SANTA CRUZ BIOTECHNOLOGY, INC.

Bcl-2 siRNA (h2): sc-61899

BACKGROUND

Bcl-2 is one among many key regulators of apoptosis, which are essential for proper development, tissue homeostasis, and protection against foreign pathogens. Human Bcl-2 is an anti-apoptotic, membrane-associated oncoprotein that can promote cell survival through protein-protein interactions with other Bcl-2 related family members, such as the death suppressors Bcl-x_L, Mcl-1, Bcl-w, and A1 or the death agonists Bax, Bak, Bik, Bad, and Bid. The anti-apoptotic function of Bcl-2 can also be regulated through proteolytic processing and phosphorylation. Bcl-2 may promote cell survival by interfering with the activation of the cytochrome c/Apaf-1 pathway through stabilization of the mitochondrial membrane. Mutations in the Bcl-2 gene can contribute to cancers where normal physiological cell death mechanisms are compromised by deregulation of the anti-apoptotic influence of Bcl-2.

CHROMOSOMAL LOCATION

Genetic locus: BCL2 (human) mapping to 18q21.33.

PRODUCT

Bcl-2 siRNA (h2) 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 Bcl-2 shRNA Plasmid (h2): sc-61899-SH and Bcl-2 shRNA (h2) Lentiviral Particles: sc-61899-V as alternate gene silencing products.

For independent verification of Bcl-2 (h2) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61899A, sc-61899B and sc-61899C.

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

Bcl-2 siRNA (h2) is recommended for the inhibition of Bcl-2 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

Bcl-2 (C-2): sc-7382 is recommended as a control antibody for monitoring of Bcl-2 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 Bcl-2 gene expression knockdown using RT-PCR Primer: Bcl-2 (h2)-PR: sc-61899-PR (20 µl, 468 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hung, T.H., et al. 2012. Increased autophagy in placentas of intrauterine growth-restricted pregnancies. PLoS ONE 7: e40957.
2. Quast, S.A., et al. 2013. ROS-dependent phosphorylation of Bax by wortmannin sensitizes melanoma cells for TRAIL-induced apoptosis. Cell Death Dis. 4: e839.
3. Wang, C., et al. 2013. Safflor yellow B suppresses Angiotensin II-mediated human umbilical vein cell injury via regulation of Bcl-2/p22^{phox} expression. Toxicol. Appl. Pharmacol. 273: 59-67.
4. Hung, N., et al. 2014. Increased paired box transcription factor 8 has a survival function in glioma. BMC Cancer 14: 159.
5. Park, S.B., et al. 2015. TTP mediates cisplatin-induced apoptosis of head and neck cancer cells by down-regulating the expression of Bcl-2. J. Chemother. 27: 174-180.
6. Nanbakhsh, A., et al. 2015. miR-181a modulates acute myeloid leukemia susceptibility to natural killer cells. Oncoimmunology 4: e996475.
7. Guo, L., et al. 2018. Role of Mcl-1 in regulation of cell death in human induced pluripotent stem cell-derived cardiomyocytes *in vitro*. Toxicol. Appl. Pharmacol. 360: 88-98.
8. Kim, H.J., et al. 2019. Diallyl disulfide (DADS) boosts TRAIL-mediated apoptosis in colorectal cancer cells by inhibiting Bcl-2. Food Chem. Toxicol. 125: 354-360.
9. Sarif, Z., et al. 2020. Mcl-1 targeting strategies unlock the proapoptotic potential of TRAIL in melanoma cells. Mol. Carcinog. 59: 1256-1268.
10. Lucantoni, F., et al. 2020. Bclx_L and Bcl-2 increase the metabolic fitness of breast cancer cells: a single-cell imaging study. Cell Death Differ. E-published.

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.