SANTA CRUZ BIOTECHNOLOGY, INC.

Carbonyl reductase 3 siRNA (m): sc-72794

BACKGROUND

Carbonyl reductase 1 and Carbonyl reductase 3 belong to the family of short-chain dehydrogenase/reductase proteins that play a role in metabolism throughout the body. Both proteins are monomeric Carbonyl reductases that function to catalyze the NADPH-dependent reduction of various carbonyls (generally products of lipid peroxidation) to their corresponding alcohols. Carbonyl reductase 1 and Carbonyl reductase 3 share high sequence similarity at the amino acid level and are responsible for the metabolism of not only endogenous compounds, but of various pharmacological products, as well. Genetic polymorphisms in both proteins result in individual variability at the level of drug metabolism. Defects in the genes encoding Carbonyl reductase proteins have implications in cancer, diabetes and errors in metabolism.

REFERENCES

1. Watanabe, K., et al. 1999. Mapping of a novel human Carbonyl reductase, CBR3, and ribosomal pseudogenes to human chromosome 21q22.2. Genomics 52: 95-100.
2. Terada, T., et al. 2001. Cloning and bacterial expression of monomeric short-chain dehydrogenase/reductase (Carbonyl reductase) from CHO-K1 cells. Eur. J. Biochem. 267: 6849-6857.
3. Olson, L.E., et al. 2003. Protection from doxorubicin-induced cardiac toxicity in mice with a null allele of Carbonyl reductase 1. Cancer Res. 63: 6602-6606.
4. Lakhman, S.S., et al. 2005. Functional significance of a natural allelic variant of human Carbonyl reductase 3 (CBR3). Drug Metab. Dispos. 33: 254-257.
5. Bergholdt, R., et al. 2005. Fine mapping of a region on chromosome 21q21.11-q22.3 showing linkage to type 1 diabetes. J. Med. Genet. 42: 17-25.
6. Tanaka, M., et al. 2005. An unbiased cell morphology-based screen for new, biologically active small molecules. PLoS Biol. 3: e128.
7. Oppermann, U. 2007. Carbonyl reductases: the complex relationships of mammalian carbonyl- and quinone-reducing enzymes and their role in physiology. Annu. Rev. Pharmacol. Toxicol. 47: 293-322.

CHROMOSOMAL LOCATION

Genetic locus: Cbr3 (mouse) mapping to 16 C4.

PRODUCT

Carbonyl reductase 3 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 Carbonyl reductase 3 shRNA Plasmid (m): sc-72794-SH and Carbonyl reductase 3 shRNA (m) Lentiviral Particles: sc-72794-V as alternate gene silencing products.

For independent verification of Carbonyl reductase 3 (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-72794A, sc-72794B and sc-72794C.

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

Carbonyl reductase 3 siRNA (m) is recommended for the inhibition of Carbonyl reductase 3 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 Carbonyl reductase 3 gene expression knockdown using RT-PCR Primer: Carbonyl reductase 3 (m)-PR: sc-72794-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.