SANTA CRUZ BIOTECHNOLOGY, INC.

# Sucrase-Isomaltase siRNA (m): sc-72189

## BACKGROUND

Sucrase-isomaltase (SI) is a Type II brush border membrane protein that plays an important role in the final stage of carbohydrate digestion. SI is a disaccharidase that catalyzes the hydrolysis of dietary sucrose and maltose and other products of starch digestion. The high degree of amino acid homology between isomaltase and sucrose indicate that the SI protein was evolved by partial gene duplication. The SI precursor is proteolytically cleaved when exposed to pancreatic proteases in the intestinal lumen and localizes to the apical membrane of adult intestinal enterocytes along the intestinal crypt-villus axis. SI protein deficiency results in osmotic diarrhea due to an inability to hydrolyze intestinal disaccharides into component monosaccharides. Congenital sucrase-isomaltase deficiency (CSID) is an autosomal recessive human disorder characterized by reduced activities of SI.

## REFERENCES


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2. Hauri, H.P., et al. 1991. Protein traffic in intestinal epithelial cells. Semin Cell Biol. 2: 355-364.
3. Wu, G.D., et al. 1992. Isolation and characterization of the human sucrase-isomaltase gene and demonstration of intestine-specific transcriptional elements. J. Biol. Chem. 267: 7863-7870.
4. Treem, W.R. 1995. Congenital sucrase-isomaltase deficiency. J. Pediatr. Gastroenterol. Nutr. 21: 1-14.
5. Traber, P.G. 1998. Control of gene expression in intestinal epithelial cells. Philos. Trans. R Soc. Lond. B Biol. Sci. 353: 911-914.
6. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 222900. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
7. Ritz V., et al. 2003. Congenital sucrase-isomaltase deficiency because of an accumulation of the mutant enzyme in the endoplasmic reticulum. Gastroenterology 125: 1678-1685.


## CHROMOSOMAL LOCATION

Genetic locus: Si (mouse) mapping to 3 E3.

## PRODUCT

Sucrase-Isomaltase 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Sucrase-Isomaltase shRNA Plasmid (m): sc-72189-SH and Sucrase-Isomaltase shRNA (m) Lentiviral Particles: sc-72189-V as alternate gene silencing products.

For independent verification of Sucrase-Isomaltase (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-72189A, sc-72189B and sc-72189C.

## 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

Sucrase-Isomaltase siRNA (m) is recommended for the inhibition of Sucrase-Isomaltase 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 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.

## GENE EXPRESSION MONITORING

Sucrase-Isomaltase (C-8): sc-393470 is recommended as a control antibody for monitoring of Sucrase-Isomaltase gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Sucrase-Isomaltase gene expression knockdown using RT-PCR Primer: Sucrase-Isomaltase (m)-PR: sc-72189-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.

## PROTOCOLS

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