SANTA CRUZ BIOTECHNOLOGY, INC.

PEPT2 siRNA (h): sc-42590

BACKGROUND

In mammalian small intestine, the proton-coupled peptide transporter (PEPT) is responsible for the absorption of small peptides arising from digestion of dietary proteins. PEPT1, a hydrogen ion/peptide cotransporter, transports dipeptides and tripeptides, but not free amino acids or peptides with more than three amino acid residues. Its driving force for uphill transport requires proton binding and the presence of an inside-negative membrane potential. PEPT1 is 708 amino acid protein that contains 12 putative membrane-spanning domains. PEPT1 is expressed in Caco-2 cells. PEPT1 seems to play important roles in nutritional and pharmacological therapies. The mammalian kidney expresses a proton-coupled peptide transporter, PEPT2, that is responsible for the absorption of small peptides, as well as β-lactam antibiotics and other peptide-like drugs, from the tubular filtrate. The gene which encodes PEPT1 maps to human chromosome 13q33-q34.

REFERENCES

1. Liang, R., et al. 1995. Human intestinal H^+/peptide cotransporter. Cloning, functional expression, and chromosomal localization. J. Biol. Chem. 270: 6456-6463.
2. Liu, W., et al. 1995. Molecular cloning of PEPT2, a new member of the H^+/peptide cotransporter family, from human kidney. Biochim. Biophys. Acta 1235: 461-466.
3. Adibi, S.A. 1997. The oligopeptide transporter (PEPT1) in human intestine: biology and function. Gastroenterology 113: 332-340.
4. Ocheltree, S.M., et al. 2004. Role of PEPT2 in the choroid plexus uptake of glycylsarcosine and 5-aminolevulinic acid: studies in wild-type and null mice. Pharm. Res. 21: 1680-1685.
5. Meredith, D., et al. 2006. Molecular modeling of PEPT1—towards a structure. J. Membr. Biol. 213: 79-88.
6. Terada, T., et al. 2007. Gene expression and regulation of drug transporters in the intestine and kidney. Biochem. Pharmacol. 73: 440-449.

CHROMOSOMAL LOCATION

Genetic locus: SLC15A2 (human) mapping to 3q13.33.

PRODUCT

PEPT2 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 PEPT2 shRNA Plasmid (h): sc-42590-SH and PEPT2 shRNA (h) Lentiviral Particles: sc-42590-V as alternate gene silencing products.

For independent verification of PEPT2 (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-42590A, sc-42590B and sc-42590C.

PROTOCOLS

See our web site at 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 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

PEPT2 siRNA (h) is recommended for the inhibition of PEPT2 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 PEPT2 gene expression knockdown using RT-PCR Primer: PEPT2 (h)-PR: sc-42590-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.