SANTA CRUZ BIOTECHNOLOGY, INC.

Glyoxalase I siRNA (m): sc-60704

BACKGROUND

The glyoxal pathway plays a role in the detoxification of glucose degradation products (GDP). Glyoxalase I (GLO1), a member of the glyoxalase family, is effective in eliminating GDP. Overexpression or silencing of Glyoxalase I in mouse brain suggests an association between Glyoxalase I and anxiety. Glyoxalase I has three isoforms generated from two alleles in the genome which forms two homodimers and one heterodimer, each subunit binding one zinc ion. Research demonstrates that GLO1 gene expression is induced in colon carcinoma. Both an Insulin response element (IRE) and a zinc metal response element (MRE) in the promoter region of the GLO1 gene have been identified.

REFERENCES

1. Himo, F., et al. 2001. Catalytic mechanism of Glyoxalase I: a theoretical study. J. Am. Chem. Soc. 123: 10280-10289.
2. Rulli, A., et al. 2001. Expression of Glyoxalase I and II in normal and breast cancer tissues. Breast Cancer Res. Treat. 66: 67-72.
3. Junaid, M.A., et al. 2004. Proteomic studies identified a single nucleotide polymorphism in Glyoxalase I as autism susceptibility factor. Am. J. Med. Genet. A 131: 11-17.
4. Krömer, S.A., et al. 2005. Identification of Glyoxalase I as a protein marker in a mouse model of extremes in trait anxiety. J. Neurosci. 25: 4375-4384.
5. Yadav, S.K., et al. 2005. Methylglyoxal levels in plants under salinity stress are dependent on Glyoxalase I and Glutathione. Biochem. Biophys. Res. Commun. 337: 61-67.

CHROMOSOMAL LOCATION

Genetic locus: Glo1 (mouse) mapping to 17 A3.3.

PRODUCT

Glyoxalase I 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 Glyoxalase I shRNA Plasmid (m): sc-60704-SH and Glyoxalase I shRNA (m) Lentiviral Particles: sc-60704-V as alternate gene silencing products.

For independent verification of Glyoxalase I (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-60704A, sc-60704B and sc-60704C.

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

Glyoxalase I siRNA (m) is recommended for the inhibition of Glyoxalase I 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

Glyoxalase I (D-5): sc-133214 is recommended as a control antibody for monitoring of Glyoxalase I 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 Glyoxalase I gene expression knockdown using RT-PCR Primer: Glyoxalase I (m)-PR: sc-60704-PR (20 µl, 642 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kim, K.M., et al. 2012. Increased Glyoxalase I levels inhibit accumulation of oxidative stress and an advanced glycation end product in mouse mesangial cells cultured in high glucose. Exp. Cell Res. 318: 152-159.
2. Nam, D.H., et al. 2015. CHOP deficiency prevents methylglyoxal-induced myocyte apoptosis and cardiac dysfunction. J. Mol. Cell. Cardiol. 85: 168-177.

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.