SANTA CRUZ BIOTECHNOLOGY, INC.

Ribosomal Protein L5 siRNA (h): sc-78649

BACKGROUND

Ribosomes, the organelles that catalyze protein synthesis, are composed of a small subunit (40S) and a large subunit (60S) that consist of over 80 distinct ribosomal proteins. Mammalian ribosomal proteins are encoded by multigene families that contain processed pseudogenes and one functional intron-containing gene within their coding regions. Ribosomal Protein L5, also known as RPL5 or DBA6, is a 297 amino acid protein required for rRNA maturation that belongs to the Ribosomal Protein L18P family. A component of the 60S subunit, Ribosomal Protein L5 localizes to cytoplasm and nucleolus and binds 5S rRNA to form a stable complex termed 5S ribonucleoprotein particle (RNP), which is essential for nonribosome-associated cytoplasmic 5S rRNA transport into the nucleolus for ribosome assembly. Ribosomal Protein L5 defects may lead to Diamond-Blackfan anemia type 6 (DBA6), a congenital hypoplastic anemia that is characterized by erythroblastopenia and macrocytic anemia.

REFERENCES

1. Aase, J.M. and Smith, D.W. 1969. Congenital anemia and triphalangeal thumbs: a new syndrome. J. Pediatr. 74: 471-474.
2. Qu, L.H., et al. 1994. U21, a novel small nucleolar RNA with a 13 nt. complementarity to 28S rRNA, is encoded in an intron of Ribosomal Protein L5 gene in chicken and mammals. Nucleic Acids Res. 22: 4073-4081.
3. Frigerio, J.M., et al 1995. Cloning, sequencing and expression of the L5, L21, L27a, L28, S5, S9, S10 and S29 human ribosomal protein mRNAs. Biochim. Biophys. Acta 1262: 64-68.
4. Dai, M.S., et al. 2006. Regulation of the MDM2-p53 pathway by ribosomal protein L11 involves a post-ubiquitination mechanism. J. Biol. Chem. 281: 24304-24313.
5. Yu, Y., et al. 2006. Nucleophosmin is essential for Ribosomal Protein L5 nuclear export. Mol. Cell. Biol. 26: 3798-3809.
6. Gazda, H.T., et al. 2008. Ribosomal Protein L5 and L11 mutations are associated with cleft palate and abnormal thumbs in Diamond-Blackfan anemia patients. Am. J. Hum. Genet. 83: 769-780.

CHROMOSOMAL LOCATION

Genetic locus: RPL5 (human) mapping to 1p22.1.

PRODUCT

Ribosomal Protein L5 siRNA (h) is a pool of 2 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 Ribosomal Protein L5 shRNA Plasmid (h): sc-78649-SH and Ribosomal Protein L5 shRNA (h) Lentiviral Particles: sc-78649-V as alternate gene silencing products.

For independent verification of Ribosomal Protein L5 (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-78649A and sc-78649B.

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

Ribosomal Protein L5 siRNA (h) is recommended for the inhibition of Ribosomal Protein L5 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 Ribosomal Protein L5 gene expression knockdown using RT-PCR Primer: Ribosomal Protein L5 (h)-PR: sc-78649-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jung, J.H., et al. 2020. Colocalization of MID1IP1 and c-Myc is critically involved in liver cancer growth via regulation of Ribosomal Protein L5 and L11 and CNOT2. Cells 9 pii: E985.

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.