SANTA CRUZ BIOTECHNOLOGY, INC.

HMGI-C siRNA (h): sc-37994

BACKGROUND

High mobility group (HMG) proteins 1 and 2 are ubiquitous non-histone components of chromatin. The binding of HMG proteins to the minor groove of AT-rich DNA sequences induces alterations in the DNA architecture, including DNA bending and unwinding of the helix. While HMG proteins do not stimulate initiation of transcription, they do enhance the binding of other transcription factors, such as Oct-2, members of the NFκB family, ATF-2 and c-Jun, to activate transcription. Human HMG-1 and HMG-2 contain two DNA-binding domains, termed HMG boxes. HMG proteins bind single-stranded and double-stranded DNA, but only induce conformational changes in double-stranded DNA. Chromosomal translocations of the gene encoding HMGI-C (HMGA2), another HMG family member, frequently appear in tumors of mesenchymal origin. Truncation of the HMGI-C gene leads to abnormal HMGI-C expression and transformation. Transgenic mice with HMGI-C truncation develop natural killer cell lymphomas and exhibit a giant phenotype.

REFERENCES

1. Wen, L., et al. 1989. A human placental cDNA clone that encodes non-histone chromosomal protein HMG-1. Nucleic Acids Res. 17: 1197-1214.
2. Bustin, M., et al. 1990. Structural features of the HMG chromosomal proteins and their genes. Biochim. Biophys. Acta 1049: 231-243.
3. Shirakawa, H. and Yoshida, M. 1992. Structure of a gene coding for human HMG-2 protein. J. Biol. Chem. 267: 6641-6645.

CHROMOSOMAL LOCATION

Genetic locus: HMGA2 (human) mapping to 12q14.3.

PRODUCT

HMGI-C 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 HMGI-C shRNA Plasmid (h): sc-37994-SH and HMGI-C shRNA (h) Lentiviral Particles: sc-37994-V as alternate gene silencing products.

For independent verification of HMGI-C (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-37994A, sc-37994B and sc-37994C.

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

HMGI-C siRNA (h) is recommended for the inhibition of HMGI-C 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.

GENE EXPRESSION MONITORING

HMGI-C (2421C6a): sc-130024 is recommended as a control antibody for monitoring of HMGI-C 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HMGI-C gene expression knockdown using RT-PCR Primer: HMGI-C (h)-PR: sc-37994-PR (20 µl, 496 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Park, S., et al. 2010. Suppression of A549 lung cancer cell migration by precursor let-7g microRNA. Mol. Med. Rep. 3: 1007-1013.
2. Roberts, C.M., et al. 2016. TWIST1 drives cisplatin resistance and cell survival in an ovarian cancer model, via upregulation of GAS6, L1CAM, and Akt signalling. Sci. Rep. 6: 37652.
3. Seifi-Najmi, M., et al. 2016. SiRNA/DOX lodeded chitosan based nanoparticles: development, characterization and *in vitro* evaluation on A549 lung cancer cell line. Cell. Mol. Biol. 62: 87-94.
4. Naghizadeh, S., et al. 2019. Effects of HMGA2 gene downregulation by siRNA on lung carcinoma cell migration in A549 cell lines. J. Cell. Biochem. 120: 5024-5032.
5. Liu, H.H., et al. 2021. Multiple myeloma driving factor WHSC1 is a transcription target of oncogene HMGA2 that facilitates colon cancer proliferation and metastasis. Biochem. Biophys. Res. Commun. 567: 183-189.
6. Abedi Gaballu, F., et al. 2021. Silencing of HMGA2 by siRNA loaded methotrexate functionalized polyamidoamine dendrimer for human breast cancer cell therapy. Genes 12: 1102.
7. Khajouee, S., et al. 2022. Downregulation of HMGA2 by small interfering RNA affects the survival, migration, and apoptosis of prostate cancer cell line. Adv. Pharm. Bull. 12: 398-403.
8. Liu, X., et al. 2022. HER2 drives lung fibrosis by activating a metastatic cancer signature in invasive lung fibroblasts. J. Exp. Med. 219: e20220126.

RESEARCH USE

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