



Scleraxis siRNA (m): sc-153257

BACKGROUND

Transcription factors are proteins that bind DNA adjacent to genes and control the production of mRNA transcripts. Scleraxis (basic helix-loop-helix transcription factor scleraxis) is a 201 amino acid protein that dimerizes with another bHLH protein to initiate transcription. Scleraxis is known to play a role in formation of mesoderm and somite-derived chondrogenic lineages. Scleraxis localizes to the nucleus and contains one bHLH domain. bHLH transcription factors, in general, function in cellular differentiation, proliferation, and oncogene regulation. The gene encoding Scleraxis maps to human chromosome 8, which consists of nearly 146 million base pairs, houses more than 800 genes and is associated with a variety of diseases and malignancies. Schizophrenia, bipolar disorder, Trisomy 8, Pfeiffer syndrome, congenital hypothyroidism, Waardenburg syndrome and some leukemias and lymphomas are thought to occur as a result of defects in specific genes that map to chromosome 8.

REFERENCES

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- Cserjesi, P., et al. 1995. Scleraxis: a basic helix-loop-helix protein that prefigures skeletal formation during mouse embryogenesis. *Development* 121: 1099-1110.
- Atchley, W.R. and Fitch, W.M. 1997. A natural classification of the basic helix-loop-helix class of transcription factors. *Proc. Natl. Acad. Sci. USA* 94: 5172-5176.
- Brent, A.E., et al. 2003. A somitic compartment of tendon progenitors. *Cell* 113: 235-248.
- Wilson-Rawls, J., et al. 2004. Paraxis is a basic helix-loop-helix protein that positively regulates transcription through binding to specific E-box elements. *J. Biol. Chem.* 279: 37685-37692.
- Nusbaum, C., et al. 2006. DNA sequence and analysis of human chromosome 8. *Nature* 439: 331-335.

CHROMOSOMAL LOCATION

Genetic locus: Scx (mouse) mapping to 15 D3.

PRODUCT

Scleraxis siRNA (m) is a pool of 2 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 Scleraxis shRNA Plasmid (m): sc-153257-SH and Scleraxis shRNA (m) Lentiviral Particles: sc-153257-V as alternate gene silencing products.

For independent verification of Scleraxis (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-153257A and sc-153257B.

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

Scleraxis siRNA (m) is recommended for the inhibition of Scleraxis 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Scleraxis gene expression knockdown using RT-PCR Primer: Scleraxis (m)-PR: sc-153257-PR (20 μ l, 560 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Clayton, S.W., et al. 2020. Canonical and noncanonical TGF β signaling regulate fibrous tissue differentiation in the axial skeleton. *Sci. Rep.* 10: 21364.

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.