SANTA CRUZ BIOTECHNOLOGY, INC.

RING1 siRNA (m): sc-38198

BACKGROUND

In *Drosophila,* the Polycomb (PcG) gene family encodes chromatin proteins that are required for the repression of homeotic loci during embryonic development. The human PcG homologues form two distinct multimeric protein complexes, the EED/EZH protein complex and the HPC/HPH protein complex, which have mutually exclusive expression patterns. The HPC/HPH PcG complex contains the human polycomb 2 (HPC2), human polyhomeotic (HPH), Bmi-1 and RING1 proteins. The human RING1 gene, which is proximal to the major histocompatibility complex region on chromosome six, encodes for a protein that contains a RING finger motif, a zinc-binding domain found in many regulatory proteins, but unlike the other human PcG genes, RING1 displays no homology to known *Drosophila* PcG genes. RING1 strongly represses En-2, the mammalian homolog of the Drosophila engrailed gene, and when overexpressed, it mediates an increase in the expression of proto-oncogenes, such as c-Jun and c-Fos. Also, loss of RING1 and BMI-1 expression correlates with the differentiation of B cells, which suggests a role for RING1 in germinal center development.

REFERENCES

1. Goebl, M.G. 1991. The Bmi-1 and Mel-18 gene products define a new family of DNA-binding proteins involved in cell proliferation and tumorigenesis. Cell 66: 623.
2. Lovering, R., et al. 1993. Identification and preliminary characterization of a protein motif related to the zinc finger. Proc. Natl. Acad. Sci. USA 90: 2112-2216.
3. Satijn, D.P., et al. 1997. RING1 is associated with the polycomb group protein complex and acts as a transcriptional repressor. Mol. Cell. Biol. 17: 4105-4413.
4. van der Vlag, J., et al. 1999. Transcriptional repression mediated by the human polycomb-group protein EED involves histone deacetylation. Nat. Genet. 23: 474-478.
5. Satijn, D.P., et al. 1999. RING1 interacts with multiple polycomb-group proteins and displays tumorigenic activity. Mol. Cell. Biol. 19: 57-68.
6. del Mar Lorente, M., et al. 2000. Loss- and gain-of-function mutations show a polycomb group function for Ring1A in mice. Development 127: 5093-5100.
7. Raaphorst, F.M., et al. 2000. Cutting edge: polycomb gene expression patterns reflect distinct B cell differentiation stages in human germinal centers. J. Immunol. 164: 1-4.
8. Visser, H.P., et al. 2001. The Polycomb group protein EZH2 is upregulated in proliferating, cultured human mantle cell lymphoma. Br. J. Haematol. 112: 950-998.

CHROMOSOMAL LOCATION

Genetic locus: Ring1 (mouse) mapping to 17 B1.

PROTOCOLS

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

PRODUCT

RING1 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 RING1 shRNA Plasmid (m): sc-38198-SH and RING1 shRNA (m) Lentiviral Particles: sc-38198-V as alternate gene silencing products.

For independent verification of RING1 (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-38198A, sc-38198B and sc-38198C.

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

RING1 siRNA (m) is recommended for the inhibition of RING1 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 RING1 gene expression knockdown using RT-PCR Primer: RING1 (m)-PR: sc-38198-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. Shen, Y., et al. 2022. Ursodeoxycholic acid reduces antitumor immunosuppression by inducing CHIP-mediated TGF-β degradation. Nat. Commun. 13: 3419.

RESEARCH USE

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