

TDRD9 siRNA (m): sc-154169

BACKGROUND

TDRD9 (tudor domain-containing protein 9) is a 1,382 amino acid cytoplasmic and nuclear protein that belongs to the DEAD box helicase family and the DEAH subfamily. Thought to function as an ATP-binding RNA helicase, TDRD9 contains one helicase ATP-binding domain, one helicase C-terminal domain and one tudor domain. Essential for germline integrity, TDRD9 is involved in repressing the mobilization of transposable elements during spermiogenesis. To carry out its job in the repression of transposable elements, TDRD9 most likely acts through the piRNA metabolic process during meiosis, which forms complexes composed of piRNA and PIWI proteins and governs the methylation and subsequent repression of transposons. Specifically localizing to piP-bodies, TDRD9 is a component of the nuage, also named P granule, a germ-cell-specific organelle required to repress transposon during meiosis. Its association with HILI2 and the piP-bodies suggests a role for TDRD9 in the secondary piRNAs metabolic process. In order for TDRD9 to localize to piP-bodies, it requires the presence of HILI. The TDRD9 gene encodes two alternatively spliced isoforms and maps to human chromosome 14q32.33.

REFERENCES

- Shoji, M., Tanaka, T., Hosokawa, M., Reuter, M., Stark, A., Kato, Y., Kondoh, G., Okawa, K., Chujo, T., Suzuki, T., Hata, K., Martin, S.L., Noce, T., Kuramochi-Miyagawa, S., Nakano, T., Sasaki, H., Pillai, R.S., et al. 2009. The TDRD9-MIWI2 complex is essential for piRNA-mediated retrotransposon silencing in the mouse male germline. *Dev. Cell* 17: 775-787.
- Aravin, A.A., van der Heijden, G.W., Castañeda, J., Vagin, V.V., Hannon, G.J. and Bortvin, A. 2009. Cytoplasmic compartmentalization of the fetal piRNA pathway in mice. *PLoS Genet.* 5: e1000764.
- Chuma, S. and Pillai, R.S. 2009. Retrotransposon silencing by piRNAs: ping-pong players mark their sub-cellular boundaries. *PLoS Genet.* 5: e1000770.
- Siomi, M.C., Mannen, T. and Siomi, H. 2010. How does the royal family of Tudor rule the PIWI-interacting RNA pathway? *Genes Dev.* 24: 636-646.
- Kuramochi-Miyagawa, S., Watanabe, T., Gotoh, K., Takamatsu, K., Chuma, S., Kojima-Kita, K., Shiromoto, Y., Asada, N., Toyoda, A., Fujiyama, A., Totoki, Y., Shibata, T., Kimura, T., Nakatsuiji, N., Noce, T., Sasaki, H., et al. 2010. MVH in piRNA processing and gene silencing of retrotransposons. *Genes Dev.* 24: 887-892.
- Pek, J.W. and Kai, T. 2011. Non-coding RNAs enter mitosis: functions, conservation and implications. *Cell Div.* 6: 6.
- Tanaka, T., Hosokawa, M., Vagin, V.V., Reuter, M., Hayashi, E., Mochizuki, A.L., Kitamura, K., Yamanaka, H., Kondoh, G., Okawa, K., Kuramochi-Miyagawa, S., Nakano, T., Sachidanandam, R., et al. 2011. Tudor domain containing 7 (Tdrd7) is essential for dynamic ribonucleoprotein (RNP) remodeling of chromatoid bodies during spermatogenesis. *Proc. Natl. Acad. Sci. USA* 108: 10579-10584.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: Tdrd9 (mouse) mapping to 12 F1.

PRODUCT

TDRD9 siRNA (m) is a target-specific 19-25 nt siRNA 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 TDRD9 shRNA Plasmid (m): sc-154169-SH and TDRD9 shRNA (m) Lentiviral Particles: sc-154169-V as alternate gene silencing 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 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

TDRD9 siRNA (m) is recommended for the inhibition of TDRD9 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 TDRD9 gene expression knockdown using RT-PCR Primer: TDRD9 (m)-PR: sc-154169-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.