

# MLL siRNA (h): sc-38039

## BACKGROUND

Eukaryotic RNA polymerase II mediates the synthesis of mature and functional messenger RNA. This is a multistep process, called the transcription cycle, that includes five stages: preinitiation, promoter, clearance, elongation and termination. Elongation is thought to be a critical stage for the regulation of gene expression. ELL (11-19 lysine-rich leukemia protein, also designated MEN) functions as an RNA polymerase II elongation factor that increases the rate of transcription by suppressing transient pausing by RNA polymerase II. Also, ELL is thought to regulate cellular proliferation. ELL is abundantly expressed in peripheral blood leukocytes, skeletal muscle, placenta and testis, and has lower expression in spleen, thymus, heart, brain, lung, kidney, liver and ovary. The gene encoding human ELL, which maps to chromosome 19p13.1, is one of several genes which undergo translocation with the MLL gene on chromosome 11q23.3 in acute myeloid leukemia. MLL (myeloid/lymphoid leukemia, also designated ALL-1 and HRX) regulates embryonal and hematopoietic development.

## REFERENCES

1. Thirman, M.J., et al. 1994. Cloning of ELL, a gene that fuses to MLL in a t(11;19)(q23;p13.1) in acute myeloid leukemia. *Proc. Natl. Acad. Sci. USA* 91: 12110-12114.
2. Shilatfard, A., et al. 1997. Structure and function of RNA polymerase II elongation factor ELL. Identification of two overlapping ELL functional domains that govern its interaction with polymerase and the ternary elongation complex. *J. Biol. Chem.* 272: 22355-22363.

## CHROMOSOMAL LOCATION

Genetic locus: MLL (human) mapping to 11q23.3.

## PRODUCT

MLL 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MLL shRNA Plasmid (h): sc-38039-SH and MLL shRNA (h) Lentiviral Particles: sc-38039-V as alternate gene silencing products.

For independent verification of MLL (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-38039A, sc-38039B and sc-38039C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

MLL siRNA (h) is recommended for the inhibition of MLL 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  $\mu$ M in 66  $\mu$ 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.

## GENE EXPRESSION MONITORING

MLL (D-3): sc-377274 is recommended as a control antibody for monitoring of MLL 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MLL gene expression knockdown using RT-PCR Primer: MLL (h)-PR: sc-38039-PR (20  $\mu$ l, 431 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Kang, K.A., et al. 2016. Interaction of DNA demethylase and histone methyltransferase upregulates Nrf2 in 5-fluorouracil-resistant colon cancer cells. *Oncotarget* 7: 40594-40620.
2. Maini, J., et al. 2017. Human PRE-PIK3C2B, an intronic *cis*-element with dual function of activation and repression. *Biochim. Biophys. Acta Gene Regul. Mech.* 1860: 196-204.
3. Jang, M., et al. 2021. Matrix stiffness epigenetically regulates the oncogenic activation of the Yes-associated protein in gastric cancer. *Nat. Biomed. Eng.* 5: 114-123.

## RESEARCH USE

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