SANTA CRUZ BIOTECHNOLOGY, INC.

MARCH1 siRNA (m): sc-106199

BACKGROUND

Ubiquitination is an important mechanism through which three classes of enzymes act in concert to target short-lived or abnormal proteins for destruction. The three classes of enzymes involved in ubiquitination are the ubiquitin-activating enzymes (E1s), the ubiquitin-conjugating enzymes (E2s) and the ubiquitin-protein ligases (E3s). MARCH1 (membrane-associated RING finger (C3HC4) 1), also known as RNF171 (RING finger protein 171), is a 289 amino acid multi-pass membrane protein that localizes to the cytoplasmic side of vesicular membranes and contains one RING-CH-type zinc finger. Expressed in lung, spleen and lymph nodes, MARCH1 functions as an E3 ubiquitin-protein ligase that is thought to mediate the ubiquitination and subsequent degradation of select proteins, including CD71 and B7-2. Multiple isoforms of MARCH1 exist due to alternative splicing events.

REFERENCES

1. Ciechanover, A. 1994. The ubiquitin-proteasome proteolytic pathway. Cell 79: 13-21.
2. Ciechanover, A., et al. 1994. The ubiquitin-mediated proteolytic pathway: mechanisms of recognition of the proteolytic substrate and involvement in the degradation of native cellular proteins. FASEB J. 8: 182-191.
3. Hochstrasser, M. 1995. Ubiquitin, proteasomes and the regulation of intracellular protein degradation. Curr. Opin. Cell Biol. 7: 215-223.
4. Liakopoulos, D., et al. 1998. A novel protein modification pathway related to the ubiquitin system. EMBO J. 17: 2208-2214.
5. Thibodeau, J., et al. 2008. Interleukin-10-induced MARCH1 mediates intracellular sequestration of MHC class II in monocytes. Eur. J. Immunol. 38: 1225-1230.
6. De Gassart, A., et al. 2008. MHC class II stabilization at the surface of human dendritic cells is the result of maturation-dependent MARCH I down-regulation. Proc. Natl. Acad. Sci. USA 105: 3491-3496.
7. Lapaque, N., et al. 2009. The HLA-DRα chain is modified by polyubiquitination. J. Biol. Chem. 284: 7007-7016.

CHROMOSOMAL LOCATION

Genetic locus: March1 (mouse) mapping to 8 B3.1.

PRODUCT

MARCH1 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 MARCH1 shRNA Plasmid (m): sc-106199-SH and MARCH1 shRNA (m) Lentiviral Particles: sc-106199-V as alternate gene silencing products.

For independent verification of MARCH1 (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-106199A, sc-106199B and sc-106199C.

RESEARCH USE

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

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

MARCH1 siRNA (m) is recommended for the inhibition of MARCH1 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 MARCH1 gene expression knockdown using RT-PCR Primer: MARCH1 (m)-PR: sc-106199-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. Bakhru, P., et al. 2014. BCG vaccine mediated reduction in the MHC-II expression of macrophages and dendritic cells is reversed by activation of Toll-like receptors 7 and 9. Cell. Immunol. 287: 53-61.
2. Alissafi, T., et al. 2018. Autophagy orchestrates the regulatory program of tumor-associated myeloid-derived suppressor cells. J. Clin. Invest. 128: 3840-3852.

PROTOCOLS

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