

DUXBL siRNA (m): sc-62246

BACKGROUND

The double homeobox (DUX) proteins are encoded by 3.3-kilobase repeats found throughout the human genome. The DUX family includes DUX1, DUX2, DUX3, DUX4 and DUX5. Each of these family members, excluding DUX2, contains two homeobox domains. DUX2 contains only one homeobox domain. DUX1 and DUX5 are identical to one another and they share 98% identity with DUX3 and approximately 70% identity with DUX2. The genes encoding DUX5 and DUX3 both contain additional start sites that result in N-terminal extended isoforms. The homeodomains found in DUX5 and DUX1 are similar to those found in Pax-3, Pax-7, OTX1 and OTX2. DUX4, also known as DUX10, is capable of forming homodimers. In addition, the gene encoding DUX4 maps within the D4Z4 repeat unit that has been implicated in Facioscapulohumeral muscular dystrophy (FSHD).

REFERENCES

1. Ding, H., et al. 1998. Characterization of a double homeodomain protein (DUX) encoded by a cDNA homologous to 3.3 kb dispersed repeated elements. *Hum. Mol. Genet.* 7: 1681-1694.
2. Gabriëls, J., et al. 1999. Nucleotide sequence of the partially deleted D4Z4 locus in a patient with FSHD identifies a putative gene within each 3.3 kb element. *Gene* 236: 25-32.
3. Beckers, M., et al. 2001. Active genes in junk DNA? Characterization of DUX genes embedded within 3.3 kb repeated elements. *Gene* 264: 51-57.
4. Ostlund, C., et al. 2005. Intracellular trafficking and dynamics of double homeodomain proteins. *Biochemistry* 44: 2378-2384.
5. Kawamura-Saito, M., et al. 2006. Fusion between CIC and DUX4 up-regulates PEA3 family genes in Ewing-like sarcomas with t(4;19)(q35;q13) translocation. *Hum. Mol. Genet.* 15: 2125-2137.
6. Kowalijow, V., et al. 2007. The DUX4 gene at the FSHD1A locus encodes a pro-apoptotic protein. *Neuromuscul. Disord.* 17: 611-623.

CHROMOSOMAL LOCATION

Genetic locus: Duxbl1 (mouse) mapping to 14 A3.

PRODUCT

DUXBL 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DUXBL shRNA Plasmid (m): sc-62246-SH and DUXBL shRNA (m) Lentiviral Particles: sc-62246-V as alternate gene silencing products.

For independent verification of DUXBL (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-62246A, sc-62246B and sc-62246C.

PROTOCOLS

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

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

APPLICATIONS

DUXBL siRNA (m) is recommended for the inhibition of DUXBL 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 μ M in 66 μ 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

DUXBL (B-10): sc-137192 is recommended as a control antibody for monitoring of DUXBL 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 DUXBL gene expression knockdown using RT-PCR Primer: DUXBL (m)-PR: sc-62246-PR (20 μ l, 547 bp). 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.