SANTA CRUZ BIOTECHNOLOGY, INC.

# NCKX5 siRNA (h): sc-90252

## BACKGROUND

Plasma membrane sodium/calcium exchangers are crucial for the maintenance of intracellular calcium homeostasis and the modulation of electrical conduction. Potassium-dependent sodium/calcium exchangers, such as NCKX5 ($Na^+/K^+/Ca^{2+}$-exchange protein 5), presumably transport an intracellular calcium and a potassium ion in exchange for four extracellular sodium ions. NCKX5, also known as JSX, SHEP4 or SLC24A5, is a 500 amino acid multi-pass membrane protein belonging to the sodium/potassium/calcium exchanger family and the SLC24A subfamily. NCKX5 is expressed in skin, retinal epithelium and brain. Considered a cation exchanger, NCKX5 may be involved in skin pigmentation by participating in ion transport in melanosomes.

## REFERENCES


1. Lamason, R.L., et al. 2005. SLC24A5, a putative cation exchanger, affects pigmentation in zebrafish and humans. Science 310: 1782-1786.
2. Chi, A., et al. 2006. Proteomic and bioinformatic characterization of the biogenesis and function of melanosomes. J. Proteome Res. 5: 3135-3144.
3. Lytton, J. 2007. $Na^+/Ca^{2+}$ exchangers: three mammalian gene families control $Ca^{2+}$ transport. Biochem. J. 406: 365-382.
4. Soejima, M. and Koda, Y. 2007. Population differences of two coding SNPs in pigmentation-related genes SLC24A5 and SLC45A2. Int. J. Legal Med. 121: 36-39.
5. Giardina, E., et al. 2008. Haplotypes in SLC24A5 gene as ancestry informative markers in different populations. Curr. Genomics 9: 110-114.
6. Ginger, R.S., et al. 2008. SLC24A5 encodes a *trans*-Golgi network protein with potassium-dependent sodium-calcium exchange activity that regulates human epidermal melanogenesis. J. Biol. Chem. 283: 5486-5495.
7. Sims, L.M. and Ballantyne, J. 2008. The golden gene (SLC24A5) differentiates US sub-populations within the ethnically admixed Y-SNP haplogroups. Leg. Med. 10: 72-77.
8. Nan, H., et al. 2009. Genetic variants in pigmentation genes, pigmentary phenotypes, and risk of skin cancer in Caucasians. Int. J. Cancer 125: 909-917.


## CHROMOSOMAL LOCATION

Genetic locus: SLC24A5 (human) mapping to 15q21.1.

## PRODUCT

NCKX5 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 NCKX5 shRNA Plasmid (h): sc-90252-SH and NCKX5 shRNA (h) Lentiviral Particles: sc-90252-V as alternate gene silencing products.

For independent verification of NCKX5 (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-90252A, sc-90252B and sc-90252C.

## 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

NCKX5 siRNA (h) is recommended for the inhibition of NCKX5 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.

## GENE EXPRESSION MONITORING

NCKX5 (A-6): sc-515715 is recommended as a control antibody for monitoring of NCKX5 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 NCKX5 gene expression knockdown using RT-PCR Primer: NCKX5 (h)-PR: sc-90252-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.