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PHT1 siRNA (m): sc-152236

BACKGROUND

PHT1, also known as peptide transporter 4, PTR4, hPHT1 or solute carrier family 15 member 4, belongs to a family of peptide transporter proteins known as the proton-coupled oligopeptide transporter (POT) family or the peptide transporter (PTR) family. The POT family members are found in mammals, plants, fungi and yeast, and they utilize a proton-dependent mechanism to transport di- and tripeptide-based substrates across the cell membrane. Because peptides are generally hydrophilic and difficult to transport across membrane barriers, insights from the transport pathways of the POT proteins have been used in clinical applications for treatment of many disorders including cancer and hypertension. Localized to the cell membrane, POT proteins contain 12 predicted transmembrane α -helical spans, with a majority of the proteins having intracellular N- and C-termini. PHT1, a 577 amino acid protein, is highly expressed in skeletal muscle and is expressed in low levels throughout the gastrointestinal system, heart, colon and brain. Two isoforms of PHT1 have been identified.

REFERENCES

1. Covitz, K.M., et al. 1996. Human dipeptide transporter, hPEPT1, stably transfected into Chinese hamster ovary cells. *Pharm. Res.* 13: 1631-1634.
2. Han, H., et al. 1998. 5'-amino acid esters of antiviral nucleosides, acyclovir, and AZT are absorbed by the intestinal PEPT1 peptide transporter. *Pharm. Res.* 15: 1154-1159.
3. Han, H.K., et al. 1998. Cellular uptake mechanism of amino acid ester prodrugs in Caco-2/hPEPT1 cells overexpressing a human peptide transporter. *Pharm. Res.* 15: 1382-1386.
4. Botka, C.W., et al. 2000. Human proton/oligopeptide transporter (POT) genes: identification of putative human genes using bioinformatics. *AAPS Pharm. Sci.* 2: E16.
5. Herrera-Ruiz, D., et al. 2001. Spatial expression patterns of peptide transporters in the human and rat gastrointestinal tracts, Caco-2 *in vitro* cell culture model, and multiple human tissues. *AAPS PharmSci* 3: E9.
6. Herrera-Ruiz, D. and Knipp, G.T. 2003. Current perspectives on established and putative mammalian oligopeptide transporters. *J. Pharm. Sci.* 92: 691-714.

CHROMOSOMAL LOCATION

Genetic locus: Slc15a4 (mouse) mapping to 5 G1.2.

PRODUCT

PHT1 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 PHT1 shRNA Plasmid (m): sc-152236-SH and PHT1 shRNA (m) Lentiviral Particles: sc-152236-V as alternate gene silencing products.

For independent verification of PHT1 (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-152236A, sc-152236B and sc-152236C.

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

PHT1 siRNA (m) is recommended for the inhibition of PHT1 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 PHT1 gene expression knockdown using RT-PCR Primer: PHT1 (m)-PR: sc-152236-PR (20 μ l). 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.