SANTA CRUZ BIOTECHNOLOGY, INC.

Monoglyceride Lipase siRNA (m): sc-72278

BACKGROUND

Monoglyceride Lipase (MGL), also known as lysophospholipase-like or lysophospholipase homolog, is a ubiquitously expressed protein that functions in the endocannabinoid system. It is required for the the degradation of endocannabinoids and the complete hydrolysis of monoglycerides. In addition, Monoglyceride Lipase functions together with HSL (hormone-sensitive lipase) to hydrolyze intracellular triglyceride to glycerol and fatty acids. Monoglyceride Lipase is a presynaptic, cytosolic enzyme that functions as a serine hydrolase and specifically hydrolyzes 2- and 1(3)-ester bonds of monoglycerides. In particular, Monoglyceride Lipase is responsible for the inactivation and degradation of 2-arachidonoylglycerol (2-AG). 2-AG is a monoglyceride produced by neurons that activates cannabinoid receptors and possibly modulates neurotransmitter release and synaptic plasticity.

REFERENCES

1. Karlsson, M., et al. 2001. Exon-intron organization and chromosomal localization of the mouse Monoglyceride Lipase gene. Gene 272: 11-18.
2. Dinh, T.P., et al. 2002. Brain Monoglyceride Lipase participating in endocannabinoid inactivation. Proc. Natl. Acad. Sci. USA 99: 10819-10824.
3. Roy, R., et al. 2003. Assignment of Monoglyceride Lipase (MGLL) gene to bovine chromosome 22q24 by *in situ* hybridization and confirmation by radiation hybrid mapping. Cytogenet. Genome Res. 101: 92A.
4. Gulyas, A.I., et al. 2004. Segregation of two endocannabinoid-hydrolyzing enzymes into pre- and postsynaptic compartments in the rat hippocampus, cerebellum and amygdala. Eur. J. Neurosci. 20: 441-458.

CHROMOSOMAL LOCATION

Genetic locus: Mgll (mouse) mapping to 6 D1.

PRODUCT

Monoglyceride Lipase siRNA (m) 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 Monoglyceride Lipase shRNA Plasmid (m): sc-72278-SH and Monoglyceride Lipase shRNA (m) Lentiviral Particles: sc-72278-V as alternate gene silencing products.

For independent verification of Monoglyceride Lipase (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72278A, sc-72278B and sc-72278C.

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

Monoglyceride Lipase siRNA (m) is recommended for the inhibition of Monoglyceride Lipase 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.

GENE EXPRESSION MONITORING

Monoglyceride Lipase (C-11): sc-398942 is recommended as a control antibody for monitoring of Monoglyceride Lipase 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 Monoglyceride Lipase gene expression knockdown using RT-PCR Primer: Monoglyceride Lipase (m)-PR: sc-72278-PR (20 µl, 592 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Alpár, A., et al. 2014. Endocannabinoids modulate cortical development by configuring Slit2/Robo1 signalling. Nat. Commun. 5: 4421.

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.