SANTA CRUZ BIOTECHNOLOGY, INC.

serum carnosinase siRNA (m): sc-76483

BACKGROUND

Serum carnosinase, also known as CNDP1 (carnosine dipeptidase 1), CN1 or CPGL2, is a 507 amino acid protein that is secreted into central nervous system (CNS) tissue and is a member of the peptidase M20A family. Existing as a homodimer, serum carnosinase uses zinc as a cofactor to catalyze the hydrolysis of β-Ala-l-His and Xaa-l-His dipeptides, including carnosine, thereby playing a role in glucose metabolism. Serum carnosinase functions as an optimal pH of 8.5 and contains a varying number of trinucleotide (CTG) repeats that control its enzymatic activity. Polymorphisms in the serum carnosinase gene are associated with homocarnosinosis, as well as with diabetic nephropathy in type 1 diabetes. The gene encoding serum carnosinase maps to human chromosome 18, which houses over 300 protein-coding genes and contains nearly 76 million bases.

REFERENCES

1. Lenney, J.F., et al. 1982. Human serum carnosinase: characterization, distinction from cellular carnosinase, and activation by cadmium. Clin. Chim. Acta 123: 221-231.
2. Teufel, M., et al. 2003. Sequence identification and characterization of human carnosinase and a closely related non-specific dipeptidase. J. Biol. Chem. 278: 6521-6531.
3. Janssen, B., et al. 2005. Carnosine as a protective factor in diabetic nephropathy: association with a leucine repeat of the carnosinase gene CNDP1. Diabetes 54: 2320-2327.
4. Zschocke, J., et al. 2006. Allelic variation in the CNDP1 gene and its lack of association with longevity and coronary heart disease. Mech. Ageing Dev. 127: 817-820.
5. Riedl, E., et al. 2007. A CTG polymorphism in the CNDP1 gene determines the secretion of serum carnosinase in Cos-7 transfected cells. Diabetes 56: 2410-2413.
6. Sauerhöfer, S., et al. 2007. L-carnosine, a substrate of carnosinase-1, influences glucose metabolism. Diabetes 56: 2425-2432.

CHROMOSOMAL LOCATION

Genetic locus: Cndp1 (mouse) mapping to 18 E4.

PRODUCT

serum carnosinase 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 serum carnosinase shRNA Plasmid (m): sc-76483-SH and serum carnosinase shRNA (m) Lentiviral Particles: sc-76483-V as alternate gene silencing products.

For independent verification of serum carnosinase (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-76483A, sc-76483B and sc-76483C.

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

serum carnosinase siRNA (m) is recommended for the inhibition of serum carnosinase 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor serum carnosinase gene expression knockdown using RT-PCR Primer: serum carnosinase (m)-PR: sc-76483-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.