

# ▶ Mlx siRNA (m): sc-38082

## BACKGROUND

Max is a nuclear localized bHLH-Zip protein that forms homodimers or heterodimers with Myc family members, including Myc, Mad 1, Mad 3, Mad 4, Mxi1 and Mnt (or Rox). These dimers bind to the E-box sequence CACGTG in order to regulate cell growth, proliferation and apoptosis. Mlx (Max-like protein X) is a bHLH-Zip protein that is structurally and functionally related to Max. Like Max, Mlx is broadly expressed in many tissues and has a long half-life. Mlx also forms homodimers or heterodimers with members of the Myc family, specifically Mad 1, Mad 4 and Rox, and members of the Mondo family, to repress or activate transcription from CACGTG E-boxes. MondoA forms weak homodimers and preferentially forms heterodimers with Mlx. The MondoA/Mlx complex is primarily localized to the cytoplasm, but will translocate to the nucleus in response to leptomycin B. Mlx can also dimerize with WBSCR14, a protein involved in Williams-Beuren syndrome (WBS), to repress E-box transcription, which provides further evidence that Mlx is a critical element in a transcription factor network.

## REFERENCES

1. Blackwood, E.M., et al. 1991. Max: a helix-loop-helix zipper protein that forms a sequence-specific DNA-binding complex with Myc. *Science* 251: 1211-1217.
2. Amati, B., et al. 1992. Oncogenic activity of the c-Myc protein requires dimerization with Max. *Cell* 72: 233-245.
3. Billin, A.N., et al. 1999. Mlx, a novel Max-like BHLHZip protein that interacts with the Max network of transcription factors. *J. Biol. Chem.* 274: 36344-36350.
4. Meroni, G., et al. 2000. Mlx, a new Max-like bHLHZip family member: the center stage of a novel transcription factors regulatory pathway? *Oncogene* 19: 3266-3277.
5. Billin, A.N., et al. 2000. MondoA, a novel basic helix-loop-helix-leucine zipper transcriptional activator that constitutes a positive branch of a Max-like network. *Mol. Cell. Biol.* 20: 8845-8854.
6. Cairo, S., et al. 2001. WBSCR14, a gene mapping to the Williams-Beuren syndrome deleted region, is a new member of the Mlx transcription factor network. *Hum. Mol. Genet.* 10: 617-627.

## CHROMOSOMAL LOCATION

Genetic locus: Tcf14 (mouse) mapping to 11 D.

## PRODUCT

Mlx 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Mlx shRNA Plasmid (m): sc-38082-SH and Mlx shRNA (m) Lentiviral Particles: sc-38082-V as alternate gene silencing products.

For independent verification of Mlx (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-38082A, sc-38082B and sc-38082C.

## 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

Mlx siRNA (m) is recommended for the inhibition of Mlx 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  $\mu$ 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

Mlx (F-12): sc-393086 is recommended as a control antibody for monitoring of Mlx 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Mlx gene expression knockdown using RT-PCR Primer: Mlx (m)-PR: sc-38082-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.