SANTA CRUZ BIOTECHNOLOGY, INC.

JTV1 siRNA (h): sc-89346

BACKGROUND

The fidelity of protein synthesis requires efficient discrimination of amino acid substrates by aminoacyl-tRNA synthetases. Aminoacyl-tRNA synthetases function to catalyze the aminoacylation of tRNAs by their corresponding amino acids, thus linking amino acids with tRNA-contained nucleotide triplets. JTV1, also known as P38 or AIMP2 (aminoacyl tRNA synthetase complex-interacting multifunctional protein 2), is a 320 amino acid nuclear and cytoplasmic protein that is a component of the aminoacyl-tRNA synthase complex. Containing one GST C-terminal domain, JTV1 mediates ubiquitination and degradation of FBP1, a transcriptional activator of c-Myc, leading to c-Myc down-regulation, which is required for aveolar type II cell differentiation. JTV1 also participates in blocking MDM2-mediated ubiquitination, degradation of p53 and functions as a proapoptotic factor.

REFERENCES

1. Quevillon, S., et al. 1999. Macromolecular assemblage of aminoacyl-tRNA synthetases: identification of protein-protein interactions and characterization of a core protein. J. Mol. Biol. 285: 183-195.
2. Kim, M.J., et al. 2003. Downregulation of FUSE-binding protein and c-myc by tRNA synthetase cofactor p38 is required for lung cell differentiation. Nat. Genet. 34: 330-336.
3. Halwani, R., et al. 2004. Cellular distribution of Lysyl-tRNA synthetase and its interaction with $G_{\alpha\gamma}$ during human immunodeficiency virus type 1 assembly. J. Virol. 78: 7553-7564.
4. Ko, H.S., et al. 2005. Accumulation of the authentic parkin substrate aminoacyl-tRNA synthetase cofactor, p38/JTV-1, leads to catecholaminergic cell death. J. Neurosci. 25: 7968-7978.
5. Han, J.M., et al. 2008. AIMP2/p38, the scaffold for the multi-tRNA synthetase complex, responds to genotoxic stresses via p53. Proc. Natl. Acad. Sci. USA 105: 11206-11211.
6. Choi, J.W., et al. 2009. Multidirectional tumor-suppressive activity of AIMP2/p38 and the enhanced susceptibility of AIMP2 heterozygous mice to carcinogenesis. Carcinogenesis 30: 1638-1644.
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CHROMOSOMAL LOCATION

Genetic locus: AIMP2 (human) mapping to 7p22.1.

PRODUCT

JTV1 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 JTV1 shRNA Plasmid (h): sc-89346-SH and JTV1 shRNA (h) Lentiviral Particles: sc-89346-V as alternate gene silencing products.

For independent verification of JTV1 (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-89346A, sc-89346B and sc-89346C.

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

JTV1 siRNA (h) is recommended for the inhibition of JTV1 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 JTV1 gene expression knockdown using RT-PCR Primer: JTV1 (h)-PR: sc-89346-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.