

LTN1 siRNA (m): sc-155678

BACKGROUND

LTN1 (listerin E3 ubiquitin protein ligase 1), also known as RNF160, ZNF294, C21orf10, C21orf98 or KIAA0714, is a 1,766 amino acid protein that belongs to the LTN1 family and contains 16 HEAT repeats and contains one RING-type zinc finger. LTN1 is an E3 ubiquitin ligase, as are many RING finger proteins. LTN1 and NEMF, along with possibly TCF25 and VCP/p97, are components of the ribosome quality control complex, a ribosome-associated complex that mediates ubiquitination and extracts for proteasomal degradation incompletely synthesized protein chains. It has been found that mice with homozygous mutations in LTN1 show marked early-onset and progressive neurological and motor dysfunction with signs including gliosis, dystrophic neurites, vacuolated mitochondria, and accumulation of soluble hyperphosphorylated tau. Interference with the LTN1-regulated processes has been linked with neurodegeneration.

REFERENCES

1. Nagase, T., Ishikawa, K., Suyama, M., Kikuno, R., Miyajima, N., Tanaka, A., Kotani, H., Nomura, N. and Ohara, O. 1998. Prediction of the coding sequences of unidentified human genes. XI. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 5: 277-286.
2. Chu, J., Hong, N.A., Masuda, C.A., Jenkins, B.V., Nelms, K.A., Goodnow, C.C., Glynn, R.J., Wu, H., Masliah, E., Joazeiro, C.A. and Kay, S.A. 2009. A mouse forward genetics screen identifies LISTERIN as an E3 ubiquitin ligase involved in neurodegeneration. Proc. Natl. Acad. Sci. USA 106: 2097-2103.
3. Bengtson, M.H. and Joazeiro, C.A. 2010. Role of a ribosome-associated E3 ubiquitin ligase in protein quality control. Nature 467: 470-473.
4. Shao, S., von der Malsburg, K. and Hegde, R.S. 2013. Listerin-dependent nascent protein ubiquitination relies on ribosome subunit dissociation. Mol. Cell 50: 637-648.
5. Besche, H.C., Sha, Z., Kukushkin, N.V., Peth, A., Hock, E.M., Kim, W., Gygi, S., Gutierrez, J.A., Liao, H., Dick, L. and Goldberg, A.L. 2014. Autoubiquitination of the 26S proteasome on Rpn13 regulates breakdown of ubiquitin conjugates. EMBO J. 33: 1159-1176.
6. Shao, S. and Hegde, R.S. 2014. Reconstitution of a minimal ribosome-associated ubiquitination pathway with purified factors. Mol. Cell 55: 880-890.
7. Shao, S., Brown, A., Santhanam, B. and Hegde, R.S. 2015. Structure and assembly pathway of the ribosome quality control complex. Mol. Cell 57: 433-444.

CHROMOSOMAL LOCATION

Genetic locus: Ltn1 (mouse) mapping to 16 C3.3.

PROTOCOLS

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

PRODUCT

LTN1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see LTN1 shRNA Plasmid (m): sc-155678-SH and LTN1 shRNA (m) Lentiviral Particles: sc-155678-V as alternate gene silencing products.

For independent verification of LTN1 (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-155678A, sc-155678B and sc-155678C.

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

LTN1 siRNA (m) is recommended for the inhibition of LTN1 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 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor LTN1 gene expression knockdown using RT-PCR Primer: LTN1 (m)-PR: sc-155678-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.