SANTA CRUZ BIOTECHNOLOGY, INC.

GSTP1 siRNA (h): sc-72091

BACKGROUND

Glutathione S-transferases (GSTs) function in the metabolic detoxification of various environmental carcinogens and lipid hydroperoxides. In response to oxidative stress, upregulation of the GST family member GSTP1 occurs, consistent with this function. Furthermore, the GSTP1 gene is subject to CpG island hypermethylation, a state that correlates with human prostatic carcinogenesis. GSTP1 gene hypermethylation can be detected in urine, ejaculate and plasma from men with prostate cancer, potentially making GSTP1 a useful biomarker for prostate cancer screening.

REFERENCES

1. Board, P.G., et al. 1992. The human Pi class glutathione transferase sequence at 12q13-q14 is a reverse-transcribed pseudogene. Genomics 14: 470-473.
2. Klinga-Levan, K., et al. 1993. Mapping of glutathione transferase (GST) genes in the rat. Hereditas 119: 285-296.
3. Xia, C., et al. 1993. The human glutathione S-transferase P1-1 gene: modulation of expression by retinoic acid and Insulin. Biochem. J. 292: 845-850.
4. Katagiri, A., et al. 1993. Immunohistochemical detection of P-glycoprotein and GSTP1-1 in testis cancer. Br. J. Cancer 68: 125-129.
5. Simula, T.P., et al. 1993. Human glutathione S-transferase-expressing *Salmonella typhimurium* tester strains to study the activation/detoxification of mutagenic compounds: studies with halogenated compounds, aromatic amines and aflatoxin B1. Carcinogenesis 14: 1371-1376.

CHROMOSOMAL LOCATION

Genetic locus: GSTP1 (human) mapping to 11q13.2.

PRODUCT

GSTP1 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 GSTP1 shRNA Plasmid (h): sc-72091-SH and GSTP1 shRNA (h) Lentiviral Particles: sc-72091-V as alternate gene silencing products.

For independent verification of GSTP1 (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-72091A, sc-72091B and sc-72091C.

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

GSTP1 siRNA (h) is recommended for the inhibition of GSTP1 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

GSTP1 (3F2C2): sc-66000 is recommended as a control antibody for monitoring of GSTP1 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 GSTP1 gene expression knockdown using RT-PCR Primer: GSTP1 (h)-PR: sc-72091-PR (20 µl, 424 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ruan, L., et al. 2011. Analysis of EGFR signaling pathway in nasopharyngeal carcinoma cells by quantitative phosphoproteomics. Proteome Sci. 9: 35.
2. Liu, G., et al. 2013. Ethacrynic acid oxadiazole analogs induce apoptosis in malignant hematologic cells through downregulation of Mcl-1 and c-FLIP, which was attenuated by GSTP1-1. Mol. Cancer Ther. 12: 1837-1847.
3. Kanwal, R., et al. 2014. Protection against oxidative DNA damage and stress in human prostate by glutathione S-transferase P1. Mol. Carcinog. 53: 8-18.
4. Lei, K., et al. 2020. Discovery of a dual inhibitor of NQO1 and GSTP1 for treating glioblastoma. J. Hematol. Oncol. 13: 141.

RESEARCH USE

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