SANTA CRUZ BIOTECHNOLOGY, INC.

UFL1 siRNA (h): sc-95134

BACKGROUND

UFL1 (UFM1-specific ligase 1), also known as KIAA0776, NLBP, RCAD or Maxer, is a 794 amino acid protein that localizes to the endoplasmic reticulum as well as the cytoplasm, where it colocalizes with CDK5RAP3. UFL1 belongs to the UFL1 familiy and is known to interact with UFC1 and RELA. UFL1 mediates ufmylation of DDRGK1 and may act as a tumor suppressor by blocking NFκB signaling, inhibiting cell invasion and increasing stability of CDK5RAP3. UFL1 is ubiquitously expressed with strong expression in liver and weak expression in invasive hepatocellular carcinomas. UFL1 is ubiquitinated and ultimately degraded by the proteasome, but is protected from degradation by interaction with CDK5RAP3. In addition to potential ubiquitination, UFL1 is post-translationally phosphorylated at serine residue 458 and acetylated at lysine 571. UFL1 exists as three alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 6, which makes up nearly 6% of the human genome and contains around 1,200 genes within 170 million base pairs of sequence.

REFERENCES

1. Nagase, T., et al. 1998. Prediction of the coding sequences of unidentified human genes. XI. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro.* DNA Res. 5: 277-286.
2. Mungall, A.J., et al. 2003. The DNA sequence and analysis of human chromosome 6. Nature 425: 805-811.
3. Olsen, J.V., et al. 2006. Global, *in vivo,* and site-specific phosphorylation dynamics in signaling networks. Cell 127: 635-648.
4. Han, G., et al. 2008. Large-scale phosphoproteome analysis of human liver tissue by enrichment and fractionation of phosphopeptides with strong anion exchange chromatography. Proteomics 8: 1346-1361.
5. Choudhary, C., et al. 2009. Lysine acetylation targets protein complexes and co-regulates major cellular functions. Science 325: 834-840.
7. Tatsumi, K., et al. 2010. A novel type of E3 ligase for the Ufm1 conjugation system. J. Biol. Chem. 285: 5417-5427.
6. Kwon, J., et al. 2010. A novel LZAP-binding protein, NLBP, inhibits cell invasion. J. Biol. Chem. 285: 12232-12240.

CHROMOSOMAL LOCATION

Genetic locus: UFL1 (human) mapping to 6q16.1.

PRODUCT

UFL1 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 UFL1 shRNA Plasmid (h): sc-95134-SH and UFL1 shRNA (h) Lentiviral Particles: sc-95134-V as alternate gene silencing products.

For independent verification of UFL1 (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-95134A, sc-95134B and sc-95134C.

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

UFL1 siRNA (h) is recommended for the inhibition of UFL1 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 UFL1 gene expression knockdown using RT-PCR Primer: UFL1 (h)-PR: sc-95134-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. Liu, Y., et al. 2025. UFMylation maintains YAP stability to promote vascular endothelial cell senescence. iScience 28: 111854.

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.