SANTA CRUZ BIOTECHNOLOGY, INC.

RNase Z1 siRNA (h): sc-76411

BACKGROUND

RNase Z1 (ribonuclease Z 1), also known as ELAC1 or D29, is a 363 amino acid nuclear protein that belongs to the RNase Z family of RNA-processing enzymes. Expressed throughout the body, with highest expression in lung, brain, placenta, heart, liver, kidney and pancreas, RNase Z1 is a zinc phosphodiesterase that plays a role in tRNA maturation by removing 3'-trailer segments from precursor tRNA. In addition, RNase Z has a variety of other zinc-dependent RNA processing activities, including generation of 3' termini on tRNA, endonucleolytic cleavage of RNA and removal of extra 3' nucleotides from unprocessed tRNA. Defects in the gene encoding RNase Z1 may be involved in the pathogenesis of prostate cancer, suggesting a possible role for RNase Z1 in carcinogenesis.

REFERENCES

1. Yanaihara, N., Kohno, T., Takakura, S., Takei, K., Otsuka, A., Sunaga, N., Takahashi, M., Yamazaki, M., Tashiro, H., Fukuzumi, Y., Fujimori, Y., Hagiwara, K., Tanaka, T. and Yokota, J. 2001. Physical and transcriptional map of a 311-kb segment of chromosome 18q21, a candidate lung tumor suppressor locus. Genomics 72: 169-179.
2. Tavtigian, S.V., Simard, J., Teng, D.H., Abtin, V., Baumgard, M., Beck, A., Camp, N.J., Carillo, A.R., Chen, Y., Dayananth, P., Desrochers, M., Dumont, M., Farnham, J.M., Frank, D., Frye, C., Ghaffari, S., Gupte, J.S., Hu, R., Iliev, D., Janecki, T., Kort, E.N., Laity, K.E., Leavitt, A., Leblanc, G., et al. 2001. A candidate prostate cancer susceptibility gene at chromosome 17p. Nat. Genet. 27: 172-180.
3. Schiffer, S., Rösch, S. and Marchfelder, A. 2002. Assigning a function to a conserved group of proteins: the tRNA 3'-processing enzymes. EMBO J. 21: 2769-2777.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608079. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Takaku, H., Minagawa, A., Takagi, M. and Nashimoto, M. 2003. A candidate prostate cancer susceptibility gene encodes tRNA 3' processing endoribonuclease. Nucleic Acids Res. 31: 2272-2278.

CHROMOSOMAL LOCATION

Genetic locus: ELAC1 (human) mapping to 18q21.2.

PRODUCT

RNase Z1 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 Z1 shRNA Plasmid (h): sc-76411-SH and RNase Z1 shRNA (h) Lentiviral Particles: sc-76411-V as alternate gene silencing products.

For independent verification of RNase Z1 (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-76411A, sc-76411B and sc-76411C.

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 Z1 siRNA (h) is recommended for the inhibition of RNase Z1 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 Z1 (E-5): sc-390029 is recommended as a control antibody for monitoring of RNase Z1 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 Z1 gene expression knockdown using RT-PCR Primer: RNase Z1 (h)-PR: sc-76411-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.