SANTA CRUZ BIOTECHNOLOGY, INC.

NBK siRNA (h): sc-36016

BACKGROUND

The Bcl-2 gene was isolated at the chromosomal breakpoint of t-bearing follicular B cell lymphomas. Bcl-2 blocks cell death following a variety of stimuli and confers a death-sparing effect to certain hematopoietic cell lines following growth factor withdrawal. Bcl-2 appears to function in several subcellular locations yet lacks any known motifs that would provide insight into its mechanism of action. A protein designated Bax p21 (for Bcl-associated X protein) has extensive amino acid homology with Bcl-2 and both heterodimerizes and homodimerizes with Bcl-2. Overexpression of Bax accelerates apoptotic death. Natural born killer (NBK), also known as Bik, is a protein that is functionally related to Bax, although the two proteins share very little sequence homology. NBK does not contain the conserved Bcl-2 homology domains (BH domains) characteristic of the Bcl-2 family. It does however, share nine amino acids with Bax in a region designated BH3, which may be the critical determinant for the NBK death-promoting activities.

REFERENCES

1. Bakhshi, A., et al. 1985. Cloning the chromosomal breakpoint of t(14;18) human lymphomas: clustering around JH on chromosome 14 and near a transcriptional unit on 18. Cell 41: 899-906.
2. Nunez, G., et al. 1990. Deregulated Bcl-2 gene expression selectively prolongs survival of growth factor-deprived hemopoietic cell lines. J. Immunol. 144: 3602-3610.
3. Hockenbery, D.M., et al. 1991. Bcl-2 protein is topographically restricted in tissues characterized by apoptotic cell death. Proc. Natl. Acad. Sci. USA 88: 6961-6965.

CHROMOSOMAL LOCATION

Genetic locus: BIK (human) mapping to 22q13.2.

PRODUCT

NBK 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 NBK shRNA Plasmid (h): sc-36016-SH and NBK shRNA (h) Lentiviral Particles: sc-36016-V as alternate gene silencing products.

For independent verification of NBK (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-36016A, sc-36016B and sc-36016C.

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

NBK siRNA (h) is recommended for the inhibition of NBK 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

NBK (H-1): sc-365625 is recommended as a control antibody for monitoring of NBK (Natural Born Killer) 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 NBK gene expression knockdown using RT-PCR Primer: NBK (h)-PR: sc-36016-PR (20 µl, 452 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lin, M.L., et al. 2017. Activation of casein kinase II by gallic acid induces BIK-BAX/BAK-mediated ER Ca^{2+}-ROS-dependent apoptosis of human oral cancer cells. Front. Physiol. 8: 761.
2. Kawiak, A., et al. 2017. Plumbagin sensitizes breast cancer cells to tamoxifen-induced cell death through GRP78 inhibition and Bik upregulation. Sci. Rep. 7: 43781.
3. Hemmati, P.G., et al. 2010. Systematic genetic dissection of $p14^{ARF}$-mediated mitochondrial cell death signaling reveals a key role for $p21^{CDKN1}$ and the BH3-only protein Puma/bbc3. J. Mol. Med. 88: 609-622.

RESEARCH USE

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