SANTA CRUZ BIOTECHNOLOGY, INC.

MAP LC3α siRNA (h): sc-106197

BACKGROUND

Microtubule-associated proteins (MAPs) regulate microtubule stability and play critical roles in neuronal development and in maintaining the balance between neuronal plasticity and rigidity. MAP light chain 3β (MAP LC3β) and MAP light chain 3α (MAP LC3α) are subunits that can associate with either MAP-1A or MAP-1B. While MAP LC3β is essential for autophagy and is associated with autophagosome membranes after processing, MAP LC3α is involved in the formation of autophagosomal vacuoles and is localized to the intracytoplasmic membrane. MAP LC3α is expressed as two alternatively spliced isoforms that are expressed in testis, brain, heart, liver and skeletal muscle, but are absent in thymus and peripheral blood leukocytes.

CHROMOSOMAL LOCATION

Genetic locus: MAP1LC3A (human) mapping to 20q11.22.

PRODUCT

MAP LC3α 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 MAP LC3α shRNA Plasmid (h): sc-106197-SH and MAP LC3α shRNA (h) Lentiviral Particles: sc-106197-V as alternate gene silencing products.

For independent verification of MAP LC3α (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-106197A, sc-106197B and sc-106197C.

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

MAP LC3α siRNA (h) is recommended for the inhibition of MAP LC3α 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

MAP LC3α/β (G-4): sc-398822 is recommended as a control antibody for monitoring of MAP LC3α 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 MAP LC3α gene expression knockdown using RT-PCR Primer: MAP LC3α (h)-PR: sc-106197-PR (20 µl, 447 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Blanchet, F.P., et al. 2010. Human immunodeficiency virus-1 inhibition of immunoamphisomes in dendritic cells impairs early innate and adaptive immune responses. Immunity 32: 654-669.
2. Chang, C.Y., et al. 2014. Autophagy contributes to gefitinib-induced glioma cell growth inhibition. Exp. Cell Res. 327: 102-112.
3. He, P.X., et al. 2014. G226, a novel epipolythiodioxopiperazine derivative, induces autophagy and caspase-dependent apoptosis in human breast cancer cells *in vitro*. Acta Pharmacol. Sin. 35: 1055-1064.
4. Wang, Y., et al. 2015. CGK733-induced LC3 II formation is positively associated with the expression of cyclin-dependent kinase inhibitor $p21^{Waf1/Cip1}$ through modulation of the AMPK and PERK/CHOP signaling pathways. Oncotarget 6: 39692-39701.
5. Chauhan, S., et al. 2015. Pharmaceutical screen identifies novel target processes for activation of autophagy with a broad translational potential. Nat. Commun. 6: 8620.
6. Hou, B., et al. 2019. SQSTM1/p62 loss reverses the inhibitory effect of sunitinib on autophagy independent of AMPK signaling. Sci. Rep. 9: 11087.

RESEARCH USE

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

PROTOCOLS

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