SANTA CRUZ BIOTECHNOLOGY, INC.

p-Rsk-1/2 (Thr 359/Ser 363)-R: sc-12898-R

BACKGROUND

The family of ribosomal S6 kinases (Rsks), designated Rsk-1, Rsk-2 and Rsk-3, are important signaling intermediates that mediate responses to a broad range of ligand-activated receptor tyrosine kinases. It has been established that Rsk-3 is not activated by MAP kinase *in vitro,* unlike Rsk-1 and Rsk-2. A unique feature common to the three members of the Rsk family is that each possesses two non-identical complete kinase catalytic domains. The Rsk family amino-terminal kinase domain is phosphorylated on Ser 227 by 3-phosphoinositide-dependent protein kinase-1 (PDK1), which increases the kinase activity of Rsk. In the carboxy-terminal kinase domain, Rsk-1 and Rsk-2 are autophosphorylated on Ser 380 and Ser 386, respectively, which mediates the docking of PDK1 to Rsk in order to promote phosphorylation of substrates, such as histone H3.

REFERENCES

1. Kozma, S.C., et al. 1990. Cloning of the mitogen-activated S6 kinase from rat liver reveals an enzyme of the second messenger subfamily. Proc. Natl. Acad. Sci. USA 87: 7365-7369.
2. Banerjee, P., et al. 1990. Molecular structure of a major Insulin/mitogen-activated 70 kDa S6 protein kinase. Proc. Natl. Acad. Sci. USA 87: 8550-8554.
3. Moller, D.E., et al. 1994. Human Rsk isoforms: cloning and characterization of tissue-specific expression. Am. J. Physiol. 266: C351-C359.
4. Zhao, Y., et al. 1995. RSK3 encodes a novel pp90Rsk isoform with a unique N-terminal sequence: growth factor-stimulated kinase function and nuclear translocation. Mol. Cell. Biol. 15: 4353-4363.
5. Bjorbaek, C., et al. 1995. Divergent functional roles for p90Rsk kinase domains. J. Biol. Chem. 270: 18848-18852.

CHROMOSOMAL LOCATION

Genetic locus: RPS6KA1 (human) mapping to 1p36.11, RPS6KA3 (human) mapping to Xp22.12; Rps6ka1 (mouse) mapping to 4 D3, Rps6ka3 (mouse) mapping to X F4.

SOURCE

p-Rsk-1/2 (Thr 359/Ser 363)-R is a rabbit polyclonal antibody raised against a short amino acid sequence containing Thr 359 and Ser 363 phosphorylated Rsk-1/2 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12898 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

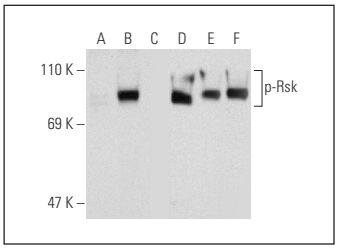
p-Rsk-1/2 (Thr 359/Ser 363)-R is recommended for detection of Rsk-1 phosphorylated at Thr 359 and Ser 363 and correspondingly phosphorylated Rsk-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total 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).

p-Rsk-1/2 (Thr 359/ Ser 363)-R is also recommended for detection of correspondingly phosphorylated Rsk-1 and Rsk-2 in additional species, including bovine and porcine.

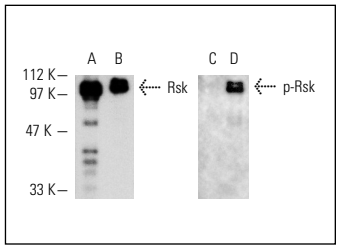
Molecular Weight of p-Rsk-1/2: 90 kDa.

Positive Controls: HeLa + PMA cell lysate: sc-2258.

DATA



Western blot analysis of Rsk phosphorylation in untreated (**A**,**D**), serum-starved, PMA-treated (**B**,**E**) and serum-starved, PMA and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) HeLa whole cell lysates. Antibodies tested include p-Rsk (Thr 359/Ser 363)-R: sc-12898-R (**A**,**B**,**C**) and Rsk-1 (C-21): sc-231 (**D**,**E**,**F**).



Western blot analysis of lambda protein phosphatase (sc-200312A) treated (**A**,**C**) and untreated (**B**,**D**) rat recombinant Rsk-1. Antibodies tested include: Rsk-1 (C-21): sc-231 (**A**,**B**) and p-Rsk-1/2 (Thr 359/Ser 363)-R: sc-12898-R (**C**,**D**).

SELECT PRODUCT CITATIONS

1. Watson, K., et al. 2005. Macrophage inflammatory protein 2 inhibits β-amyloid peptide (1-42)-mediated hippocampal neuronal apoptosis through activation of mitogen-activated protein kinase and phosphatidylinositol 3-kinase signaling pathways. Mol. Pharmacol. 67: 757-765.
2. Dang, P.M., et al. 2006. Anti-inflammatory effect of interleukin-10 on human neutrophil respiratory burst involves inhibition of GM-CSF-induced $p47^{PHOX}$ phosphorylation through a decrease in ERK 1/2 activity. FASEB J. 20: 1504-1506.
3. Lin, J.X., et al. 2008. Critical role for Rsk-2 in T-lymphocyte activation. Blood 111: 525-533.
4. Majumdar, A., et al. 2010. p67/MetAP2 suppresses K-RasV12-mediated transformation of NIH3T3 mouse fibroblasts in culture and in athymic mice. Biochemistry 49: 10146-10157.

RESEARCH USE

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