SANTA CRUZ BIOTECHNOLOGY, INC.

UBC9 siRNA (h): sc-36773

BACKGROUND

UBC9 is a component of the ubiquitin-mediated proteolytic pathway, which targets proteins for degradation by the 26S Proteasome, mediates endocytosis and directs protein subcellular localization. Ub and Ub-like molecules are systematically transferred from E2 conjugating enzymes to the targeted substrate by way of an E3 ubiquitin ligase. UBC9 functions as an E2 ubiquitin conjugating enzyme that preferentially associates with the ubiquitin homolog designated SUMO-1 or sentrin, a component of the sentrinization complex. Characteristic of the E2 family members, UBC9 contains a conserved cysteine residue that is required for the thio ester formation between Ub-like proteins and the E2 member, and it shares a conserved UBC domain. Substrates for UBC9 include transcription factors E12 and E47 and mitotic regulators RanBP2 and RanGAP1, which indicates that UBC9 may regulate various cellular processes including cell cycle progression and differentiation.

REFERENCES

1. Jentsch, S. 1992. The ubiquitin-conjugation system. Annu. Rev. Genet. 26: 179-207.
2. Wang, Z.Y., et al. 1996. Molecular cloning of the cDNA and chromosome localization of the gene for human ubiquitin-conjugating enzyme 9. J. Biol. Chem. 271: 24811-24816.
3. Hochstrasser, M. 1996. Protein degradation or regulation: Ub the judge. Cell 84: 813-815.

CHROMOSOMAL LOCATION

Genetic locus: UBE2I (human) mapping to 16p13.3.

PRODUCT

UBC9 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 UBC9 shRNA Plasmid (h): sc-36773-SH and UBC9 shRNA (h) Lentiviral Particles: sc-36773-V as alternate gene silencing products.

For independent verification of UBC9 (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-36773A, sc-36773B and sc-36773C.

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

UBC9 siRNA (h) is recommended for the inhibition of UBC9 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.

GENE EXPRESSION MONITORING

UBC9 (C-12): sc-271057 is recommended as a control antibody for monitoring of UBC9 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 UBC9 gene expression knockdown using RT-PCR Primer: UBC9 (h)-PR: sc-36773-PR (20 µl, 467 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Geletu, M., et al. 2007. Target proteins of C/EBPαp30 in AML: C/EBPαp30 enhances sumoylation of C/EBPαp42 via up-regulation of UBC9. Blood 110: 3301-3309.
2. Pène, S., et al. 2014. A non-SUMOylated tax protein is still functional for NFκB pathway activation. J. Virol. 88: 10655-10661.
3. Digiacomo, V., et al. 2015. The transition of the 37-kDa Laminin receptor (RPSA) to higher molecular weight species: sumoylation or artifact? Cell. Mol. Biol. Lett. 20: 571-585.
4. Xiao, Y., et al. 2016. Inhibition of Cdk1 activity by sumoylation. Biochem. Biophys. Res. Commun. 478: 919-923.
5. Lorente, M., et al. 2019. Inhibiting SUMO1-mediated SUMOylation induces autophagy-mediated cancer cell death and reduces tumour cell invasion via RAC1. J. Cell Sci. 132: jcs234120.
6. Vigodner, M., et al. 2020. Identification of sumoylated targets in proliferating mouse spermatogonia and human testicular seminomas. Asian J. Androl. 22: 569-577.
7. Benoit, Y.D., et al. 2021. Targeting SUMOylation dependency in human cancer stem cells through a unique SAE2 motif revealed by chemical genomics. Cell Chem. Biol. 28: 1394-1406.e10.
8. Singhal, J., et al. 2022. Host SUMOylation pathway negatively regulates protective immune responses and promotes *Leishmania donovani* survival. Front. Cell. Infect. Microbiol. 12: 878136.

RESEARCH USE

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