

Rheb (80-R): sc-130398



The Power to Question

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.

REFERENCES

1. Lowe, D.G. and Goeddel, D.V. 1987. Heterologous expression and characterization of the human R-Ras gene product. *Mol. Cell. Biol.* 7: 2845-2856.
2. Barbacid, M. 1987. Ras genes. *Annu. Rev. Biochem.* 56: 779-827.
3. Lowe, D.G., et al. 1987. Structure of the human and murine R-Ras genes, genes closely related to Ras proto-oncogenes. *Cell* 48: 137-146.
4. Bos, J.L. 1989. Ras oncogenes in human cancer: a review. *Cancer Res.* 49: 4682-4689.

CHROMOSOMAL LOCATION

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

SOURCE

Rheb (80-R) is a mouse monoclonal antibody raised against recombinant Rheb of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Rheb (80-R) is recommended for detection of Rheb of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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.

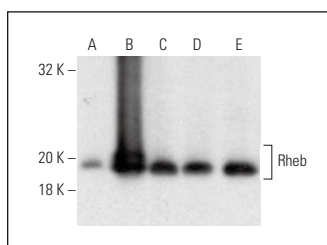
Molecular Weight of Rheb: 21 kDa.

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

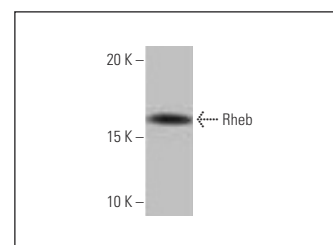
RECOMMENDED SUPPORT REAGENTS

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).

DATA



Rheb (80-R): sc-130398. 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 (80-R): sc-130398. Western blot analysis of Rheb expression in Jurkat whole cell lysate.

SELECT PRODUCT CITATIONS

1. Wang, X., et al. 2014. Direct interaction between Ras homolog enriched in brain and FK506 binding protein 38 in cashmere goat fetal fibroblast cells. *Asian-Australas J. Anim. Sci.* 27: 1671-1677.
2. Pryor, W.M., et al. 2014. Huntingtin promotes mTORC1 signaling in the pathogenesis of Huntington's disease. *Sci. Signal.* 7: ra103.
3. Tyagi, R., et al. 2015. Rheb inhibits protein synthesis by activating the PERK-eIF2α signaling cascade. *Cell Rep.* 10: 684-693.
4. Joe, Y., et al. 2020. Cross-talk between CD38 and TTP is essential for resolution of inflammation during microbial sepsis. *Cell Rep.* 30: 1063-1076.
5. Jia, L., et al. 2021. Rheb-regulated mitochondrial pyruvate metabolism of Schwann cells linked to axon stability. *Dev. Cell* 56: 2980-2994.e6.
6. Huang, H., et al. 2023. Disruption of neuronal RHEB signaling impairs oligodendrocyte differentiation and myelination through mTORC1-DLK1 axis. *Cell Rep.* 42: 112801.

STORAGE

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

RESEARCH USE

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



See **Rheb (B-12): sc-271509** for Rheb antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.