

Trypsin-2 siRNA (m): sc-154705

BACKGROUND

The human pancreas secretes three different isoforms of the inactive trypsinogen into the small intestine, namely cationic trypsinogen, anionic trypsinogen (the two major isoforms) and mesotrypsinogen (a minor isoform). In the small intestine, each isoform is cleaved by Enterokinase into its active form, Trypsin-1, Trypsin-2 and Trypsin-3, respectively. All trypsins are members of the serine protease trypsin family. The activated trypsins go on to activate other protease zymogens and play a role in the autoactivation of trypsinogens. This suggests an important role for trypsins in digestion. Mutations in the gene encoding Trypsin-1 that stimulate its activity are associated with autosomal dominant hereditary pancreatitis (HCP), also known as chronic pancreatitis (CP), a disease characterized by persistent, severe abdominal pain due to calcifications of the parenchyma, pancreatic stones, cysts and pancreatic head enlargement. Trypsin-3 is expressed in the brain in addition to the pancreas.

REFERENCES

1. Scheele, G., Bartelt, D. and Bieger, W. 1981. Characterization of human exocrine pancreatic proteins by two-dimensional isoelectric focusing/sodium dodecyl sulfate gel electrophoresis. *Gastroenterology*. 80: 461-473.
2. Rinderknecht, H., Renner, I.G., Abramson, S.B. and Carmack, C. 1984. Mesotrypsin: a new inhibitor-resistant protease from a zymogen in human pancreatic tissue and fluid. *Gastroenterology*. 86: 681-692.
3. Kleeff, J., Friess, H., Korc, M. and Büchler, M.W. 2000. Chronic pancreatitis: pathogenesis and molecular aspects. *Ann Ital Chir*. 71: 3-10.
4. Chandak, G.R., Idris, M.M., Reddy, D.N., Mani, K.R., Bhaskar, S., Rao, G.V. and Singh, L. 2004. Absence of PRSS1 mutations and association of SPINK1 trypsin inhibitor mutations in hereditary and non-hereditary chronic pancreatitis. *Gut* 53: 723-728.
5. Sahin-Tóth, M., Kukor, Z. and Nemoda, Z. 2006. Human cationic trypsinogen is sulfated on Tyr154. *FEBS J*. 273: 5044-5050.
6. Nemoda, Z. and Sahin-Tóth, M. 2006. Chymotrypsin C (caldecrin) stimulates autoactivation of human cationic trypsinogen. *J. Biol. Chem.* 281: 11879-11886.
7. Keim, V. 2008. Role of genetic disorders in acute recurrent pancreatitis. *World J. Gastroenterol.* 14: 1011-1015.
8. Teich, N. and Mössner, J. 2008. Hereditary chronic pancreatitis. *Best Pract. Res. Clin. Gastroenterol.* 22: 115-130.
9. Chang, Y.T., Chang, M.C., Su, T.C., Liang, P.C., Su, Y.N., Kuo, C.H., Wei, S.C. and Wong, J.M. 2008. Association of cystic fibrosis transmembrane conductance regulator (CFTR) mutation/variant/haplotype and tumor necrosis factor (TNF) promoter polymorphism in hyperlipidemic pancreatitis. *Clin. Chem.* 54: 131-138.

CHROMOSOMAL LOCATION

Genetic locus: Prss2 (mouse) mapping to 6 B1.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

Trypsin-2 siRNA (m) is a target-specific 19-25 nt siRNA 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 Trypsin-2 shRNA Plasmid (m): sc-154705-SH and Trypsin-2 shRNA (m) Lentiviral Particles: sc-154705-V as alternate gene silencing 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 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

Trypsin-2 siRNA (m) is recommended for the inhibition of Trypsin-2 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 Trypsin-2 gene expression knockdown using RT-PCR Primer: Trypsin-2 (m)-PR: sc-154705-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.