SANTA CRUZ BIOTECHNOLOGY, INC.

HUGT2 siRNA (h): sc-75315

BACKGROUND

HUGT2 is also known as UGCGL2 (UDP-glucose ceramide glucosyltransferase-like 2) or UGT2 (UDP-glucose: glycoprotein glucosyltransferase 2) and is a 1,516 amino acid protein that is expressed abundantly in kidney, pancreas, heart and skeletal muscle. HUGT2 is localized to the lumen of the ER (endoplasmic reticulum) and to the ER-Golgi intermediate compartment which regulates transportation between the ER and the Golgi. HUGT2 is a quality control protein that targets unfolded glycoproteins for glucosylation in a calcium-dependent manner, but may use manganese is the absence of calcium. HUGT2 targets glycans by attaching single glucose residues to glycans with amino acid sequences which are not correctly folded, an enzymatic process that is exhibited during carbohydrate processing. Patients with type 2 diabetes express altered HUGT2 proteins in their β cells, suggesting that these patients may also have defects in their ER glycoprotein quality control abilities.

REFERENCES

1. Arnold, S.M., et al. 2000. Two homologues encoding human UDP-glucose: glycoprotein glucosyltransferase differ in mRNA expression and enzymatic activity. Biochemistry 39: 2149-2163.
2. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 605898. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Arnold, S.M. and Kaufman, R.J. 2003. The noncatalytic portion of human UDP-glucose: glycoprotein glucosyltransferase I confers UDP-glucose binding and transferase function to the catalytic domain. J. Biol. Chem. 278: 43320-43328.
4. Marchetti, P., et al. 2007. The endoplasmic reticulum in pancreatic β cells of type 2 diabetes patients. Diabetologia 50: 2486-2494.
5. Mackenzie, P.I., et al. 2008. Identification of UDP glycosyltransferase 3A1 as a UDP N-acetylglucosaminyltransferase. J. Biol. Chem. 283: 36205-36210.

CHROMOSOMAL LOCATION

Genetic locus: UGGT2 (human) mapping to 13q32.1.

PRODUCT

HUGT2 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 HUGT2 shRNA Plasmid (h): sc-75315-SH and HUGT2 shRNA (h) Lentiviral Particles: sc-75315-V as alternate gene silencing products.

For independent verification of HUGT2 (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-75315A, sc-75315B and sc-75315C.

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

HUGT2 siRNA (h) is recommended for the inhibition of HUGT2 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.

GENE EXPRESSION MONITORING

HUGT2 (G-7): sc-515421 is recommended as a control antibody for monitoring of HUGT2 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 HUGT2 gene expression knockdown using RT-PCR Primer: HUGT2 (h)-PR: sc-75315-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.