SANTA CRUZ BIOTECHNOLOGY, INC.

AGXT2 siRNA (h): sc-91787

BACKGROUND

AGXT2 (alanine-glyoxylate aminotransferase 2), also known as AGT2, is a 514 amino acid mitochondrial protein belonging to the class-III pyridoxal-phosphate-dependent aminotransferase family. AGXT2 catalyzes the conversion of glyoxylate to glycine using L-alanine as the amino donor. Existing as a homotetramer and expressed primarily in kidney, AGXT2 protects from asymmetric dimethylarginine (ADMA)-induced inhibition in nitric oxide (NO) production. Elevated blood concentrations of ADMA, a methyl derivate of the amino acid arginine and an endogenous inhibitor of nitric oxide (NO) synthase, is produced by the physiological degradation of methylated proteins and is found in association with diabetes, hypertension, congestive heart failure and atherosclerosis. The gene encoding AGXT2 maps to human chromosome 5, which contains 181 million base pairs and comprises nearly 6% of the human genome.

REFERENCES

1. Dixon, M.J., et al. 1991. The gene for Treacher Collins syndrome maps to the long arm of chromosome 5. Am. J. Hum. Genet. 49: 17-22.
2. Watts, R.W. 1992. Alanine glyoxylate aminotransferase deficiency: biochemical and molecular genetic lessons from the study of a human disease. Adv. Enzyme Regul. 32: 309-327.
3. Lee, I.S., et al. 1995. Molecular cloning and sequencing of a cDNA encoding alanine-glyoxylate aminotransferase 2 from rat kidney. J. Biochem. 117: 856-862.
4. Liepman, A.H. and Olsen, L.J. 2001. Peroxisomal alanine: glyoxylate aminotransferase (AGT1) is a photorespiratory enzyme with multiple substrates in *Arabidopsis thaliana*. Plant J. 25: 487-498.
5. Liepman, A.H. and Olsen, L.J. 2003. Alanine aminotransferase homologs catalyze the glutamate:glyoxylate aminotransferase reaction in peroxisomes of *Arabidopsis*. Plant Physiol. 131: 215-227.
6. Baker, P.R., et al. 2004. Glycolate and glyoxylate metabolism in Hep G2 cells. Am. J. Physiol., Cell Physiol. 287: C1359-C1365.

CHROMOSOMAL LOCATION

Genetic locus: AGXT2 (human) mapping to 5p13.2.

PRODUCT

AGXT2 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 AGXT2 shRNA Plasmid (h): sc-91787-SH and AGXT2 shRNA (h) Lentiviral Particles: sc-91787-V as alternate gene silencing products.

For independent verification of AGXT2 (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-91787A, sc-91787B and sc-91787C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

AGXT2 siRNA (h) is recommended for the inhibition of AGXT2 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 AGXT2 gene expression knockdown using RT-PCR Primer: AGXT2 (h)-PR: sc-91787-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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