blot analysis of Rheb expression in Jurkat (A), A-431 (B), PC-12 (C) and HeLa (D) whole cell lysates.

SELECT PRODUCT CITATIONS

- Apró, W., et al. 2015. Leucine does not affect mechanistic target of rapamycin complex 1 assembly but is required for maximal ribosomal protein S6 kinase 1 activity in human skeletal muscle following resistance exercise. *FASEB J.* 29: 4358-4373.
- Rahman, A. and Haugh, J.M. 2017. Kinetic modeling and analysis of the Akt/mechanistic target of rapamycin complex 1 (mTORC1) signaling axis reveals cooperative, feedforward regulation. *J. Biol. Chem.* 292: 2866-2872.
- Schäffner, I., et al. 2018. FoxO function is essential for maintenance of autophagic flux and neuronal morphogenesis in adult neurogenesis. *Neuron* 99: 1188-1203.e6.
- Lee, M.K., et al. 2019. Protective effect of *Pyropia yezoensis* peptide on dexamethasone-induced myotube atrophy in C2C12 myotubes. *Mar. Drugs* 17: 284.
- Liang, R., et al. 2020. Restraining lysosomal activity preserves hematopoietic stem cell quiescence and potency. *Cell Stem Cell* 26: 359-376.e7.
- Jeong, A., et al. 2021. Protein farnesylation is upregulated in Alzheimer's human brains and neuron-specific suppression of farnesyltransferase mitigates pathogenic processes in Alzheimer's model mice. *Acta Neuropathol. Commun.* 9: 129.
- Li, M., et al. 2024. Glucose deprivation triggers DCAF1-mediated inactivation of Rheb-mTORC1 and promotes cancer cell survival. *Cell Death Dis.* 15: 409.
- Shao, X., et al. 2024. Deficiency of geranylgeranyl biphosphate synthase in kidney tubules causes cystic kidney disease. *FASEB J.* 38: e23875.

RESEARCH USE

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