SANTA CRUZ BIOTECHNOLOGY, INC.

# GSTM1 siRNA (m): sc-44462

## BACKGROUND

Members of the Glutathione S-transferase (GST) family of proteins function in the detoxification of xenobiotics to protect cells against toxicant-induced damage. GSTs are differentially expressed in lung, liver and kidney tissue and, notably, three isoforms (GSTA1-1, GSTA1-4 and GSTM1) localize to the mitochondria in addition to the cytoplasm. In normal and transformed cells, the oncoprotein Myb transcriptionally upregulates GSTM1. This isoform shows high specific activity for Aflatoxin B1 epoxide conjugation, suggesting an important role for this interaction in the defense against both chemical and oxidative stress.

## REFERENCES


1. McGuire, S., et al. 1997. Increased levels of Glutathione S-transferases and appearance of novel α class isoenzymes in kidneys of mice exposed to mercuric chloride. I. Biochemical and immunohistochemical studies. Nephron 77: 452-460.
2. Massey, T.E., et al. 2000. Mechanisms of Aflatoxin B1 lung tumorigenesis. Exp. Lung Res. 26: 673-683.
3. Raza, H., et al. 2002. Multiple isoforms of mitochondrial Glutathione S-transferases and their differential induction under oxidative stress. Biochem. J. 366: 45-55.
4. Bartley, P.A., et al. 2003. Regulation of the gene encoding Glutathione S-transferase M1 (GSTM1) by the Myb oncoprotein. Oncogene 22: 7570-7575.
5. McCarty, K.M., et al. 2006. Arsenic methylation, GSTT1, GSTM1, GSTP1 polymorphisms, and skin lesions. Environ. Health Perspect. 115: 341-345.


## CHROMOSOMAL LOCATION

Genetic locus: Gstm1 (mouse) mapping to 3 F2.3.

## PRODUCT

GSTM1 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 GSTM1 shRNA Plasmid (m): sc-44462-SH and GSTM1 shRNA (m) Lentiviral Particles: sc-44462-V as alternate gene silencing products.

For independent verification of GSTM1 (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-44462A, sc-44462B and sc-44462C.

## 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

GSTM1 siRNA (m) is recommended for the inhibition of GSTM1 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

GSTM1 (1H4F2): sc-517262 is recommended as a control antibody for monitoring of GSTM1 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 GSTM1 gene expression knockdown using RT-PCR Primer: GSTM1 (m)-PR: sc-44462-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Kim, J.H., et al. 2012. Functional dissection of Nrf2-dependent phase II genes in vascular inflammation and endotoxic injury using Keap1 siRNA. Free Radic. Biol. Med. 53: 629-640.
2. Wang, Y., et al. 2020. Decreased expression of the host long-noncoding RNA-GM facilitates viral escape by inhibiting the kinase activity TBK1 via S-glutathionylation. Immunity 53: 1168-1181.e7.


## 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.