SANTA CRUZ BIOTECHNOLOGY, INC.

LACTB2 siRNA (m): sc-146633

BACKGROUND

Penicillin refers to any member of β-lactam antibiotics group. These agents are identified by a β-lactam ring within their molecular structure. As the most widely used group of antibiotics available, β-lactams are used for the treatment of bacterial infections usually caused by gram-positive organisms. β-lactam antibiotics are bactericidal, functioning to inhibit the synthesis of the peptidoglycan layer of bacterial cell walls. Bacterial penicillin-binding proteins and β-lactamases constitute a large family of serine proteases that perform essential functions in the synthesis and maintenance of peptidoglycan cell wall. Notably, β-lactamases cleave β-lactams, therefore providing the bacteria with resistance to the antibiotic. Homologues of β-lactamases occur in many species, including human, rat, bovine, rabbit, porcine, *Xenopus,* zebrafish, and *C. elegans*. The human homologues, LACTB and LACTB2, are active-site-serine enzymes thought to be involved in metabolism.

REFERENCES

1. Smith, T.S., Southan, C., Ellington, K., Campbell, D., Tew, D.G. and Debouck, C. 2001. Identification, genomic organization, and mRNA expression of LACTB, encoding a serine β-lactamase-like protein with an amino-terminal transmembrane domain. Genomics 78: 12-14.
2. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 608440. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Liobikas, J., Polianskyte, Z., Speer, O., Thompson, J., Alakoskela, J.M., Peitsaro, N., Franck, M., Whitehead, M.A., Kinnunen, P.J. and Eriksson, O. 2006. Expression and purification of the mitochondrial serine protease LACTB as an N-terminal GST fusion protein in *Escherichia coli*. Protein Expr. Purif. 45: 335-342.
4. Romano, A., Viola, M., Bousquet, P.J., Gaeta, F., Valluzzi, R., Caruso, C. and Demoly, P. 2006. A comparison of the performance of two penicillin reagent kits in the diagnosis of β-lactam hypersensitivity. Allergy 62: 53-58.
5. Ruddle, C.C. and Smyth, T.P. 2007. Exploring the chemistry of penicillin as a β-lactamase-dependent prodrug. Org. Biomol. Chem. 5: 160-168.
6. Peitsaro, N., Polianskyte, Z., Tuimala, J., Pörn-Ares, I., Liobikas, J., Speer, O., Lindholm, D., Thompson, J. and Eriksson, O. 2008. Evolution of a family of metazoan active-site-serine enzymes from penicillin-binding proteins: a novel facet of the bacterial legacy. BMC Evol. Biol. 8: 26.
7. Chen, Y., Zhu, J., Lum, P.Y., Yang, X., Pinto, S., MacNeil, D.J., Zhang, C., Lamb, J., Edwards, S., Sieberts, S.K., Leonardson, A., Castellini, L.W., Wang, S., Champy, M.F., Zhang, B., Emilsson, V., Doss, S., et al. 2008. Variations in DNA elucidate molecular networks that cause disease. Nature 452: 429-435.

CHROMOSOMAL LOCATION

Genetic locus: Lactb2 (mouse) mapping to 1 A3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

LACTB2 siRNA (m) 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 LACTB2 shRNA Plasmid (m): sc-146633-SH and LACTB2 shRNA (m) Lentiviral Particles: sc-146633-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

LACTB2 siRNA (m) is recommended for the inhibition of LACTB2 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 LACTB2 gene expression knockdown using RT-PCR Primer: LACTB2 (m)-PR: sc-146633-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.