SANTA CRUZ BIOTECHNOLOGY, INC.

ICF45 siRNA (h): sc-91730

BACKGROUND

The transfer RNA (tRNA) for histidine is unique among eukaryotic tRNAs because it requires the addition of a guanine nucleotide by tRNA(His) guanylyltransferase. The addition of guanine is necessary for aminoacylation by the histidine tRNA synthetase. ICF45 (interphase cytoplasmic foci protein 45), also known as THG1L or probable tRNA-histidine guanylyltransferase, is a highly conserved novel 298 amino acid protein belonging to the tRNA(His) gyanylytransferase family. Localized to the cytoplasm, ICF45 is also found near the nuclear membrane and is expressed in many tissues, including liver and lung. Upon DNA damage, ICF45 is phosphorylated, most likely by ATM or ATR. ICF45 is expressed in a cell cycle-dependent manner and may be involved in cell cycle progression and cell proliferation. ICF45 is encoded by a gene located on human chromosome 5q33.3 and mouse chromosome 11 B1.1.

REFERENCES

1. Williams, J.B., et al. 1990. Enzymatic addition of guanylate to histidine transfer RNA. Meth. Enzymol. 181: 451-462.
2. Fresco, L.D., et al. 1994. Active site of the mRNA-capping enzyme guanylyltransferase from *Saccharomyces cerevisiae*: similarity to the nucleotidyl attachment motif of DNA and RNA ligases. Proc. Natl. Acad. Sci. USA 91: 6624-6628.
3. Guo, D., et al. 2004. Identification and characterization of a novel cytoplasm protein ICF45 that is involved in cell cycle regulation. J. Biol. Chem. 279: 53498-53505.
4. Jackman, J.E., et al. 2006. tRNAHis guanylyltransferase adds G-1 to the 5' end of tRNAHis by recognition of the anticodon, one of several features unexpectedly shared with tRNA synthetases. RNA 12: 1007-1014.
5. Choudhary, C., et al. 2009. Lysine acetylation targets protein complexes and co-regulates major cellular functions. Science 325: 834-840.
6. Banik, S.D., et al. 2010. Aminoacylation reaction in the histidyl-tRNA synthetase: fidelity mechanism of the activation step. J. Phys. Chem. B 114: 2301-2311.

CHROMOSOMAL LOCATION

Genetic locus: THG1L (human) mapping to 5q33.3.

PRODUCT

ICF45 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 ICF45 shRNA Plasmid (h): sc-91730-SH and ICF45 shRNA (h) Lentiviral Particles: sc-91730-V as alternate gene silencing products.

For independent verification of ICF45 (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-91730A, sc-91730B and sc-91730C.

RESEARCH USE

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

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

ICF45 siRNA (h) is recommended for the inhibition of ICF45 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 ICF45 gene expression knockdown using RT-PCR Primer: ICF45 (h)-PR: sc-91730-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.