SANTA CRUZ BIOTECHNOLOGY, INC.

BChE siRNA (m): sc-60268

BACKGROUND

Present in most cells except erythrocytes, butyrylcholine esterase (BChE), also designated acylcholine acylhydrolase or pseudocholinesterase, has esterase activity as well as aryl acylamidase activity. It hydrolyzes acylcholine into choline and carboxylate. BChE is synthesized in the liver and is highly reactive with organophosphate esters. BChE can form a homotetramer composed of two dimers linked by a disulfide bond. Defects in the gene encoding BChE are associated with the disease hypocholinesterasemia. Inhibition of BChE effects the toxicity of organophosphates in the respiratory system suggesting that BChE may play a role in respiratory function. In addition, BChE may play an important pharmocological role by hydrolyzing toxic esters. This suggests an involvement of BChE in a treatment for intoxication with substances such as cocaine.

REFERENCES

1. Schopfer, L.M., et al. 2005. Reaction kinetics of biotinylated organophosphorus toxicant, FP-Biotin, with human acetylcholinesterase and human butyrylcholinesterase. Chem. Res. Toxicol. 18: 747-754.
2. Motamed, C., et al. 2005. Interaction between mivacurium and pancuronium: impact of the order of administration. Eur. J. Clin. Pharmacol. 61: 175-177.
3. Souza, R.L., et al. 2005. Four new mutations in the BCHE gene of human butyrylcholinesterase in a Brazilian blood donor sample. Mol. Genet. Metab. 84: 349-353.
4. Kotelevets, L., et al. 2005. Cholinesterase activity in human pulmonary arteries and veins: correlation with mRNA levels. Life Sci. 76: 2211-2220.
5. Decker, M. 2005. Novel inhibitors of acetyl- and butyrylcholinesterase derived from the alkaloids dehydroevodiamine and rutaecarpine. Eur. J. Med. Chem. 40: 305-313.
6. Bryk, B., et al. 2005. Inherited and acquired interactions between ACHE and PON1 polymorphisms modulate plasma acetylcholinesterase and paraoxonase activities. J. Neurochem. 92: 1216-1227.
7. Boudinot, E., et al. 2005. Effects of acetylcholinesterase and butyrylcholinesterase inhibition on breathing in mice adapted or not to reduced acetylcholinesterase. Pharmacol. Biochem. Behav. 80: 53-61.

CHROMOSOMAL LOCATION

Genetic locus: Bche (mouse) mapping to 3 E3.

PRODUCT

BChE 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 BChE shRNA Plasmid (m): sc-60268-SH and BChE shRNA (m) Lentiviral Particles: sc-60268-V as alternate gene silencing products.

For independent verification of BChE (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-60268A, sc-60268B and sc-60268C.

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

BChE siRNA (m) is recommended for the inhibition of BChE 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.

GENE EXPRESSION MONITORING

BChE (D-5): sc-377403 is recommended as a control antibody for monitoring of BChE 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 BChE gene expression knockdown using RT-PCR Primer: BChE (m)-PR: sc-60268-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.