SANTA CRUZ BIOTECHNOLOGY, INC.

UTX siRNA (m): sc-76882

BACKGROUND

The Notch signaling pathway controls cellular interactions important for the specification of a variety of fates in both vertebrates and invertebrates. Key players in the Notch pathway are the TLE genes (for transducin-like enhancer of split, also designated ESG for enhancer of split groucho), which are human homologs of the *Drosophila* groucho gene. UTX (ubiquitously transcribed tetratricopeptide repeat, X chromosome) is a 1,401 amino acid nuclear protein that interacts with TLE1 (transducin-like enhancer of split 1) and, together, these proteins are thought to function as transcriptional repressors for a variety of targets. Expressed from a gene located on the inactive X chromosome, UTX functions as a histone demethylase that is involved in modulating the histone code (via demethylation of lysine residues on Histone H3) and in regulating Hox (homeobox) gene expression. UTX contains one JMJC domain and eight TPR repeats.

REFERENCES

1. Greenfield, A., et al. 1998. The UTX gene escapes X inactivation in mice and humans. Hum. Mol. Genet. 7: 737-742.
2. Grbavec, D., et al. 1999. Groucho/transducin-like enhancer of split (TLE) family members interact with the yeast transcriptional co-repressor Ssn6 and mammalian Ssn6-related proteins: implications for evolutionary conservation of transcription repression mechanisms. Biochem. J. 337: 13-17.
3. Hong, S., et al. 2007. Identification of JMJC domain-containing UTX and JMJD3 as Histone H3 Lysine 27 demethylases. Proc. Natl. Acad. Sci. USA 104: 18439-18444.
4. Agger, K., et al. 2007. UTX and JMJD3 are Histone H3K27 demethylases involved in HOX gene regulation and development. Nature 449: 731-734.
5. Cho, Y.W., et al. 2007. PTIP associates with MLL3- and MLL4-containing Histone H3 Lysine 4 methyltransferase complex. J. Biol. Chem. 282: 20395-20406.

CHROMOSOMAL LOCATION

Genetic locus: Kdm6a (mouse) mapping to X A1.2.

PRODUCT

UTX 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 UTX shRNA Plasmid (m): sc-76882-SH and UTX shRNA (m) Lentiviral Particles: sc-76882-V as alternate gene silencing products.

For independent verification of UTX (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-76882A, sc-76882B and sc-76882C.

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

UTX siRNA (m) is recommended for the inhibition of UTX 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.

GENE EXPRESSION MONITORING

UTX (E-8): sc-514859 is recommended as a control antibody for monitoring of UTX 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor UTX gene expression knockdown using RT-PCR Primer: UTX (m)-PR: sc-76882-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. Majumder, S., et al. 2018. Shifts in podocyte histone H3K27me3 regulate mouse and human glomerular disease. J. Clin. Invest. 128: 483-499.

RESEARCH USE

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