



NF-1A siRNA (m): sc-36045

BACKGROUND

The NF-1 family of CCAAT box binding proteins function to stimulate DNA replication and activate transcription. NF-1A (nuclear factor I/A), a member of the NF-1 family, is a 509 amino acid protein that localizes to the nucleus and contains one CTF/NF-I DNA-binding domain. Existing as a homodimer that is able to bind DNA, NF-1A recognizes and binds to the palindromic sequence 5'-TTGGCNNNNNGCCAA-3' (a sequence that is common in both cellular and viral promoters) and, via this binding, plays a role in transcription and replication. NF-1A is subject to DNA damage-dependent phosphorylation, probably by ATM or ATR. Multiple isoforms of NF-1A exist due to alternative splicing events.

REFERENCES

1. Qian, F., et al. 1995. Chromosomal localization of the four genes (NFIA, B, C, and X) for the human transcription factor nuclear factor I by FISH. *Genomics* 28: 66-73.
2. Leahy, P., et al. 1999. CREB binding protein coordinates the function of multiple transcription factors including nuclear factor I to regulate phosphoenolpyruvate carboxykinase (GTP) gene transcription. *J. Biol. Chem.* 274: 8813-8822.
3. das Neves, L., et al. 1999. Disruption of the murine nuclear factor I-A gene (Nfia) results in perinatal lethality, hydrocephalus, and agenesis of the corpus callosum. *Proc. Natl. Acad. Sci. USA* 96: 11946-11951.
4. Wang, W., et al. 2004. A role for nuclear factor I in the intrinsic control of cerebellar granule neuron gene expression. *J. Biol. Chem.* 279: 53491-53497.
5. Xu, H., et al. 2005. NF1 transcriptional factor(s) is required for basal promoter activation of the human intestinal NaPi-IIb cotransporter gene. *Am. J. Physiol. Gastrointest. Liver Physiol.* 288: G175-G181.
6. Lin, Y.L., et al. 2006. Transcriptional regulation of the human TR2 orphan receptor gene by nuclear factor 1-A. *Biochem. Biophys. Res. Commun.* 350: 430-436.
7. Lu, W., et al. 2007. NFIA haploinsufficiency is associated with a CNS malformation syndrome and urinary tract defects. *PLoS Genet.* 3: e80.

CHROMOSOMAL LOCATION

Genetic locus: Nfia (mouse) mapping to 4 C6.

PRODUCT

NF-1A 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 NF-1A shRNA Plasmid (m): sc-36045-SH and NF-1A shRNA (m) Lentiviral Particles: sc-36045-V as alternate gene silencing products.

For independent verification of NF-1A (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-36045A, sc-36045B and sc-36045C.

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

NF-1A siRNA (m) is recommended for the inhibition of NF-1A 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 NF-1A gene expression knockdown using RT-PCR Primer: NF-1A (m)-PR: sc-36045-PR (20 μ l, 509 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Waki, H., et al. 2011. Global mapping of cell type-specific open chromatin by FAIRE-seq reveals the regulatory role of the NFI family in adipocyte differentiation. *PLoS Genet.* 7: e1002311.
2. Adachi, Y., et al. 2022. Being of perivascular adipose tissue regulates its inflammation and vascular remodeling. *Nat. Commun.* 13: 5117.

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.