

GSTA4 siRNA (h): sc-105424

BACKGROUND

Members of the glutathione S-transferase (GST) family of proteins function in the detoxification of toxins such as carcinogens, environmental toxins, products of oxidative stress and therapeutic drugs and protect cells against toxicant-induced damage. GSTs are divided into different classes/families based on their primary structures. GSTA4 (glutathione S-transferase A4), also known as mGsta4 or GST5.7, is a member of the α family of GSTs that is expressed in intermediate cells of the stria vascularis and is upregulated during oxidative stress via the JNK pathway. Localizing to the cytoplasm, GSTA4 participates in detoxification processes of many tissues and may have a novel function for cochlear melanocytes.

REFERENCES

1. Zimniak, P., et al. 1994. Estimation of genomic complexity, heterologous expression, and enzymatic characterization of mouse glutathione S-transferase mGSTA4-4 (GST 5.7). *J. Biol. Chem.* 269: 992-1000.
2. Desmots, F., et al. 2005. Activation of c-Jun N-terminal kinase is required for glutathione transferase A4 induction during oxidative stress, not during cell proliferation, in mouse hepatocytes. *FEBS Lett.* 579: 5691-5696.
3. Bakin, A.V., et al. 2005. Smad3-ATF3 signaling mediates TGF- β suppression of genes encoding Phase II detoxifying proteins. *Free Radic. Biol. Med.* 38: 375-387.
4. Björk, K., et al. 2006. Glutathione S-transferase expression in the brain: possible role in ethanol preference and longevity. *FASEB J.* 20: 1826-1835.
5. Malone, P.E. and Hernandez, M.R. 2007. 4-hydroxynonenal, a product of oxidative stress, leads to an antioxidant response in optic nerve head astrocytes. *Exp. Eye Res.* 84: 444-454.
6. Gallagher, E.P., et al. 2007. Transfection of Hep G2 cells with hGSTA4 provides protection against 4-hydroxynonenal-mediated oxidative injury. *Toxicol. In Vitro* 21: 1365-1372.
7. Black, A.T., et al. 2008. Distinct effects of ultraviolet B light on antioxidant expression in undifferentiated and differentiated mouse keratinocytes. *Carcinogenesis* 29: 219-225.

CHROMOSOMAL LOCATION

Genetic locus: GSTA4 (human) mapping to 6p12.2.

PRODUCT

GSTA4 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GSTA4 shRNA Plasmid (h): sc-105424-SH and GSTA4 shRNA (h) Lentiviral Particles: sc-105424-V as alternate gene silencing products.

For independent verification of GSTA4 (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-105424A, sc-105424B and sc-105424C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GSTA4 siRNA (h) is recommended for the inhibition of GSTA4 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 μ M in 66 μ l. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GSTA4 gene expression knockdown using RT-PCR Primer: GSTA4 (h)-PR: sc-105424-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, C.J., et al. 2017. Glutathione-S-transferase A4 (GSTA4) suppresses tumor growth and metastasis of human hepatocellular carcinoma by targeting Akt pathway. *Am. J. Transl. Res.* 9: 301-315.

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.