SANTA CRUZ BIOTECHNOLOGY, INC.

Tak1 siRNA (h): sc-36606

BACKGROUND

Several serine/threonine protein kinases have been implicated as intermediates in signal transduction pathways. These include ERK/MAP kinases, ribosomal S6 kinase (Rsk) and Raf-1. Raf-1 has intrinsic kinase activity towards serine/threonine residues and that is widely expressed in many tissue types and cell lines. Raf-1 activation is dependent on the small molecular weight GTPase Ras, but the means by which this activation occurs is poorly understood. Two proteins putatively involved in this process are Ksr-1 and Tak1. Ksr-1 (kinase suppressor of Ras) is a novel Raf-related protein kinase whose function is required for Ras signal transduction. Whether Ksr-1 lies directly downstream of Ras or acts in a parallel pathway is not yet known. Tak1 (TGF β-activated kinase) has been shown to participate in the activation of the MAP kinase family in response to TGF β stimulation.

REFERENCES

1. Huleihel, M., et al. 1986. Characterization of murine A-Raf, a new oncogene related to the v-Raf oncogene. Mol. Cell. Biol. 6: 2655-2662.
2. Ray, L.B., et al. 1988. Insulin-stimulated microtubule-associated protein kinase is phosphorylated on tyrosine and threonine *in vivo*. Proc. Natl. Acad. Sci. USA 85: 3753-3757.

CHROMOSOMAL LOCATION

Genetic locus: MAP3K7 (human) mapping to 6q15.

PRODUCT

Tak1 siRNA (h) is a pool of 4 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 Tak1 shRNA Plasmid (h): sc-36606-SH and Tak1 shRNA (h) Lentiviral Particles: sc-36606-V as alternate gene silencing products.

For independent verification of Tak1 (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-36606A, sc-36606B, sc-36606C and sc-36606D.

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

Tak1 siRNA (h) is recommended for the inhibition of Tak1 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 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.

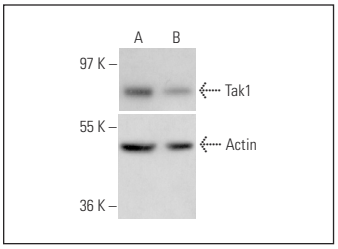
GENE EXPRESSION MONITORING

Tak1 (C-9): sc-7967 is recommended as a control antibody for monitoring of Tak1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Tak1 gene expression knockdown using RT-PCR Primer: Tak1 (h)-PR: sc-36606-PR (20 µl, 476 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



Tak1 siRNA (h): sc-36606. Western blot analysis of Tak1 expression in non-transfected control (**A**) and Tak1 siRNA transfected (**B**) HeLa cells. Blot probed with Tak1 (C-9): sc-7967. Actin (I-19): sc-1616 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Zhou, Y., et al. 2010. Hepatitis B virus protein X-induced expression of the CXC chemokine IP-10 is mediated through activation of NFκB and increases migration of leukocytes. J. Biol. Chem. 285: 12159-12168.
2. Woo, S.M., et al. 2019. Hispidulin enhances TRAIL-mediated apoptosis via CaMKKβ/AMPK/USP51 axis-mediated Bim stabilization. Cancers 11: 1960.
3. Yamaguchi, R., et al. 2020. TRIM28/TIF1β and Fli-1 negatively regulate peroxynitrite generation via DUOX2 to decrease the shedding of membrane-bound fractalkine in human macrophages after exposure to substance P. Cytokine 134: 155180.

RESEARCH USE

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