

# Sectm1a siRNA (m): sc-153321

## BACKGROUND

Sectm1a (secreted and transmembrane 1A) is a 192 amino acid single-pass type I membrane protein that belongs to the SECTM family. Sectm1a is the mouse homolog of human K12, also known as SECTM1, and may possess similar functions. K12 is a novel protein that is suggested to be involved in hematopoietic and/or immune system processes. K12 stimulates the up-regulation of IL-2R $\alpha$ , ICAM-1 and CD69 on human NK cells. Sectm1a is encoded by a gene located on mouse chromosome 11 E2 and K12 is encoded by a gene located on human chromosome 17q25.3. Chromosome 17 comprises over 2.5% of the human genome and encodes over 1,200 genes. Two key tumor suppressor genes are associated with chromosome 17, namely, p53 and BRCA1. Tumor suppressor p53 is necessary for maintenance of cellular genetic integrity by moderating cell fate through DNA repair versus cell death. Malfunction or loss of p53 expression is associated with malignant cell growth and Li-Fraumeni syndrome. Like p53, BRCA1 is directly involved in DNA repair, though specifically it is recognized as a genetic determinant of early onset breast cancer and predisposition to cancers of the ovary, colon, prostate gland and fallopian tubes.

## REFERENCES

- Slentz-Kesler, K.A., Hale, L.P. and Kaufman, R.E. 1998. Identification and characterization of K12 (SECTM1), a novel human gene that encodes a Golgi-associated protein with transmembrane and secreted isoforms. *Genomics* 47: 327-340.
- Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 602602. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Lyman, S.D., Escobar, S., Rousseau, A.M., Armstrong, A. and Fanslow, W.C. 2000. Identification of CD7 as a cognate of the human K12 (SECTM1) protein. *J. Biol. Chem.* 275: 3431-3437.
- Lam, G.K., Liao, H.X., Xue, Y., Alam, S.M., Searce, R.M., Kaufman, R.E., Sempowski, G.D. and Haynes, B.F. 2005. Expression of the CD7 ligand K-12 in human thymic epithelial cells: regulation by IFN- $\gamma$ . *J. Clin. Immunol.* 25: 41-49.
- Larson, J.H., Kumar, C.G., Everts, R.E., Green, C.A., Everts-van der Wind, A., Band, M.R. and Lewin, H.A. 2006. Discovery of eight novel divergent homologs expressed in cattle placenta. *Physiol. Genomics* 25: 405-413.
- Nusbaum, R., Vogel, K.J. and Ready, K. 2006-2007. Susceptibility to breast cancer: hereditary syndromes and low penetrance genes. *Breast Dis.* 27: 21-50.
- Farrell, C.J. and Plotkin, S.R. 2007. Genetic causes of brain tumors: neurofibromatosis, tuberous sclerosis, von Hippel-Lindau, and other syndromes. *Neurol. Clin.* 25: 925-946.
- Suela, J., Largo, C., Ferreira, B., Alvarez, S., Robledo, M., González-Neira, A., Calasanz, M.J. and Cigudosa, J.C. 2007. Neurofibromatosis 1, and not TP53, seems to be the main target of chromosome 17 deletions in *de novo* acute myeloid leukemia. *J. Clin. Oncol.* 25: 1151-1152.

## CHROMOSOMAL LOCATION

Genetic locus: Sectm1a (mouse) mapping to 11 E2.

## PRODUCT

Sectm1a 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 Sectm1a shRNA Plasmid (m): sc-153321-SH and Sectm1a shRNA (m) Lentiviral Particles: sc-153321-V as alternate gene silencing products.

For independent verification of Sectm1a (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-153321A, sc-153321B and sc-153321C.

## 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

Sectm1a siRNA (m) is recommended for the inhibition of Sectm1a 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 Sectm1a gene expression knockdown using RT-PCR Primer: Sectm1a (m)-PR: sc-153321-PR (20  $\mu$ 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.