SANTA CRUZ BIOTECHNOLOGY, INC.

14-3-3 β siRNA (h): sc-29186

BACKGROUND

14-3-3 proteins regulate many cellular processes relevant to cancer biology, notably apoptosis, mitogenic signaling and cell-cycle checkpoints. Seven isoforms comprise this family of signaling intermediates, denoted 14-3-3 β, γ, ε, ζ, η, θ and σ. 14-3-3 proteins form dimers that present two binding sites for ligand proteins, thereby bringing together two proteins that may not otherwise associate. These ligands largely share a 14-3-3 consensus binding motif and exhibit serine/threonine phosphorylation. 14-3-3 proteins function in broad regulation of these ligand proteins, by cytoplasmic sequestration, occupation of interaction domains and import/export sequences, prevention of degradation, activation/repression of enzymatic activity and facilitation of protein modification, and thus loss of expression contributes to a vast array of pathogenic cellular activities.

REFERENCE

1. Morrison, D. 1994. 14-3-3: modulators of signaling proteins? Science 266: 56-57.
2. Muratake, T., et al. 1996. Structural organization and chromosomal assignment of the human 14-3-3 β chain gene (YWHAH). Genomics 36: 63-69.
3. Yaffe, M.B., et al. 1997. The structural basis for 14-3-3 phosphopeptide binding specificity. Cell 91: 961-971.

CHROMOSOMAL LOCATION

Genetic locus: YWHAB (human) mapping to 20q13.12.

PRODUCT

14-3-3 β 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 14-3-3 β shRNA Plasmid (h): sc-29186-SH and 14-3-3 β shRNA (h): Lentiviral Particles: sc-29186-V as alternate gene silencing products.

For independent verification of 14-3-3 β (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-29186A, sc-29186B, sc-29186C and sc-29186D.

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

14-3-3 β siRNA (h) is recommended for the inhibition of 14-3-3 β 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.

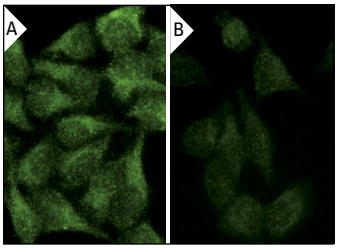
GENE EXPRESSION MONITORING

14-3-3 β (A-6): sc-25276 is recommended as a control antibody for monitoring of 14-3-3 β gene expression knockdown by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1,000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT/PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor 14-3-3 β gene expression knockdown using RT-PCR Primer: 14-3-3 β (h)-PR: sc-29186-PR (20 µl, 515 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



14-3-3 β siRNA (h): sc-29186. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and 14-3-3 β siRNA silenced HeLa (**B**) cells showing diminished cytoplasmic staining in the siRNA silenced cells. Cells probed with 14-3-3 β (FL-246): sc-13959.

SELECT PRODUCT CITATIONS

1. Aguilera, C., et al. 2006. Efficient nuclear export of p65-IκBα complexes requires 14-3-3 proteins. J. Cell Sci. 119: 3695-3704.
2. Cao, L., et al. 2015. Down-regulation of 14-3-3β exerts anti-cancer effects through inducing ER stress in human glioma U87 cells: involvement of CHOP-Wnt pathway. Biochem. Biophys. Res. Commun. 462: 389-395.
3. Liu, L., et al. 2018. 14-3-3β exerts glioma-promoting effects and is associated with malignant progression and poor prognosis in patients with glioma. Exp. Ther. Med. 15: 2381-2387.

RESEARCH USE

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