SANTA CRUZ BIOTECHNOLOGY, INC.

MSK1 siRNA (m): sc-35978

BACKGROUND

The family of ribosomal S6 kinases (Rsks), designated Rsk-1, Rsk-2 and Rsk-3, have been implicated as important signaling intermediates in response to a broad range of ligand-activated receptor tyrosine kinases. A unique feature common to the three members of the Rsk family is that each possesses two non-identical complete kinase catalytic domains. A related S6 kinase, p70 S6 kinase, functions to phosphorylate the S6 protein on ribosomal 40S subunits. p70 S6 kinase β shares high sequence homology with p70 S6 kinase, except in the carboxy terminus where it contains a proline-rich domain that may be involved in SH3 domain containing protein interactions. MSK1 (also designated RLPK) is related to Rsk and p70 S6 kinase family members and is thought to be structurally similar to Rsk family members, but it may be regulated by distinct mechanisms.

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^{Rsk}, 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.
4. Moller, D.E., et al. 1994. Human Rsk isoforms: cloning and characterization of tissue-specific expression. Am. J. Physiol. 266: 351-359.
5. Bjorbaek, C., et al. 1995. Divergent functional roles for p90^{Rsk} kinase domains. J. Biol. Chem. 270: 18848-18852.
6. Zhao, Y., et al. 1995. RSK3 encodes a novel pp90^{rsk} isoform with a unique N-terminal sequence: growth factor-stimulated kinase function and nuclear translocation. Mol. Cell. Biol. 15: 4353-4363.
7. Gout, I., et al. 1998. Molecular cloning and characterization of a novel p70 S6 kinase, p70 S6 kinase β containing a proline-rich region. J. Biol. Chem. 273: 30061-30064.

CHROMOSOMAL LOCATION

Genetic locus: Rps6ka5 (mouse) mapping to 12 E.

PRODUCT

MSK1 siRNA (m) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MSK1 shRNA Plasmid (m): sc-35978-SH and MSK1 shRNA (m) Lentiviral Particles: sc-35978-V as alternate gene silencing products.

For independent verification of MSK1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35978A, sc-35978B and sc-35978C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MSK1 siRNA (m) is recommended for the inhibition of MSK1 expression in mouse 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 µM in 66 µl. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MSK1 gene expression knockdown using RT-PCR Primer: MSK1 (m)-PR: sc-35978-PR (20 µl, 312 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ha, J., et al. 2013. Mitogen- and stress-activated protein kinase 1 activates osteoclastogenesis *in vitro* and affects bone destruction *in vivo*. J. Mol. Med. 91: 977-987.
2. Lee, D.K., et al. 2015. Lipopolysaccharide induction of REDD1 is mediated by two distinct CREB-dependent mechanisms in macrophages. FEBS Lett. 589: 2859-2865.
3. Huante-Mendoza, A., et al. 2016. Peptide IDR-1002 inhibits NFκB nuclear translocation by inhibition of IκBα degradation and activates p38/ERK1/2-MSK1-dependent CREB phosphorylation in macrophages stimulated with lipopolysaccharide. Front. Immunol. 7: 533.
4. Wagley, Y., et al. 2017. Epigenetic activation of μ-opioid receptor gene via increased expression and function of mitogen- and stress-activated protein kinase 1. Mol. Pharmacol. 91: 357-372.

RESEARCH USE

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