SANTA CRUZ BIOTECHNOLOGY, INC.

Beclin 1 siRNA (m): sc-29798

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The Power to Question

BACKGROUND

Beclin 1 (BECN1) is a coiled-coil protein that has been implicated as an inhibitor of tumorigenesis. Beclin 1, which associates with Bcl-2, plays a significant role in autophagy. Autophagy is the degradation of cellular proteins in the lysosomes, and when this pathway is suppressed, cell growth is deregulated. Autophagy is controlled by the same signal transduction pathway that induces the phosphorylation of the Ribosomal Protein S6, and both are mediated via amino acids. Beclin 1 expression in various carcinoma cell lines such as MCF7 is low, whereas it is ubiquitously expressed in normal breast tissue. In transfected MCF7 cells, Beclin 1 complements autophagocytosis and, subsequently, inhibits cellular proliferation. Additionally, Beclin 1 shares structural similarity to the yeast autophagy gene product, Apg6, and was one of the first mammalian proteins discovered to mediate autophagy.

CHROMOSOMAL LOCATION

Genetic locus: Becn1 (mouse) mapping to 11 D.

PRODUCT

Beclin 1 siRNA (m) is a target-specific 19-25 nt siRNA 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 Beclin 1 shRNA Plasmid (m): sc-29798-SH and Beclin 1 shRNA (m) Lentiviral Particles: sc-29798-V as alternate 8gene silencing products.

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

Beclin 1 siRNA (m) is recommended for the inhibition of Beclin 1 expression in mouse 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.

RESEARCH USE

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

GENE EXPRESSION MONITORING

Beclin 1 (E-8): sc-48341 is recommended as a control antibody for monitoring of Beclin 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Beclin 1 gene expression knockdown using RT-PCR Primer: Beclin 1 (m)-PR: sc-29798-PR (20 µl, 597 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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3. Liao, C.C., et al. 2013. Recombinant protein rVP1 upregulates BECN1-independent autophagy, MAPK1/3 phosphorylation and MMP9 activity via WIPI1/WIPI2 to promote macrophage migration. Autophagy 9: 5-19.
4. Yang, Z., et al. 2014. Hypoxia Induces autophagic cell death through hypoxia-inducible factor 1α in microglia. PLoS ONE 9: e96509.
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6. Zhang, Y., et al. 2016. Mir143-BBC3 cascade reduces microglial survival via interplay between apoptosis and autophagy: implications for methamphetamine-mediated neurotoxicity. Autophagy 12: 1538-1559.
7. Yuan, B., et al. 2017. Autophagy promotes microglia activation through Beclin 1-Atg5 pathway in intracerebral hemorrhage. Mol. Neurobiol. 54: 115-124.
8. Thangaraj, A., et al. 2018. HIV-1 TAT-mediated microglial activation: role of mitochondrial dysfunction and defective mitophagy. Autophagy 14: 1596-1619.
9. Wani, A., et al. 2019. Alborixin clears amyloid-β by inducing autophagy through PTEN-mediated inhibition of the AKT pathway. Autophagy 15: 1810-1828.
10. Kong, E., et al. 2020. Deleting key autophagy elongation proteins induces acquirement of tumor-associated phenotypes via ISG15. Cell Death Differ. 27: 2517-2530.
11. Tong, X., et al. 2021. Overexpression of c-Fos reverses osteoprotegerin-mediated suppression of osteoclastogenesis by increasing the Beclin 1-induced autophagy. J. Cell. Mol. Med. 25: 937-945.

PROTOCOLS

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