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# Beclin 1 siRNA (h2): sc-44286

## 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.

## REFERENCES

1. Kisen, G.O., et al. 1993. Reduced autophagic activity in primary rat hepatocellular carcinoma and ascites hepatoma cells. *Carcinogenesis* 14: 2501-2505.
2. Blommaert, E.F., et al. 1995. Phosphorylation of Ribosomal Protein S6 is inhibitory for autophagy in isolated rat hepatocytes. *J. Biol. Chem.* 270: 2320-2326.

## CHROMOSOMAL LOCATION

Genetic locus: BECN1 (human) mapping to 17q21.31.

## PRODUCT

Beclin 1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Beclin 1 shRNA Plasmid (h2): sc-44286-SH and Beclin 1 shRNA (h2) Lentiviral Particles: sc-44286-V as alternate gene silencing products.

For independent verification of Beclin 1 (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-44286A, sc-44286B and sc-44286C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Beclin 1 siRNA (h2) is recommended for the inhibition of Beclin 1 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  $\mu$ M in 66  $\mu$ l. 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

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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 Beclin 1 gene expression knockdown using RT-PCR Primer: Beclin 1 (h2)-PR: sc-44286-PR (20  $\mu$ l, 458 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Liao, C.L., et al. 2014. Pine (*Pinus morrisonicola Hayata*) needle extracts sensitize GBM8901 human glioblastoma cells to temozolomide by down-regulating autophagy and O<sup>6</sup>-methylguanine-DNA methyltransferase expression. *J. Agric. Food Chem.* 62: 10458-10467.
2. Tung, W.F., et al. 2015. 4-phenylbutyric acid (4-PBA) and lithium cooperatively attenuate cell death during oxygen-glucose deprivation (OGD) and reoxygenation. *Cell. Mol. Neurobiol.* 35: 849-859.
3. Ojha, R., et al. 2016. JAK-mediated autophagy regulates stemness and cell survival in cisplatin resistant bladder cancer cells. *Biochim. Biophys. Acta* 1860: 2484-2497.
4. Ojha, R., et al. 2016. Gemcitabine and mitomycin induced autophagy regulates cancer stem cell pool in urothelial carcinoma cells. *Biochim. Biophys. Acta* 1863: 347-359.

## RESEARCH USE

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