SANTA CRUZ BIOTECHNOLOGY, INC.

UFM1 siRNA (h): sc-76804

BACKGROUND

UFM1 (ubiquitin-fold modifier 1), also known as BM-002 or C13orf20, is an 85 amino acid protein that localizes primarily to the nucleus, but is also present in diffuse amounts in the cytoplasm. Expressed in a variety of tissues, including kidney, brain, heart, liver and lung, UFM1 interacts with UBA5 (an E1-like activating enzyme) and Ufc1 (an E2-like conjugating enzyme) and, via these interactions, conjugates to target proteins by a covalent linkage. The gene encoding UFM1 maps to human chromosome 13, which houses over 400 genes and comprises nearly 4% of the human genome. Chromosome 13 houses key tumor suppressor genes, including BRCA2 and RB1, which are associated with breast cancer susceptibility and retinoblastoma, respectively. Trisomy 13, also known as Patau syndrome, is deadly and the few who survive past one year suffer from permanent neurologic defects, difficulty eating and vulnerability to serious respiratory infections.

REFERENCES

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2. Komatsu, M., et al. 2004. A novel protein-conjugating system for UFM1, a ubiquitin-fold modifier. EMBO J. 23: 1977-1986.
3. Sasakawa, H., et al. 2006. Solution structure and dynamics of UFM1, a ubiquitin-fold modifier 1. Biochem. Biophys. Res. Commun. 343: 21-26.
4. Mizushima, T., et al. 2007. Crystal structure of Ufc1, the UFM1-conjugating enzyme. Biochem. Biophys. Res. Commun. 362: 1079-1084.
5. Kang, S.H., et al. 2007. Two novel ubiquitin-fold modifier 1 (UFM1)-specific proteases, UFSP1 and UFSP2. J. Biol. Chem. 282: 5256-5262.
6. Ha, B.H., et al. 2008. Structural basis for UFM1 processing by UFSP1. J. Biol. Chem. 283: 14893-14900.
7. Zheng, M., et al. 2008. UBE1DC1, an ubiquitin-activating enzyme, activates two different ubiquitin-like proteins. J. Cell. Biochem. 104: 2324-2334.

CHROMOSOMAL LOCATION

Genetic locus: UFM1 (human) mapping to 13q13.3.

PRODUCT

UFM1 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 UFM1 shRNA Plasmid (h): sc-76804-SH and UFM1 shRNA (h) Lentiviral Particles: sc-76804-V as alternate gene silencing products.

For independent verification of UFM1 (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-76804A, sc-76804B and sc-76804C.

PROTOCOLS

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

UFM1 siRNA (h) is recommended for the inhibition of UFM1 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 UFM1 gene expression knockdown using RT-PCR Primer: UFM1 (h)-PR: sc-76804-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.