SANTA CRUZ BIOTECHNOLOGY, INC.

Glyoxalase II siRNA (h): sc-60705

BACKGROUND

The glyoxal pathway plays a role in the detoxification of glucose degradation products (GDP). Glyoxalase I and Gyloxalase II (also designated hydroxyacyl glutathione hydrolase or HAGH) are members of the Gyloxalase family. The Gyloxalase II enzyme is a thiolesterase that catalyzes the hydrolysis of S-D-lactoyl-glutathione to form reduced glutathione and D-lactic acid. It exists only as a monomer and binds two zinc ions per subunit. Glyoxalase II contains 260 amino acids. It is detected in the mitochondria and cytosol of mammals. Both Glyoxalase I and Gyloxalase II are detected at a higher activity level in breast cancer tissues than with matched unaffected tissues. This suggests that Glyoxalase inhibitor drugs may be effective in the treatment of cancer.

REFERENCES

1. Ridderström, M., et al. 1996. Molecular cloning, heterologous expression, and characterization of human Glyoxalase II. J. Biol. Chem. 271: 319-323.
2. Cameron, A.D., et al. 1999. Crystal structure of human Glyoxalase II and its complex with a glutathione thiolester substrate analogue. Structure 7: 1067-1078.
3. Rulli, A., et al. 2001. Expression of Glyoxalase I and II in normal and breast cancer tissues. Breast Cancer Res. Treat. 66: 67-72.
4. Cordell, P.A., et al. 2004. The human hydroxyacylglutathione hydrolase (HAGH) gene encodes both cytosolic and mitochondrial forms of Glyoxalase II. J. Biol. Chem. 279: 28653-28661.
5. 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.
6. 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.
7. Ariza, A., et al. 2006. Crystallization and preliminary X-ray analysis of *Leishmania* major Glyoxalase I. Acta Crystallograph. Sect. F Struct. Biol. Cryst. Commun. 61: 769-772.

CHROMOSOMAL LOCATION

Genetic locus: HAGH (human) mapping to 16p13.3.

PRODUCT

Glyoxalase II 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 Glyoxalase II shRNA Plasmid (h): sc-60705-SH and Glyoxalase II shRNA (h) Lentiviral Particles: sc-60705-V as alternate gene silencing products.

For independent verification of Glyoxalase II (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-60705A, sc-60705B and sc-60705C.

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

Glyoxalase II siRNA (h) is recommended for the inhibition of Glyoxalase II 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.

GENE EXPRESSION MONITORING

Glyoxalase II (F-9): sc-166781 is recommended as a control antibody for monitoring of Glyoxalase II 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 II gene expression knockdown using RT-PCR Primer: Glyoxalase II (h)-PR: sc-60705-PR (20 µl, 540 bp). 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.