SANTA CRUZ BIOTECHNOLOGY, INC.

NBR1 siRNA (h): sc-94187

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The Power to Question

BACKGROUND

NBR1 (neighbor of BRCA1 gene 1), also known as M17S2, MIG19 or 1A13B, is a 966 amino acid protein that is encoded by a gene neighboring the well-characterized tumor suppressor BRCA1. Originally thought to be the ovarian cancer antigen CA125, NBR1 contains structural motifs, including a B-box/coiled coil domain, an OPR domain and a ZZ-type zinc finger, that are characteristic of several proteins involved in cell transformation. NBR1 interacts with SQSTM1 (sequestosome 1 protein), Titin and MuRF2 (muscle-specific RING finger protein 2), suggesting a possible role in developmental pathways. Two isoforms, designated NBR1A and NBR1B, are expressed due to alternative splicing events. Expression of both isoforms is downregulated in malignant mammary tissues, indicating that NBR1 may be involved in tumor suppression.

REFERENCES

1. Xu, C.F., et al. 1997. Isolation and characterisation of the NBR2 gene which lies head to head with the human BRCA1 gene. Hum. Mol. Genet. 6: 1057-1062.
2. Dimitrov, S., et al. 2001. Expression profiles and intergenic structure of head-to-head oriented Brca1 and NBR1 genes. Gene 262: 89-98.
3. Whitehouse, C., et al. 2002. NBR1 interacts with fasciculation and elongation protein ζ-1 (FEZ1) and calcium and integrin binding protein (CIB) and shows developmentally restricted expression in the neural tube. Eur. J. Biochem. 269: 538-545.

CHROMOSOMAL LOCATION

Genetic locus: NBR1 (human) mapping to 17q21.31.

PRODUCT

NBR1 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 NBR1 shRNA Plasmid (h): sc-94187-SH and NBR1 shRNA (h) Lentiviral Particles: sc-94187-V as alternate gene silencing products.

For independent verification of NBR1 (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-94187A, sc-94187B and sc-94187C.

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

NBR1 siRNA (h) is recommended for the inhibition of NBR1 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

NBR1 (4BR): sc-130380 is recommended as a control antibody for monitoring of NBR1 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 NBR1 gene expression knockdown using RT-PCR Primer: NBR1 (h)-PR: sc-94187-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mardakheh, F.K., et al. 2009. Spred2 interaction with the late endosomal protein NBR1 down-regulates fibroblast growth factor receptor signaling. J. Cell Biol. 187: 265-277.
2. Mardakheh, F.K., et al. 2010. NBR1 is a novel inhibitor of ligand-mediated receptor tyrosine kinase degradation. Mol. Cell. Biol. 30: 5672-5685.
3. Rui, Y.N., et al. 2015. The GST-BHMT assay reveals a distinct mechanism underlying proteasome inhibition-induced macroautophagy in mammalian cells. Autophagy 11: 812-832.
4. Wei, X., et al. 2021. Knockdown of PEX16 induces autophagic degradation of peroxisomes. Int. J. Mol. Sci. 22: 7989.
5. Yang, Z., et al. 2021. METTL14 facilitates global genome repair and suppresses skin tumorigenesis. Proc. Natl. Acad. Sci. USA 118: e2025948118.

RESEARCH USE

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