

# TAB1 siRNA (m): sc-36601

## BACKGROUND

The TAK1 binding proteins, TAB1, TAB2 and TAB3, interact with the MAPKKK TAK1 in response to various stimuli. TAB1 activates TAK1 in TGF $\beta$  mediated signaling. TAB1 also plays a central role in a p38 $\alpha$  activation pathway that is independent of MAPKK. In response to proinflammatory signals, TAB2 complexes with TRAF6 and TAK1, leading to translocation of the complex from the membrane to the cytosol and the subsequent activation of TAK1. When overexpressed, TAB3 activates both NF $\kappa$ B and AP-1 transcription factors. In response to TNF $\alpha$  or IL-1, TAK1 complexes with TAB1 and TAB2 or with TAB1 and TAB3 to yield two distinct complexes.

## REFERENCES

1. Yamaguchi, K., et al. 1995. Identification of a member of the MAPKKK family as a potential mediator of TGF $\beta$  signal transduction. *Science* 270: 2008-2011.
2. Shibuya, H., et al. 1996. TAB1: an activator of the TAK1 MAPKKK in TGF $\beta$  signal transduction. *Science* 272: 1179-1182.
3. Ge, B., et al. 2002. MAPKK-independent activation of p38 $\alpha$  mediated by TAB1-dependent autophosphorylation of p38 $\alpha$ . *Science* 295: 1291-1294.
4. Jiang, Z., et al. 2002. Interleukin-1 (IL-1) receptor-associated kinase-dependent IL-1-induced signaling complexes phosphorylate TAK1 and TAB2 at the plasma membrane and activate TAK1 in the cytosol. *Mol. Cell. Biol.* 22: 7158-7167.
5. Jin, G., et al. 2004. Identification of a human NF $\kappa$ B-activating protein, TAB3. *Proc. Natl. Acad. Sci. USA* 101: 2028-2033.

## CHROMOSOMAL LOCATION

Genetic locus: Tab1 (mouse) mapping to 15 E1.

## PRODUCT

TAB1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TAB1 shRNA Plasmid (m): sc-36601-SH and TAB1 shRNA (m) Lentiviral Particles: sc-36601-V as alternate gene silencing products.

For independent verification of TAB1 (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-36601A, sc-36601B and sc-36601C.

## 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

TAB1 siRNA (m) is recommended for the inhibition of TAB1 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  $\mu$ 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

TAB1 (B-3): sc-166138 is recommended as a control antibody for monitoring of TAB1 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<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TAB1 gene expression knockdown using RT-PCR Primer: TAB1 (m)-PR: sc-36601-PR (20  $\mu$ l, 563 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Chen, H., et al. 2016. PGC-1 $\beta$  suppresses saturated fatty acid-induced macrophage inflammation by inhibiting TAK1 activation. *IUBMB Life* 68: 145-155.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.