



UBL5 siRNA (h): sc-97774

BACKGROUND

Ubiquitin is a 77 amino acid protein that targets proteins for degradation by the 26S Proteasome. Ubiquitin-like (UBL) proteins are not directly involved in protein degradation, but appear to have many mechanistic similarities with the ubiquitin pathway. UBL5 (ubiquitin-like protein 5), also known as Beacon, is a 73 amino acid cytoplasmic protein that contains a ubiquitin-like domain, though it is shorter than ubiquitin and other UBL proteins. UBL proteins are also similar to ubiquitin in that they are enzymatically conjugated via an isopeptide bond between the C-terminal glycine carboxylate group and a lysine residue on the target protein; however, UBL5 lacks glycine residues at its C-terminus. UBL5 is ubiquitously expressed, though is found in highest levels in iris, kidney, muscle, brain, heart, liver and lymphoblast tissues. In the brain, UBL5 is expressed in vasopressin- and oxytocin-positive neurons and seems to be osmoregulated.

REFERENCES

1. Friedman, J.S., et al. 2001. Isolation of a ubiquitin-like (UBL5) gene from a screen identifying highly expressed and conserved iris genes. *Genomics* 71: 252-255.
2. Dittmar, G.A., et al. 2002. Role of a ubiquitin-like modification in polarized morphogenesis. *Science* 295: 2442-2446.
3. Brailoiu, G.C., et al. 2003. Beacon/ubiquitin-like 5-immunoreactivity in the hypothalamus and pituitary of the mouse. *Brain Res.* 984: 215-223.
4. McNally, T., et al. 2003. Structural analysis of UBL5, a novel ubiquitin-like modifier. *Protein Sci.* 12: 1562-1566.
5. Jowett, J.B., et al. 2004. Genetic variation in Beacon influences quantitative variation in metabolic syndrome-related phenotypes. *Diabetes* 53: 2467-2472.
6. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 606849. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
7. Hatanaka, K., et al. 2006. Hypo-osmotic shock induces nuclear export and proteasome-dependent decrease of UBL5. *Biochem. Biophys. Res. Commun.* 350: 610-615.
8. Bozaoglu, K., et al. 2006. Association of genetic variation within UBL5 with phenotypes of metabolic syndrome. *Hum. Biol.* 78: 147-159.
9. Sentinelli, F., et al. 2008. Identification of sequence variants in the UBL5 (ubiquitin-like 5 or Beacon) gene in obese children by PCR-SSCP: no evidence for association with obesity. *J. Pediatr. Endocrinol. Metab.* 21: 1139-1145.

CHROMOSOMAL LOCATION

Genetic locus: UBL5 (human) mapping to 19p13.2.

PROTOCOLS

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

PRODUCT

UBL5 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see UBL5 shRNA Plasmid (h): sc-97774-SH and UBL5 shRNA (h) Lentiviral Particles: sc-97774-V as alternate gene silencing products.

For independent verification of UBL5 (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-97774A and sc-97774B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

UBL5 siRNA (h) is recommended for the inhibition of UBL5 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 μ M in 66 μ l. 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.

GENE EXPRESSION MONITORING

UBL5 (429CT16.3.1): sc-517371 is recommended as a control antibody for monitoring of UBL5 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor UBL5 gene expression knockdown using RT-PCR Primer: UBL5 (h)-PR: sc-97774-PR (20 μ l). 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.