SANTA CRUZ BIOTECHNOLOGY, INC.

CTRL siRNA (h): sc-93314

BACKGROUND

Chymotrypsin is a digestive enzyme that is synthesized in the pancreas and can perform proteolysis by cleaving peptides at the carboxyl side of tyrosine, tryptophan and phenylalanine, all of which contain aromatic rings. Chymotrypsin uses a powerful nucleophile, namely the serine 195 residue located in its active site, to attack unreactive carbonyl groups on select amino acids. This reaction forms an enzyme-substrate intermediate that is eventually cleaved, returning Chymotrypsin to its original enzymatic state and releasing a cleaved peptide. CTRL (Chymotrypsin-like) is a 264 amino acid protein that contains one peptidase S1 domain and may exhibit Chymotrypsin-like activity. Due to its expression in pancreatic and intestinal tissue, CTRL is thought to function as a digestive enzyme that, like Chymotrypsin, may be involved in protein degradation pathways.

REFERENCES

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3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 118888. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Murakami, Y., et al. 2005. Poly(ethylene glycol)-α-Chymotrypsin complex catalytically active in anhydrous isooctane. J. Biosci. Bioeng. 88: 441-443.
5. Matsumoto, M., et al. 2005. Enhanced thermostability of α-Chymotrypsin enclosed in inorganic microcapsules. J. Biosci. Bioeng. 92: 197-199.
6. You, C.C., et al. 2005. Contrasting effects of exterior and interior hydrophobic moieties in the complexation of amino acid functionalized gold clusters with α-Chymotrypsin. Org. Lett. 7: 5685-5688.
7. Ahmed, E., et al. 2006. Chymotrypsin inhibitory triterpenoids from *Silybum marianum*. Chem. Pharm. Bull. 54: 103-106.
8. Hudáky, P., et al. 2006. A self-stabilized model of the Chymotrypsin catalytic pocket. The energy profile of the overall catalytic cycle. Proteins 62: 749-759.

CHROMOSOMAL LOCATION

Genetic locus: CTRL (human) mapping to 16q22.1.

PRODUCT

CTRL 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 CTRL shRNA Plasmid (h): sc-93314-SH and CTRL shRNA (h) Lentiviral Particles: sc-93314-V as alternate gene silencing products.

For independent verification of CTRL (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-93314A, sc-93314B and sc-93314C.

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

CTRL siRNA (h) is recommended for the inhibition of CTRL 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 CTRL gene expression knockdown using RT-PCR Primer: CTRL (h)-PR: sc-93314-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. Moon, J.H., et al. 2011. Up-regulation of hepatic low-density lipoprotein receptor-related protein 1: a possible novel mechanism of antiatherogenic activity of hydroxymethylglutaryl-coenzyme A reductase inhibitor Atorvastatin and hepatic LRP1 expression. Metab. Clin. Exp. 60: 930-940.
2. Zizza, P., et al. 2019. TRF2 positively regulates SULF2 expression increasing VEGF-A release and activity in tumor microenvironment. Nucleic Acids Res. 47: 3365-3382.
3. Yu, X., et al. 2020. Ubiquitination of the DNA-damage checkpoint kinase Chk1 by TRAF4 is required for Chk1 activation. J. Hematol. Oncol. 13: 40.
4. Dong, X., et al. 2023. TRAF4-mediated ubiquitination-dependent activation of JNK/Bcl-x_L drives radioresistance. Cell Death Dis. 14: 102.

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.