SANTA CRUZ BIOTECHNOLOGY, INC.

RNase K siRNA (h): sc-94097

BACKGROUND

Ribonucleases are ubiquitously expressed enzymes that are involved in RNA metabolism and are classified in several families on the basis of their structural, catalytic and biological properties. RNase K (ribonuclease κ), also known as RNASEK, is a 98 amino acid multi-pass membrane protein that is widely expressed. Belonging to the RNase K family, RNase K acts as an endoribonuclease that preferentially cleaves ApU and ApG phosphodiester bonds, and hydrolyzes UpU bonds at a lower rate. RNase K is encoded by a gene located on human chromosome 17p13.1. Human chromosome 17 makes up over 2.5% of the human genome with about 81 million bases encoding over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, although it is specifically recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

REFERENCES

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3. Economopoulou, M.A., et al. 2007. Molecular cloning and characterization of the human RNase κ, an ortholog of Cc RNase. Nucleic Acids Res. 35: 6389-6398.
4. Tai, Y.C., et al. 2007. Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. J. Natl. Cancer Inst. 99: 1811-1814.
5. Yan, J., et al. 2007. BLIMP1 regulates cell growth through repression of p53 transcription. Proc. Natl. Acad. Sci. USA 104: 1841-1846
6. Rampias, T.N., et al. 2008. Genomic structure and expression analysis of the RNase κ family ortholog gene in the insect *Ceratitis capitata.* FEBS J. 275: 6217-6227.
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CHROMOSOMAL LOCATION

Genetic locus: RNASEK (human) mapping to 17p13.1.

PRODUCT

RNase K siRNA (h) is a target-specific 19-25 nt siRNA 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 K shRNA Plasmid (h): sc-94097-SH and RNase K shRNA (h) Lentiviral Particles: sc-94097-V as alternate gene silencing products.

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 K siRNA (h) is recommended for the inhibition of RNase K 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RNase K gene expression knockdown using RT-PCR Primer: RNase K (h)-PR: sc-94097-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.