SANTA CRUZ BIOTECHNOLOGY, INC.

EHMT1 siRNA (h): sc-62261

BACKGROUND

EHMT1 (also known as euchromatic histone-lysine N-methyltransferase 1) is a widely expressed histone methyltransferase. EHMT1 belongs to the histone-lysine methyltransferase family and contains eight ANK repeats, one pre-SET domain and one SET domain. It acts to methylate Lys 9 of Histone H3, which represents a specific tag for epigenetic transcriptional repression by recruiting HP1 proteins to methylated histones. During G_0 phase, EHMT1 is found as part of the E2F6.com-1 complex and probably contributes to silencing of Myc- and E2F-responsive genes, suggesting a role in G_0/G_1 transition in the cell cycle. EHMT1 defects are the cause of chromosome 9q subtelomeric deletion syndrome. Common indicators of this syndrome are severe mental retardation, hypotonia, brachy(micro)cephaly, epileptic seizures, synophrys, prognathism, macroglossia and conotruncal heart defects.

REFERENCES

1. Ogawa, H., et al. 2002. A complex with chromatin modifiers that occupies E2F- and Myc-responsive genes in G_0 cells. Science 296: 1132-1136.
2. Kleefstra, T., et al. 2005. Disruption of the gene euchromatin histone methyl transferase 1 (Eu-HMTase1) is associated with the 9q34 subtelomeric deletion syndrome. J. Med. Genet. 42: 299-306.
3. Ueda, J., et al. 2006. Zinc finger protein Wiz links G9a/GLP histone methyltransferases to the co-repressor molecule CtBP. J. Biol. Chem. 281: 20120-20128.
4. Cebrian, A., et al. 2006. Genetic variants in epigenetic genes and breast cancer risk. Carcinogenesis 27: 1661-1669.
5. Kleefstra, T., et al. 2006. Loss-of-function mutations in euchromatin histone methyl transferase 1 (EHMT1) cause the 9q34 subtelomeric deletion syndrome. Am. J. Hum. Genet. 79: 370-377.
6. McGraw, S., et al. 2007. Temporal expression of factors involved in chromatin remodeling and in gene regulation during early bovine *in vitro* embryo development. Reproduction 133: 597-608.
7. Stewart, D.R. and Kleefstra, T. 2007. The chromosome 9q subtelomere deletion syndrome. Am. J. Med. Genet. C Semin. Med. Genet. 145C: 383-392.
8. Matsuoka, S., et al. 2007. ATM and ATR substrate analysis reveals extensive protein networks responsive to DNA damage. Science 316: 1160-1166.

CHROMOSOMAL LOCATION

Genetic locus: EHMT1 (human) mapping to 9q34.3.

PRODUCT

EHMT1 siRNA (h) 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 EHMT1 shRNA Plasmid (h): sc-62261-SH and EHMT1 shRNA (h) Lentiviral Particles: sc-62261-V as alternate gene silencing products.

For independent verification of EHMT1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62261A, sc-62261B and sc-62261C.

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

EHMT1 siRNA (h) is recommended for the inhibition of EHMT1 expression in human 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 EHMT1 gene expression knockdown using RT-PCR Primer: EHMT1 (h)-PR: sc-62261-PR (20 µl, 531 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Choi, J.D., et al. 2012. Suppression and recovery of BRCA1-mediated transcription by HP1γ via modulation of promoter occupancy. Nucleic Acids Res. 40: 11321-11338.
2. Ea, C.K., et al. 2012. EHMT1 protein binds to nuclear factor-κB p50 and represses gene expression. J .Biol. Chem. 287: 31207-31217.
3. Wang, L., et al. 2018. Targeting EHMT2 reverses EGFR-TKI resistance in NSCLC by epigenetically regulating the PTEN/AKT signaling pathway. Cell Death Dis. 9: 129.

RESEARCH USE

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

PROTOCOLS

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