

KLK12 siRNA (h): sc-41542

BACKGROUND

Kallikreins (KLKs) belong to the serine protease family of proteolytic enzymes. The function of many members of KLK gene family is currently unknown, but evidence suggests that many KLKs are involved in carcinogenesis. KLK12 (kallikrein-12), also known as KLKL5 (kallikrein-like protein 5), is a 248 amino acid secreted protein that belongs to the peptidase S1 family and the kallikrein subfamily. KLK12 exists as two alternatively spliced isoforms and contains one peptidase S1 domain. The gene that encodes KLK12 is made up of more than 6,000 bases and maps to human chromosome 19q13.41. Chromosome 19 consists of over 63 million bases, houses approximately 1,400 genes and is recognized for having the greatest gene density of the human chromosomes. It is the genetic home for a number of immunoglobulin (Ig) superfamily members, including the killer cell and leukocyte Ig-like receptors, a number of ICAMs, the CEACAM and PSG families, and Fc receptors (FcRs).

REFERENCES

1. Yousef, G.M., Luo, L.Y. and Diamandis, E.P. 1999. Genomic organization of the human kallikrein gene family on chromosome 19q13.3-q13.4. *Biochem. Biophys. Res. Commun.* 276: 125-133.
2. Gan, L., Lee, I., Smith, R., Argonza-Barrett, R., Lei, H., McCuaig, J., Moss, P., Paeper, B. and Wang, K. 2000. Sequencing and expression analysis of the serine protease gene cluster located in chromosome 19q13 region. *Gene* 257: 119-130.
3. Yousef, G.M., Magklara, A. and Diamandis, E.P. 2000. KLK12 is a novel serine protease and a new member of the human kallikrein gene family-differential expression in breast cancer. *Genomics* 69: 331-341.
4. Harvey, T.J., Hooper, J.D., Myers, S.A., Stephenson, S.A., Ashworth, L.K. and Clements, J.A. 2000. Tissue-specific expression patterns and fine mapping of the human kallikrein (KLK) locus on proximal 19q13.4. *J. Biol. Chem.* 275: 37397-37406.
5. Diamandis, E.P., Yousef, G.M., Luo, L.Y., Magklara, A. and Obiezu, C.V. 2000. The new human kallikrein gene family: implications in carcinogenesis. *Trends Endocrinol. Metab.* 11: 54-60.
6. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 605539. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
7. Elliott, M.B., Irwin, D.M. and Diamandis, E.P. 2006. In silico identification and Bayesian phylogenetic analysis of multiple new mammalian kallikrein gene families. *Genomics* 88: 591-599.
8. Memari, N., Jiang, W., Diamandis, E.P. and Luo, L.Y. 2007. Enzymatic properties of human kallikrein-related peptidase 12 (KLK12). *Biol. Chem.* 388: 427-435.
9. Guillon-Munos, A., Oikonomopoulou, K., Michel, N., Smith, C.R., Petit-Courty, A., Canepa, S., Reverdiau, P., Heuze-Vourc'h, N., Diamandis, E.P. and Courty, Y. 2011. Kallikrein-related peptidase 12 hydrolyzes matricellular proteins of the CCN family and modifies interactions of CCN1 and CCN5 with growth factors. *J. Biol. Chem.* 286: 25505-25518.

CHROMOSOMAL LOCATION

Genetic locus: KLK12 (human) mapping to 19q13.41.

PRODUCT

KLK12 siRNA (h) is a pool of 2 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 KLK12 shRNA Plasmid (h): sc-41542-SH and KLK12 shRNA (h) Lentiviral Particles: sc-41542-V as alternate gene silencing products.

For independent verification of KLK12 (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-41542A and sc-41542B.

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

KLK12 siRNA (h) is recommended for the inhibition of KLK12 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 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 KLK12 gene expression knockdown using RT-PCR Primer: KLK12 (h)-PR: sc-41542-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.