

# Rsk-2 siRNA (h): sc-36441

## BACKGROUND

The family of ribosomal S6 kinases (Rsk), designated Rsk-1 (or MAPKAP kinase-1), Rsk-2 and Rsk-3, are intracellular serine/threonine kinases that are important signaling intermediates in response to a broad range of ligand activated receptor tyrosine kinases. A unique feature common to the members of the Rsk family is that each possesses two non-identical complete kinase catalytic domains. An additional Rsk protein, Rsk-4, shows a high level of homology to the three previously isolated members of the human Rsk family. Rsk-4 is most abundantly expressed in brain and kidney and plays a role in normal neuronal development. The family of ribosomal S6 kinases includes p70 S6 kinase and p70 S6 kinase  $\beta$ , which are thought to have similar regulatory functions. MSK1 (also designated RLPK) is a novel Rsk-related protein, which, like the p90 Rsk family members, contains two non-identical complete kinase catalytic domains.

## REFERENCES

1. Alcorta, D.A., et al. 1989. Sequence and expression of chicken and mouse Rsk: homologs of *Xenopus laevis* ribosomal S6 kinase. *Mol. Cell. Biol.* 9: 3850-3859.
2. Sweet, L.J., et al. 1990. Identification of mitogen-responsive ribosomal protein S6 kinase pp90<sup>sk</sup> - a homolog of *Xenopus* S6 kinase II, in chicken embryo fibroblasts. *Mol. Cell. Biol.* 10: 2413-2417.
3. 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.

## CHROMOSOMAL LOCATION

Genetic locus: RPS6KA3 (human) mapping to Xp22.12.

## PRODUCT

Rsk-2 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Rsk-2 shRNA Plasmid (h): sc-36441-SH and Rsk-2 shRNA (h) Lentiviral Particles: sc-36441-V as alternate gene silencing products.

For independent verification of Rsk-2 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-36441A, sc-36441B and sc-36441C.

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Rsk-2 siRNA (h) is recommended for the inhibition of Rsk-2 expression in human cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

Rsk-2 (E-1): sc-9986 is recommended as a control antibody for monitoring of Rsk-2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Rsk-2 gene expression knockdown using RT-PCR Primer: Rsk-2 (h)-PR: sc-36441-PR (20  $\mu$ l, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Wang, H., et al. 2010. Proteinase-activated receptors induce interleukin-8 expression by intestinal epithelial cells through ERK/RSK90 activation and histone acetylation. *FASEB J.* 24: 1971-1980.
2. Nadratowska-Wesolowska, B., et al. 2014. RSK2 regulates endocytosis of FGF receptor 1 by phosphorylation on serine 789. *Oncogene* 33: 4823-4836.
3. Park, Y.Y., et al. 2016. The p90 ribosomal S6 kinase 2 specifically affects mitotic progression by regulating the basal level, distribution and stability of mitotic spindles. *Exp. Mol. Med.* 48: e250.
4. Chelakkot, V.S., et al. 2020. MEK reduces cancer-specific PplX accumulation through the RSK-ABCB1 and HIF-1 $\alpha$ -FECH axes. *Sci. Rep.* 10: 22124.

## RESEARCH USE

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