

NKAIN3 siRNA (h): sc-77678

BACKGROUND

The ubiquitously expressed sodium/potassium-ATPase (Na⁺/K⁺-ATPase) is an oligomeric plasma membrane complex that couples the hydrolysis of one molecule of ATP to the import of three Na⁺ ions and two K⁺ ions against their respective electrochemical gradients. As a member of the P-type family of ion motives, Na⁺/K⁺-ATPase plays a critical role in maintaining cellular volume, resting membrane potential and Na⁺-coupled solute transport. NKAIN3 (Na⁺/K⁺-transporting ATPase interacting 3), also known as FAM77D, is a 197 amino acid multi-pass membrane protein that belongs to the NKAIN family and interacts with Na⁺/K⁺-ATPase β1. The gene that encodes NKAIN3 consists of over 751,000 bases and maps to human chromosome 8q12.3. Chromosome 8, which consists of nearly 146 million base pairs and encodes over 800 genes, is associated with a variety of diseases and malignancies, including schizophrenia, bipolar disorder, trisomy 8, Pfeiffer syndrome, congenital hypothyroidism, Waardenburg syndrome and some leukemias and lymphomas.

REFERENCES

1. Kashino, G., et al. 2001. Preferential expression of an intact WRN gene in Werner syndrome cell lines in which a normal chromosome 8 has been introduced. *Biochem. Biophys. Res. Commun.* 289: 111-115.
2. Selicorni, A., et al. 2002. Cytogenetic mapping of a novel locus for type II Waardenburg syndrome. *Hum. Genet.* 110: 64-67.
3. McQueen, M.B., et al. 2005. Combined analysis from eleven linkage studies of bipolar disorder provides strong evidence of susceptibility loci on chromosomes 6q and 8q. *Am. J. Hum. Genet.* 77: 582-595.
4. Mossafa, H., et al. 2006. Non-Hodgkin's lymphomas with Burkitt-like cells are associated with c-Myc amplification and poor prognosis. *Leuk. Lymphoma* 47: 1885-1893.
5. Agrelo, R., et al. 2006. Epigenetic inactivation of the premature aging Werner syndrome gene in human cancer. *Proc. Natl. Acad. Sci. USA* 103: 8822-8827.
6. Gorokhova, S., et al. 2007. A novel family of transmembrane proteins interacting with β subunits of the Na,K-ATPase. *Hum. Mol. Genet.* 16: 2394-2410.

CHROMOSOMAL LOCATION

Genetic locus: NKAIN3 (human) mapping to 8q12.3.

PRODUCT

NKAIN3 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 μM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NKAIN3 shRNA Plasmid (h): sc-77678-SH and NKAIN3 shRNA (h) Lentiviral Particles: sc-77678-V as alternate gene silencing products.

For independent verification of NKAIN3 (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-77678A, sc-77678B and sc-77678C.

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

APPLICATIONS

NKAIN3 siRNA (h) is recommended for the inhibition of NKAIN3 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 μM in 66 μl. 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 NKAIN3 gene expression knockdown using RT-PCR Primer: NKAIN3 (h)-PR: sc-77678-PR (20 μl). 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 for detailed protocols and support products.