



OTP siRNA (h): sc-91680

BACKGROUND

Homeodomain (HD) genes are helix-turn-helix transcription factors that play key roles in the specification of cell fates. OTP (orthopedia homeobox) is a 325 amino acid nuclear protein belonging to the paired homeobox family and Bicoid subfamily. OTP is expressed in neurons, which give rise to the paraventricular (PVN), supraoptic (SON), anterior periventricular (aPV) and arcuate (ARN) nuclei. Containing a homeobox DNA-binding domain and a OAR domain, OTP is suggested to be involved in the differentiation of hypothalamic neuroendocrine cells. At early embryonic stages in mice, the expression of SIM2 is downregulated in the absence of OTP, indicating a potential role for OTP as an upstream regulator of SIM2. OTP is highly conserved in evolution and is encoded by a gene located on human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome.

REFERENCES

1. Simeone, A., et al. 1994. Orthopedia, a novel homeobox-containing gene expressed in the developing CNS of both mouse and *Drosophila*. *Neuron* 13: 83-101.
2. Swaab, D.F. 1995. Development of the human hypothalamus. *Neurochem. Res.* 20: 509-519.
3. Umesonu, Y., et al. 1997. A planarian orthopedia homolog is specifically expressed in the branch region of both the mature and regenerating brain. *Dev. Growth Differ.* 39: 723-727.
4. Acampora, D., et al. 1999. Progressive impairment of developing neuroendocrine cell lineages in the hypothalamus of mice lacking the Orthopedia gene. *Genes Dev.* 13: 2787-2800.
5. Lin, X., et al. 1999. Identification, chromosomal assignment, and expression analysis of the human homeodomain-containing gene Orthopedia (OTP). *Genomics* 60: 96-104.
6. Wang, W., et al. 2000. The murine OTP homeobox gene plays an essential role in the specification of neuronal cell lineages in the developing hypothalamus. *Dev. Biol.* 227: 432-449.

CHROMOSOMAL LOCATION

Genetic locus: OTP (human) mapping to 5q14.1.

PRODUCT

OTP 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see OTP shRNA Plasmid (h): sc-91680-SH and OTP shRNA (h) Lentiviral Particles: sc-91680-V as alternate gene silencing products.

For independent verification of OTP (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-91680A, sc-91680B and sc-91680C.

RESEARCH USE

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

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

OTP siRNA (h) is recommended for the inhibition of OTP 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 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 OTP gene expression knockdown using RT-PCR Primer: OTP (h)-PR: sc-91680-PR (20 μ l, 439 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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