SANTA CRUZ BIOTECHNOLOGY, INC.

Bcl-w siRNA (h): sc-37293

BACKGROUND

The Bcl-2 family of proteins is characterized by its ability to modulate cell death (apoptosis) under a broad range of physiological conditions. Bcl-2, A1 and Bcl-x_L function to inhibit apoptosis while other members of the Bcl-2 family, Bax, Bad, Bak and Bcl-x_S oppose their death-suppressing effects. Using a PCR-based strategy, an additional protein with life-promoting activity, designated Bcl-w, has been identified. The protein is highly conserved between mouse and human and is encoded by a gene located near the TCRα gene on chromosome 14. Bcl-w is expressed in myeloid cell lines but not in T and B lymphocytes, and can be found in a wide range of tissues. An alternative splicing event in exon 4 results in two transcripts. The first, Bcl-w, encodes a protein of 193 amino acids, and the second, Bcl-w/rox, encodes a protein 333 amino acids in length. The "rox" portion of Bcl-w/rox shows a striking 66% amino acid sequence identity with the *Drosophila* rox2 protein; however, the Bcl-w/rox transcript may be expressed at very low levels.

REFERENCES

1. Yang, E., et al. 1995. Bad, a heterodimeric partner for Bcl-x_L and Bcl-2, displaces Bax and promotes cell death. Cell 80: 285-291.
2. Craig, R.W., 1995. The Bcl-2 gene family. Semin. Cancer Biol. 6: 35-43.
3. Sedlak, T.W., et al. 1995. Multiple Bcl-2 family members demonstrate selective dimerizations with Bax. Proc. Natl. Acad. Sci. USA 92: 7834-7838.

CHROMOSOMAL LOCATION

Genetic locus: BCL2L2 (human) mapping to 14q11.2.

PRODUCT

Bcl-w 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 Bcl-w shRNA Plasmid (h): sc-37293-SH and Bcl-w shRNA (h) Lentiviral Particles: sc-37293-V as alternate gene silencing products.

For independent verification of Bcl-w (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-37293A, sc-37293B and sc-37293C.

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-w siRNA (h) is recommended for the inhibition of Bcl-w 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-w (2E4): sc-293236 is recommended as a control antibody for monitoring of Bcl-w 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-w gene expression knockdown using RT-PCR Primer: Bcl-w (h)-PR: sc-37293-PR (20 µl, 422 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kawasaki, T., et al. 2007. BCL2L2 is a probable target for novel 14q11.2 amplification detected in a non-small cell lung cancer cell line. Cancer Sci. 98: 1070-1077.
2. Chung, H.J., et al. 2015. MiR-29b attenuates tumorigenicity and stemness maintenance in human glioblastoma multiforme by directly targeting BCL2L2. Oncotarget 6: 18429-18444.
3. Cui, Y.H., et al. 2016. Regulation of apoptosis by miR-122 in pterygium via targeting Bcl-w. Invest. Ophthalmol. Vis. Sci. 57: 3723-3730.
4. Choi, J.Y., et al. 2018. MiR-93-5p suppresses cellular senescence by directly targeting Bcl-w and p21. Biochem. Biophys. Res. Commun. 505: 1134-1140.
5. Kim, E.S., et al. 2019. Hypermethylation of miR-205-5p by IR governs aggressiveness and metastasis via regulating Bcl-w and Src. Mol. Ther. Nucleic Acids 14: 450-464.
6. Kim, S., et al. 2019. MiR-340-5p suppresses aggressiveness in glioblastoma multiforme by targeting Bcl-w and Sox2. Mol. Ther. Nucleic Acids 17: 245-255.
7. Sarif, Z., et al. 2020. Mcl-1 targeting strategies unlock the proapoptotic potential of TRAIL in melanoma cells. Mol. Carcinog. 59: 1256-1268.
8. Choi, J.Y., et al. 2021. MiR-519d-3p suppresses tumorigenicity and metastasis by inhibiting Bcl-w and HIF-1α in NSCLC. Mol. Ther. Oncolytics 22: 368-379.

RESEARCH USE

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