SANTA CRUZ BIOTECHNOLOGY, INC.

UBE1L2 siRNA (m): sc-154847

BACKGROUND

The ubiquitin activating enzyme E1 (UBE1) catalyzes the first step in ubiquitin conjugation to mark cellular proteins for degradation. UBE1 activates ubiquitin by first adenylating (with ATP) its carboxy-terminal glycine residue and thereafter linking this residue to the side chain of a cysteine residue in E1, yielding a ubiquitin-E1 thioester and a free AMP. UBE1 is an example of an X-Y homologous gene, which is X-linked with a distinct Y-linked gene in many mammals. UBE1L and UBE1L2 are both related to UBE1 and function in the activation of ubiquitin through ATP-dependent adenylation. UBE1L2 (ubiquitin-activating enzyme E1-like protein 2), also known as ubiquitin-like modifier-activating enzyme 6 and monocyte protein 4, is a 1,052 amino acid protein that is also essential for embryonic development. Though widely expressed, UBE1L2 is predominantly expressed in testis, with higher levels found in adult compared to fetus testis. There are four isoforms of UBE1L2 that are produced as a result of alternative splicing events.

REFERENCES

1. Zhu, H., Zhou, Z.M., Huo, R., Huang, X.Y., Lu, L., Lin, M., Wang, L.R., Zhou, Y.D., Li, J.M. and Sha, J.H. 2004. Identification and characteristics of a novel E1 like gene nUBE1L in human testis. Acta Biochim. Biophys. Sin. 36: 227-234.
2. Pelzer, C., Kassner, I., Matentzoglu, K., Singh, R.K., Wollscheid, H.P., Scheffner, M., Schmidtke, G. and Groettrup, M. 2007. UBE1L2, a novel E1 enzyme specific for ubiquitin. J. Biol. Chem. 282: 23010-23014.
3. Chiu, Y.H., Sun, Q. and Chen, Z.J. 2007. E1-L2 activates both ubiquitin and FAT10. Mol. Cell 27: 1014-1023.
4. Jin, J., Li, X., Gygi, S.P. and Harper, J.W. 2007. Dual E1 activation systems for ubiquitin differentially regulate E2 enzyme charging. Nature 447: 1135-1138.
5. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611361. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Groettrup, M., Pelzer, C., Schmidtke, G. and Hofmann, K. 2008. Activating the ubiquitin family: UBA6 challenges the field. Trends Biochem. Sci. 33: 230-237.
7. Aichem, A., Pelzer, C., Lukasiak, S., Kalveram, B., Sheppard, P.W., Rani, N., Schmidtke, G. and Groettrup, M. 2010. USE1 is a bispecific conjugating enzyme for ubiquitin and FAT10, which FAT10ylates itself in *cis*. Nat. Commun. 1: 13.

CHROMOSOMAL LOCATION

Genetic locus: Uba6 (mouse) mapping to 5 E1.

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.

PRODUCT

UBE1L2 siRNA (m) 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 UBE1L2 shRNA Plasmid (m): sc-154847-SH and UBE1L2 shRNA (m) Lentiviral Particles: sc-154847-V as alternate gene silencing products.

For independent verification of UBE1L2 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-154847A, sc-154847B and sc-154847C.

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

UBE1L2 siRNA (m) is recommended for the inhibition of UBE1L2 expression in mouse 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 UBE1L2 gene expression knockdown using RT-PCR Primer: UBE1L2 (m)-PR: sc-154847-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.