

TXA synthase siRNA (h): sc-62451

BACKGROUND

TXA synthase, also referred to as thromboxane synthase or CYP5, is an enzyme that catalyzes the conversion of the prostaglandin endoperoxide (PGH₂) into Thromboxane A₂, a potent vasoconstrictor and inducer of platelet aggregation. TXA synthase is an important part of the cytochrome P450 system. Thromboxane A₂ plays a pivotal role in the maintenance of hemostasis and cardiovascular diseases along with Prostacyclin. The expression of TXA synthase has been found to be consistently upregulated in several types of cancer tissues suggesting the involvement of this enzyme in tumor growth in humans. Thromboxanes are produced by TXA synthase in excess in inflammatory bowel disease.

REFERENCES

1. Chase, M.B., Baek, S.J., Purtell, D.C., Schwartz, S. and Shen, R.F. 1993. Mapping of the human Thromboxane synthase gene (TBXAS1) to chromosome 7q34-q35 by two-color fluorescence *in situ* hybridization. *Genomics* 16: 771-773.
2. Miyata, A., Yokoyama, C., Ihara, H., Bandoh, S., Takeda, O., Takahashi, E. and Tanabe, T. 1994. Characterization of the human gene (TBXAS1) encoding Thromboxane synthase. *Eur. J. Biochem.* 224: 273-279.
3. Baek, S.J., Lee, K.D. and Shen, R.F. 1996. Genomic structure and polymorphism of the human Thromboxane synthase-encoding gene. *Gene* 173: 251-256.
4. Zhang, L., Xiao, H., Schultz, R.A. and Shen, R.F. 1997. Genomic organization, chromosomal localization and expression of the murine Thromboxane synthase gene. *Genomics* 45: 519-528.
5. Galipeau, D., Arikawa, E., Sekirov, I. and McNeill, J.H. 2001. Chronic Thromboxane synthase inhibition prevents fructose-induced hypertension. *Hypertension* 38: 872-876.
6. Carty, E., Nickols, C., Feakins, R.M. and Rampton, D.S. 2002. Thromboxane synthase immunohistochemistry in inflammatory bowel disease. *J. Clin. Pathol.* 55: 367-370.
7. Hsu, P.Y. and Wang, L.H. 2003. Protein engineering of Thromboxane synthase: conversion of membrane-bound to soluble form. *Arch. Biochem. Biophys.* 416: 38-46.
8. Husted, D., Upshaw, J., Gridley, K.E. and Wood, C.E. 2003. Cellular localization of Thromboxane synthase in ovine spinal cord and hindbrain. *Brain Res.* 971: 107-115.
9. Sakai, H., Suzuki, T., Takahashi, Y., Ukai, M., Tauchi, K., Fujii, T., Horikawa, N., Minamimura, T., Tabuchi, Y., Morii, M., Tsukada, K. and Takeguchi, N. 2006. Upregulation of Thromboxane synthase in human colorectal carcinoma and the cancer cell proliferation by Thromboxane A₂. *FEBS Lett.* 580: 3368-3374.

CHROMOSOMAL LOCATION

Genetic locus: TBXAS1 (human) mapping to 7q34.

RESEARCH USE

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

PRODUCT

TXA synthase 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 TXA synthase shRNA Plasmid (h): sc-62451-SH and TXA synthase shRNA (h) Lentiviral Particles: sc-62451-V as alternate gene silencing products.

For independent verification of TXA synthase (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-62451A, sc-62451B and sc-62451C.

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

TXA synthase siRNA (h) is recommended for the inhibition of TXA synthase 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 TXA synthase gene expression knockdown using RT-PCR Primer: TXA synthase (h)-PR: sc-62451-PR (20 μ l). 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.