

## NHE-7 siRNA (m): sc-149956

### BACKGROUND

Na<sup>+</sup>/H<sup>+</sup> exchangers-1-8 (also designated NHE-1-8 or Na<sup>+</sup>/H<sup>+</sup> antiporters) are integral membrane proteins that are expressed in most mammalian tissues, where they regulate intracellular pH and cell volume. NHEs mediate the transport of hydrogen (H<sup>+</sup>) ions out of cells in exchange for extracellular sodium (Na<sup>+</sup>) ions. While NHE-1 is ubiquitously expressed, the NHE isoforms 2-8 have distinct tissue- and cell type-dependent expression and inhibitory characteristics. Also, all NHE family members, except NHE-6 and NHE-7, which are located intracellularly, reside in the sarcolemmal membrane. NHE-7 interacts with tyrosinase related protein-1 (TRP1) to regulate melanosome pH and tyrosinase activity in human melanocytes.

### REFERENCES

1. Orlowski, J., et al. 1992. Molecular cloning of putative members of the Na/H exchanger gene family. cDNA cloning, deduced amino acid sequence and mRNA tissue expression of the rat Na/H exchanger NHE-1 and two structurally related proteins. *J. Biol. Chem.* 267: 9331-9339.
2. Harris, S.P., et al. 1997. Epithelial localization of a reptilian Na<sup>+</sup>/H<sup>+</sup> exchanger homologous to NHE-1. *Am. J. Physiol.* 272: 1594-1606.
3. Sangan, P., et al. 2002. Cloning and expression of a chloride-dependent Na<sup>+</sup>/H<sup>+</sup> exchanger. *J. Biol. Chem.* 277: 9668-9675.
4. Goyal, S., et al. 2003. Renal expression of novel Na<sup>+</sup>/H<sup>+</sup> exchanger isoform NHE-8. *Am. J. Physiol. Renal Physiol.* 284: 467-473.
5. Linz, W.J. and Busch, A.E. 2003. NHE-1 inhibition: from protection during acute ischaemia/reperfusion to prevention/reversal of myocardial remodeling. *Naunyn Schmiedeberg's Arch. Pharmacol.* 368: 239-246.
6. Smith, D.R., et al. 2004. The relationship between Na<sup>+</sup>/H<sup>+</sup> exchanger expression and tyrosinase activity in human melanocytes. *Exp. Cell Res.* 298: 521-534.
7. Goyal, S., et al. 2005. Immunolocalization of NHE-8 in rat kidney. *Am. J. Physiol. Renal Physiol.* 288: 530-538.

### CHROMOSOMAL LOCATION

Genetic locus: Slc9a7 (mouse) mapping to X A1.3.

### PRODUCT

NHE-7 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NHE-7 shRNA Plasmid (m): sc-149956-SH and NHE-7 shRNA (m) Lentiviral Particles: sc-149956-V as alternate gene silencing products.

For independent verification of NHE-7 (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-149956A, sc-149956B and sc-149956C.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

### 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

### APPLICATIONS

NHE-7 siRNA (m) is recommended for the inhibition of NHE-7 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  $\mu$ M in 66  $\mu$ 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 NHE-7 gene expression knockdown using RT-PCR Primer: NHE-7 (m)-PR: sc-149956-PR (20  $\mu$ l, 522 bp). 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.