SANTA CRUZ BIOTECHNOLOGY, INC.

matrin-3 siRNA (m): sc-62605

BACKGROUND

Matrin-3 is a nuclear matrix protein containing one matrin-type zinc finger and two RRM (RNA recognition motif) domains. Matrin-3 plays a role in transcription and may interact with other nuclear matrix proteins to form the internal fibrogranular network. In association with the PSF-p54/NRB heteromer, matrin-3 may play a role in the nuclear retention of defective RNAs. As the main substrate for PKA-mediated phosphorylation, matrin-3 may serve as a rapid way of transferring information from synapses containing NMDA receptors to neuronal nuclei under physiological conditions. Also, the phosphorylation of matrin-3 may contribute to neuronal death under pathological conditions. It is likely that matrin-3 activity is regulated by calcium dependent interaction with CaM I and also by caspase induced cleavage.

REFERENCES

1. Belgrader, P., et al. 1991. Molecular cloning of matrin-3. A 125 kDa protein of the nuclear matrix contains an extensive acidic domain. J. Biol. Chem. 266: 9893-9899.
2. Matsushima, Y., et al. 1998. Cloning and genomic mapping of the mouse matrin-3 gene and its pseudogenes. Cytogenet. Cell Genet. 81: 194-198.
3. Czarny-Ratajczak, M., et al. 2001. A mutation in COL9A1 causes multiple epiphyseal dysplasia: further evidence for locus heterogeneity. Am. J. Hum. Genet. 69: 969-980.
4. Giordano, G., et al. 2005. Activation of NMDA receptors induces protein kinase A-mediated phosphorylation and degradation of matrin-3. Blocking these effects prevents NMDA-induced neuronal death. J. Neurochem. 94: 808-818.
5. De Angelis, P.M., et al. 2006. Cellular response to 5-fluorouracil (5-FU) in 5-FU-resistant colon cancer cell lines during treatment and recovery. Mol. Cancer 5: 20.
6. Yu, L.R., et al. 2007. Improved titanium dioxide enrichment of phosphopeptides from HeLa cells and high confident phosphopeptide identification by cross-validation of MS/MS and MS/MS/MS spectra. J. Proteome Res. 6: 4150-4162.

CHROMOSOMAL LOCATION

Genetic locus: Matr3 (mouse) mapping to 18 B2.

PRODUCT

matrin-3 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 matrin-3 shRNA Plasmid (m): sc-62605-SH and matrin-3 shRNA (m) Lentiviral Particles: sc-62605-V as alternate gene silencing products.

For independent verification of matrin-3 (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-62605A, sc-62605B and sc-62605C.

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

matrin-3 siRNA (m) is recommended for the inhibition of matrin-3 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

matrin-3 (2539C3a): sc-81318 is recommended as a control antibody for monitoring of matrin-3 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 matrin-3 gene expression knockdown using RT-PCR Primer: matrin-3 (m)-PR: sc-62605-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. Niimori-Kita, K., et al. 2018. Matrin-3 is essential for fibroblast growth factor 2-dependent maintenance of neural stem cells. Sci. Rep. 8: 13412.

RESEARCH USE

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