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Lieferung & Zahlungsart

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- Trockeneiszuschlag
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SANTA CRUZ BIOTECHNOLOGY, INC.

RNase L siRNA (h): sc-45965

BACKGROUND

RNase L encodes a component of the interferon-regulated 2-5A system that functions in the antiviral and antiproliferative roles of interferons. Mutations in this gene have been associated with predisposition to prostate cancer and this gene is a candidate for the hereditary prostate cancer 1 (HPC1) allele. Interferon treatment enhances levels of both RNase L and a group of synthetases that produce 5'-triphosphorylated, 2',5'-oligoadenylates (2-5A) from ATP. The role of the 2-5A system in the control of viral and cellular growth suggests that defects in the 2-5A-dependent RNase gene could result in reduced immunity to virus infections and cancer.

CHROMOSOMAL LOCATION

Genetic locus: RNASEL (human) mapping to 1q25.3.

PRODUCT

RNase L 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 RNase L shRNA Plasmid (h): sc-45965-SH and RNase L shRNA (h) Lentiviral Particles: sc-45965-V as alternate gene silencing products.

For independent verification of RNase L (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-45965A, sc-45965B and sc-45965C.

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

RNase L siRNA (h) is recommended for the inhibition of RNase L 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

RNase L (E-9): sc-74405 is recommended as a control antibody for monitoring of RNase L 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 RNase L gene expression knockdown using RT-PCR Primer: RNase L (h)-PR: sc-45965-PR (20 µl, 537 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Siddiqui, M.A. and Malathi, K. 2012. RNase L induces autophagy via c-Jun N-terminal kinase and double-stranded RNA-dependent protein kinase signaling pathways. J. Biol. Chem. 287: 43651-43664.
2. Chakrabarti, A., et al. 2012. RNase L triggers autophagy in response to viral infections. J. Virol. 86: 11311-11321.
3. Harashima, N., et al. 2014. Transfection of poly(I:C) can induce reactive oxygen species-triggered apoptosis and interferon-β-mediated growth arrest in human renal cell carcinoma cells via innate adjuvant receptors and the 2-5A system. Mol. Cancer 13: 217.
4. Zhang, A., et al. 2014. RNase L restricts the mobility of engineered retrotransposons in cultured human cells. Nucleic Acids Res. 42: 3803-3820.
5. Machitani, M., et al. 2017. Inhibition of CRISPR/Cas9-mediated genome engineering by a type I interferon-induced reduction in guide RNA expression. Biol. Pharm. Bull. 40: 272-277.
6. Costales, M.G., et al. 2019. Targeted degradation of a hypoxia-associated non-coding RNA enhances the selectivity of a small molecule interacting with RNA. Cell Chem. Biol. 26: 1180-1186.
7. Yin, H., et al. 2019. IFN-γ restores the impaired function of RNase L and induces mitochondria-mediated apoptosis in lung cancer. Cell Death Dis. 10: 642.
8. Yin, H., et al. 2019. Actinomycin D-activated RNase L promotes H2A.X/H2B-mediated DNA damage and apoptosis in lung cancer cells. Front. Oncol. 9: 1086.

RESEARCH USE

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