SANTA CRUZ BIOTECHNOLOGY, INC.

LGP2 siRNA (h): sc-93967

BACKGROUND

Helicases are enzymes that catalyze the separation of double stranded DNA or RNA by utilizing ATP. LGP2, also known as probable ATP-dependent RNA helicase DHX58, is a 678 amino acid protein belonging to the helicase family. LGP2 acts as a negative regulator of host innate immune defense against viruses by binding dsRNA produced during viral replication. The repressor domain of LGP2 binds to RIG-I, a signaling protein involved in host defenses against hepatitis C virus (HCV). By preventing RIG-I multimerization, LGP2 negatively regulates RIG-I-mediated signaling. Localized to the cytoplasm, LGP2 contains one helicase ATP-binding domain and one helicase C-terminal domain.

REFERENCES

1. Yoneyama, M., et al. 2005. Shared and unique functions of the DExD/H-box helicases RIG-I, MDA5, and LGP2 in antiviral innate immunity. J. Immunol. 175: 2851-2858.
2. Komuro, A. and Horvath, C.M. 2006. RNA- and virus-independent inhibition of antiviral signaling by RNA helicase LGP2. J. Virol. 80: 12332-12342.
3. Saito, T., et al. 2007. Regulation of innate antiviral defenses through a shared repressor domain in RIG-I and LGP2. Proc. Natl. Acad. Sci. USA 104: 582-587.
4. Murali, A., et al. 2008. Structure and function of LGP2, a DEX(D/H) helicase that regulates the innate immunity response. J. Biol. Chem. 283: 15825-15833.

CHROMOSOMAL LOCATION

Genetic locus: DHX58 (human) mapping to 17q21.2.

PRODUCT

LGP2 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 LGP2 shRNA Plasmid (h): sc-93967-SH and LGP2 shRNA (h) Lentiviral Particles: sc-93967-V as alternate gene silencing products.

For independent verification of LGP2 (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-93967A, sc-93967B and sc-93967C.

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

LGP2 siRNA (h) is recommended for the inhibition of LGP2 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

LGP2 (C-9): sc-373827 is recommended as a control antibody for monitoring of LGP2 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 LGP2 gene expression knockdown using RT-PCR Primer: LGP2 (h)-PR: sc-93967-PR (20 µl, 579 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Li, Y., et al. 2018. Characterization of signaling pathways regulating the expression of pro-inflammatory long form thymic stromal lymphopoietin upon human metapneumovirus infection. Sci. Rep. 8: 883.

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.