SANTA CRUZ BIOTECHNOLOGY, INC.

Gl Syn siRNA (m): sc-35482

BACKGROUND

Glutamine synthetase (Gl Syn) forms a homooctamer that serves as a catalyst for the amination of glutamic acid to form glutamine. This enzyme is a marker for astrocytes, which serve as the primary site of conversion of glutamic acid to glutamine in the brain. Induction of glutamine synthetase is seen upon astrocyte cell contact with neurons. Elevated expression of glutamine synthetase in glial cells has been shown to protect neurons from degeneration due to excess glutamate. Glutamine synthetase is also present in the liver and is involved in nitrogen homeostasis. Overexpression of glutamine synthetase has been shown in primary liver cancers, indicating a potential role for glutamine synthetase in hepatocyte transformation.

REFERENCES

1. Gibbs, C.S., et al. 1987. Sequence of a human glutamine synthetase cDNA. Nucleic Acids Res. 15: 6293.
2. Linser, P.J., et al. 1987. Gliogenesis in the embryonic avian optic tectum: neuronal-glial interations influence astroglial phenotype maturation. Brain Res. 428: 277-290.
3. Vardimon, L., et al. 1988. Cell contacts are required for induction by cortisol of glutamine synthetase gene transcription in the retina. Proc. Natl. Acad. Sci. USA 85: 5981-5985.
4. Mill, J.F., et al. 1991. Cloning and functional characterization of the rat glutamine synthetase gene. Brain Res. Mol. Brain Res. 9: 197-207.
5. Van den Hoff, M.J., et al. 1991. cDNA sequence of the long mRNA for human glutamine synthase. Biochim. Biophys. Acta 1090: 249-251.
6. Christa, L., et al. 1994. Overexpression of glutamine synthetase in human primary liver cancer. Gastroenterology 106: 1312-1320.
7. Gorovits, R., et al. 1997. Glutamine synthetase protects against neuronal degeneration in injured retinal tissue. Proc. Natl. Acad. Sci. USA 94: 7024-7029.

CHROMOSOMAL LOCATION

Genetic locus: Glul (mouse) mapping to 1 G3.

PRODUCT

Gl Syn 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 Gl Syn shRNA Plasmid (m): sc-35482-SH and Gl Syn shRNA (m) Lentiviral Particles: sc-35482-V as alternate gene silencing products.

For independent verification of Gl Syn (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-35482A, sc-35482B and sc-35482C.

PROTOCOLS

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

Gl Syn siRNA (m) is recommended for the inhibition of Gl Syn 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

Gl Syn (E-4): sc-74430 is recommended as a control antibody for monitoring of Gl Syn 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 Gl Syn gene expression knockdown using RT-PCR Primer: Gl Syn (m)-PR: sc-35482-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.