SANTA CRUZ BIOTECHNOLOGY, INC.

DBC-1 siRNA (h): sc-72274

BACKGROUND

DBC-1 (deleted in breast cancer gene 1 protein), also known as p30 DBC protein, is one of the genes located within the region of chromosome 8 (8p21-8p23) that is homozygously deleted in some breast cancers. DBC-1 contains a nuclear localization signal, an N-terminal leucine zipper, an EF hand and a C-terminal coiled-coil region. DBC-1 is closely related to DIS but lacks the SAP domain. During death signaling mediated by TNFα, endogenous DBC-1 undergoes caspase-dependent processing to generate DBC-1 p120 and p66, both of which include the C-terminus of the protein. Both DBC-1 p120 and p66 relocate to the cytoplasm. Overexpression of the DBC-1 p120 form results in mitochondrial clustering and matrix condensation and increases the sensitivity of cells to TNFα-mediated apoptosis. In addition, DBC-1 directly interacts with unliganded ERα, stabilizing its expression and therefore collaborating to suppress apoptosis and promote hormone-independent cell growth.

REFERENCES

1. Hamaguchi, M., et al. 2002. DBC2, a candidate for a tumor suppressor gene involved in breast cancer. Proc. Natl. Acad. Sci. USA 99: 13647-13652.
2. de Leeuw, R.J., et al. 2004. Comprehensive whole genome array CGH profiling of mantle cell lymphoma model genomes. Hum. Mol. Genet. 13: 1827-1837.
3. Rubio-Moscardo, F., et al. 2005. Characterization of 8p21.3 chromosomal deletions in B-cell lymphoma: TRAIL-R1 and TRAIL-R2 as candidate dosage-dependent tumor suppressor genes. Blood 106: 3214-3222.
4. Sundararajan, R., et al. 2005. Caspase-dependent processing activates the proapoptotic activity of deleted in breast cancer-1 during tumor necrosis factor-α-mediated death signaling. Oncogene 24: 4908-4920.
5. Downey, C., et al. 2006. Pressure stimulates breast cancer cell adhesion independently of cell cycle and apoptosis regulatory protein (CARP)-1 regulation of focal adhesion kinase. Am. J. Surg. 192: 631-635.
6. Ye, H., et al. 2007. Genomic assessments of the frequent loss of heterozygosity region on 8p21.3 approximately p22 in head and neck squamous cell carcinoma. Cancer Genet. Cytogenet. 176: 100-106.
7. Trauernicht, A.M., et al. 2007. Modulation of estrogen receptor α protein level and survival function by DBC-1. Mol. Endocrinol. 21: 1526-1536.

CHROMOSOMAL LOCATION

Genetic locus: KIAA1967 (human) mapping to 8p21.3.

PRODUCT

DBC-1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DBC-1 shRNA Plasmid (h): sc-72274-SH and DBC-1 shRNA (h) Lentiviral Particles: sc-72274-V as alternate gene silencing products.

For independent verification of DBC-1 (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-72274A, sc-72274B and sc-72274C.

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

DBC-1 siRNA (h) is recommended for the inhibition of DBC-1 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

DBC-1 (H-2): sc-166733 is recommended as a control antibody for monitoring of DBC-1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 DBC-1 gene expression knockdown using RT-PCR Primer: DBC-1 (h)-PR: sc-72274-PR (20 µl, 558 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.