

# TGF $\alpha$ siRNA (h): sc-39423

## BACKGROUND

Transforming growth factor- $\alpha$  (TGF $\alpha$ ) is an acid- and heat-stable 50 amino acid protein originally found in rodents and humans. TGF $\alpha$  is 33% homologous at the amino acid level to epidermal growth factor (EGF). TGF $\alpha$  binds to the EGF receptor, mediates tyrosine phosphorylation of the receptor and promotes anchorage-independent growth of normal rat fibroblasts in soft agar in the presence of transforming growth factor- $\beta$ . TGF $\alpha$  is secreted by a variety of transformed cells and tumors, embryonic cells and some normal adult cells. TGF $\alpha$  bioactivity has been found in the urine of cancer patients. It has been suggested that it may act as an autocrine growth factor for the induction or maintenance of malignancy.

## REFERENCES

1. Reynolds, F.H., Jr., et al. 1981. Human transforming growth factors induce tyrosine phosphorylation of EGF receptors. *Nature* 292: 259-262.
2. Marquardt, H., et al. 1983. Transforming growth factors produced by retrovirus-transformed rodent fibroblasts and human melanoma cells: amino acid sequence homology with epidermal growth factor. *Proc. Natl. Acad. Sci. USA* 80: 4684-4688.
3. Kimball, E.S., et al. 1984. Distinct high-performance liquid chromatography pattern of transforming growth factor activity in urine of cancer patients as compared with that of normal individuals. *Cancer Res.* 44: 3613-3619.
4. Derynck, R. 1986. Transforming growth factor- $\alpha$ : structure and biological activities. *J. Cell. Biochem.* 32: 293-304.
5. Samsouondar, J., et al. 1986.  $\alpha$ -transforming growth factor secreted by untransformed bovine anterior pituitary cells in culture. I. Purification from conditioned medium. *J. Biol. Chem.* 261: 14408-14413.
6. Sorvillo, J.M., et al. 1990. Preparation and characterization of monoclonal antibodies specific for human transforming growth factor  $\alpha$ . *Oncogene* 5: 377-386.
7. Ciardiello, F., et al. 1991. Differential expression of epidermal growth factor-related proteins in human colorectal tumors. *Proc. Natl. Acad. Sci. USA* 88: 7792-7796.
8. Takagi, T., et al. 2007. Involvement of TGF $\alpha$  in the photoperiodic regulation of reproduction in birds. *Endocrinology* 148: 2788-2792.

## CHROMOSOMAL LOCATION

Genetic locus: TGFA (human) mapping to 2p13.3.

## PRODUCT

TGF $\alpha$  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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TGF $\alpha$  shRNA Plasmid (h): sc-39423-SH and TGF $\alpha$  shRNA (h) Lentiviral Particles: sc-39423-V as alternate gene silencing products.

For independent verification of TGF $\alpha$  (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-39423A, sc-39423B and sc-39423C.

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

## APPLICATIONS

TGF $\alpha$  siRNA (h) is recommended for the inhibition of TGF $\alpha$  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  $\mu$ M in 66  $\mu$ 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 TGF $\alpha$  gene expression knockdown using RT-PCR Primer: TGF $\alpha$  (h)-PR: sc-39423-PR (20  $\mu$ l, 554 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Chen, A.C., et al. 2012. Study of transforming growth factor  $\alpha$  for the maintenance of human embryonic stem cells. *Cell Tissue Res.* 350: 289-303.
2. Yu, C.Y., et al. 2018. Transforming growth factor  $\alpha$  promotes tumorigenesis and regulates epithelial-mesenchymal transition modulation in colon cancer. *Biochem. Biophys. Res. Commun.* 506: 901-906.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.