SANTA CRUZ BIOTECHNOLOGY, INC.

UBXD7 siRNA (h): sc-78377

BACKGROUND

The UBX (ubiquitin regulatory X) domain is an 80 amino acid motif that is usually present on the carboxy-terminus of certain eukaryotic proteins. UBX domain-containing proteins, such as FAF1, p33ING1 and D8S2298E, are typically involved in ubiquitin-related processes. UBXD7 (UBX domain-containing protein 7) is a 489 amino acid protein that contains one UBX domain. By interacting with VCP, an ATP-dependent chaperone that regulates endoplasmic reticulum-associated degradation, UBXD7 links it to a ubiquitin ligase, CUL-2, and HIF-1α. This results in depletion of p97, leading to accumulation of HIF-1α and increased expression of a HIF-1α target gene. This suggests that UBXD7 plays an indirect role in the regulation of HIF-1α. UBXD7 is phosphorylated by either ATM or ATR upon DNA damage.

REFERENCES

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2. Buchberger, A., et al. 2001. The UBX domain: a widespread ubiquitin-like module. J. Mol. Biol. 307: 17-24.
3. Kim, J.E., et al. 2005. Global phosphoproteome of HT-29 human colon adenocarcinoma cells. J. Proteome Res. 4: 1339-1346.
4. Ye, Y. 2006. Diverse functions with a common regulator: ubiquitin takes command of an AAA ATPase. J. Struct. Biol. 156: 29-40.
5. Tang, L.Y., et al. 2007. Quantitative phosphoproteome profiling of Wnt3a-mediated signaling network: indicating the involvement of ribonucleoside-diphosphate reductase M2 subunit phosphorylation at residue serine 20 in canonical Wnt signal transduction. Mol. Cell. Proteomics 6: 1952-1967.
6. Matsuoka, S., et al. 2007. ATM and ATR substrate analysis reveals extensive protein networks responsive to DNA damage. Science 316: 1160-1166.
7. Alexandru, G., et al. 2008. UBXD7 binds multiple ubiquitin ligases and implicates p97 in HIF1α turnover. Cell 134: 804-816.
8. Schuberth, C. and Buchberger, A. 2008. UBX domain proteins: major regulators of the AAA ATPase Cdc48/p97. Cell. Mol. Life Sci. 65: 2360-2371.

CHROMOSOMAL LOCATION

Genetic locus: UBXN7 (human) mapping to 3q29.

PRODUCT

UBXD7 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 UBXD7 shRNA Plasmid (h): sc-78377-SH and UBXD7 shRNA (h) Lentiviral Particles: sc-78377-V as alternate gene silencing products.

For independent verification of UBXD7 (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-78377A, sc-78377B and sc-78377C.

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

UBXD7 siRNA (h) is recommended for the inhibition of UBXD7 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 UBXD7 gene expression knockdown using RT-PCR Primer: UBXD7 (h)-PR: sc-78377-PR (20 µl, 481 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Nguyen, T.V., et al. 2017. p97/VCP promotes degradation of CRBN substrate glutamine synthetase and neosubstrates. Proc. Natl. Acad. Sci. USA 114: 3565-3571.

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.