SANTA CRUZ BIOTECHNOLOGY, INC.

Calpain 10 siRNA (h): sc-60318

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The Power to Question

BACKGROUND

The CAPN10 (Calpain 10) gene encodes a ubiquitously expressed member of the Calpain-like cysteine protease family and shows association with type 2 diabetes Research suggests that Calpain 10 plays a role in an innovative pathway involved in the pathophysiology of diabetes, where Calpain 10 represents the third example of a protease contributing to the advancement of diabetes, the others being prohormone convertase-1 and prohormone-processing carboxypeptidase E, both of which are associated with diabetes and obesity. The CAPN10 human cDNA encodes a 672 amino-acid protein that shares 81.7% identity with the mouse ortholog, and analysis of human cDNA clones displays an intricate pattern of alternative splicing. CAPN10, which presumably plays a role in the regulation of Insulin secretion, is thought to contain a signature of the effects of positive natural selection within its genetic sequence.

REFERENCES

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3. Clark, V.J., et al. 2005. Haplotype structure and phylogenetic shadowing of a hypervariable region in the CAPN10 gene. Hum. Genet. 117: 258-266.
4. Ridderstrale, M., et al. 2005. Calpain 10 and type 2 diabetes: are we getting closer to an explanation? Curr. Opin. Clin. Nutr. Metab. Care 8: 361-366.
5. Vander Molen, J., et al. 2005. Population genetics of CAPN10 and GPR35: implications for the evolution of type 2 diabetes variants. Am. J. Hum. Genet. 76: 548-560.
6. Wolford, J.K., et al. 2005. Genetic basis of type 2 diabetes mellitus: implications for therapy. Treat. Endocrinol. 3: 257-267.
7. Wu, B., et al. 2005. Variants of Calpain 10 gene and its association with type 2 diabetes mellitus in a Chinese population. Diabetes Res. Clin. Pract. 68: 155-161.
8. Tsuchiya, T., et al. 2006. Association of the Calpain 10 gene with type 2 diabetes in Europeans: of pooled and meta-analyses. Mol. Genet. Metab. 89: 174-184.

CHROMOSOMAL LOCATION

Genetic locus: CAPN10 (human) mapping to 2q37.3.

PRODUCT

Calpain 10 siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Calpain 10 shRNA Plasmid (h): sc-60318-SH and Calpain 10 shRNA (h) Lentiviral Particles: sc-60318-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 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

Calpain 10 siRNA (h) is recommended for the inhibition of Calpain 10 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Calpain 10 gene expression knockdown using RT-PCR Primer: Calpain 10 (h)-PR: sc-60318-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chiu, C.S., et al. 2018. Exploiting Honokiol-induced ER stress CHOP activation inhibits the growth and metastasis of melanoma by suppressing the MITF and β-catenin pathways. Cancer Lett. 442: 113-125.

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.