SANTA CRUZ BIOTECHNOLOGY, INC.

Rheb (N-19): sc-6342

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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 (analogous to positions 12 and 61 in H-Ras) mutants of R-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, 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.
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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.
5. Saez, R., et al. 1994. Oncogenic activation of human R-Ras by point mutations analogous to those of prototype H-Ras oncogenes. Oncogene 9: 2977-2982.
6. Cox, A.D., et al. 1994. R-Ras induces malignant, but not morphologic, transformation of NIH3T3 cells. Oncogene 9: 3281-3288.
7. Dent, P., et al. 1995. Regulation of Raf-1 and Raf-1 mutants by Ras-dependent and Ras-independent mechanisms *in vitro*. Mol. Cell Biol. 15: 4125-4135.
8. Yee, W.M. and Worley, P.F. 1997. Rheb interacts with Raf-1 kinase and may function to integrate growth factor and protein kinase A-dependent signals. Mol. Cell Biol. 17: 921-933.

CHROMOSOMAL LOCATION

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

SOURCE

Rheb (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Rheb (Ras-related GTP-binding protein) of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-6342 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Rheb (N-19) 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), 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).

Rheb (N-19) is also recommended for detection of Rheb in additional species, including canine, bovine, porcine and avian.

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: mouse brain extract: sc-2253, SK-N-SH cell lysate: sc-2410 or SH-SY5Y cell lysate: sc-3812.

SELECT PRODUCT CITATIONS

1. Im, E., et al. 2002. Rheb is in a high activation state and inhibits B-Raf kinase in mammalian cells. Oncogene 21: 6356-6365.
2. Smith, E.M., et al. 2005. The tuberous sclerosis protein TSC2 is not required for the regulation of the mammalian target of Rapamycin by amino acids and certain cellular stresses. J. Biol. Chem. 280: 18717-18727.
3. van der Horst, A., et al. 2006. FOXO4 transcriptional activity is regulated by monoubiquitination and USP7/HAUSP. Nat. Cell Biol. 8: 1064-1073.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.