SANTA CRUZ BIOTECHNOLOGY, INC.

HYI siRNA (h): sc-78666

BACKGROUND

Chromosome 1 is the largest human chromosome, spanning about 260 million base pairs and making up 8% of the human genome. Several disorders, including Stickler syndrome, Parkinsons, Gaucher disease, malignant melanoma and Usher syndrome, are caused by defects in the genes that localize to chromosome 1. HYI (hydroxypyruvate isomerase), also known as HT036 or SB156, is a 277 amino acid homolog of the *E. Coli* HYI protein and is encoded by a gene that is located on chromosome 1. Functioning as an isomerase that enzymatically interconverts ketoses and aldoses, HYI catalyzes the reversible conversion of hydroxypyruvate to 2-hydroxy-3-oxopropanoate, a reaction that is inhibited by copper and iron. HYI is expressed as four isoforms due to alternative splicing events.

REFERENCES

1. de Windt, F.E. and van der Drift, C. 1980. Purification and some properties of hydroxypyruvate isomerase of *Bacillus fastidiosus*. Biochim. Biophys. Acta 613: 556-562.
2. Ashiuchi, M. and Misono, H. 1999. Biochemical evidence that *Escherichia coli* HYI (orf b0508, gip) gene encodes hydroxypyruvate isomerase. Biochim. Biophys. Acta 1435: 153-159.
3. Blackwood, D.H., Fordyce, A., Walker, M.T., St Clair, D.M., Porteous, D.J. and Muir, W.J. 2001. Schizophrenia and affective disorders—cosegregation with a translocation at chromosome 1q42 that directly disrupts brain-expressed genes: clinical and P300 findings in a family. Am. J. Hum. Genet. 69: 428-433.
4. Weise, A., Starke, H., Mrasek, K., Claussen, U. and Liehr, T. 2005. New insights into the evolution of chromosome 1. Cytogenet. Genome Res. 108: 217-222.
5. Gregory, S.G., Barlow, K.F., McLay, K.E., Kaul, R., Swarbreck, D., Dunham, A., Scott, C.E., Howe, K.L., Woodfine, K.C., Spencer, C.A., Jones, M.C., Gillson, C., Searle, S., Zhou, Y., Kokocinski, F., McDonald, L., et al. 2006. The DNA sequence and biological annotation of human chromosome 1. Nature 441: 315-321.
6. Marzin, Y., Jamet, D., Douet-Guilbert, N., Morel, F., Le Bris, M.J., Morice, P., Abgrall, J.F., Berthou, C. and De Braekeleer, M. 2006. Chromosome 1 abnormalities in multiple myeloma. Anticancer Res. 26: 953-959.

CHROMOSOMAL LOCATION

Genetic locus: HYI (human) mapping to 1p34.2.

PRODUCT

HYI siRNA (h) 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 HYI shRNA Plasmid (h): sc-78666-SH and HYI shRNA (h) Lentiviral Particles: sc-78666-V as alternate gene silencing products.

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

HYI siRNA (h) is recommended for the inhibition of HYI 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

HYI (R-11): sc-100494 is recommended as a control antibody for monitoring of HYI 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 HYI gene expression knockdown using RT-PCR Primer: HYI (h)-PR: sc-78666-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.