

TGaseZ siRNA (m): sc-63120

BACKGROUND

Terminally differentiating mammalian epidermal cells acquire an insoluble, 10 to 20 nm thick protein deposit on the intracellular surface of the plasma membrane known as the cross-linked cell envelope (CE). The CE is a component of the epidermis that is generated through formation of disulfide bonds and γ -glutamyl-lysine isodipeptide bonds, which are formed by the action of transglutaminases (TGases). TGases are intercellularly localizing, Ca^{2+} -dependent enzymes, which catalyze the formation of isopeptide bonds by transferring an amine on to glutaminy residues, thereby cross-linking glutamine residues and lysine residues in substrate proteins. TGases influence numerous biological processes including blood coagulation, epidermal differentiation, seminal fluid coagulation, fertilization, cell differentiation and apoptosis. TGaseZ, also known as TGMZ or TGM7 (transglutaminase 7) is a typical transglutaminase expressed in a wide variety of tissues with predominant expression in lung and testis.

REFERENCES

1. Yamanishi, K., Liew, F.M., Konishi, K., Yasuno, H., Doi, H., Hirano, J. and Fukushima, S. 1991. Molecular cloning of human epidermal transglutaminase cDNA from keratinocytes in culture. *Biochem. Biophys. Res. Commun.* 175: 906-913.
2. Gentile, V., Saydak, M., Chiocia, E.A., Akande, O., Birckbichler, P.J., Lee, K.N., Stein, J.P. and Davies, P.J. 1991. Isolation and characterization of cDNA clones to mouse macrophage and human endothelial cell tissue transglutaminases. *J. Biol. Chem.* 266: 478-483.
3. Kim, I.G., McBride, O.W., Wang, M., Kim, S.Y., Idler, W.W. and Steinert, P.M. 1992. Structure and organization of the human transglutaminase 1 gene. *J. Biol. Chem.* 267: 7710-7717.
4. Ueki, S., Takagi, J. and Saito, Y. 1996. Dual functions of transglutaminase in novel cell adhesion. *J. Cell Sci.* 109: 2727-2735.
5. Nemes, Z., Marekov, L.N., Fesüs, L. and Steinert, P.M. 1999. A novel function for transglutaminase 1: attachment of long-chain ω -hydroxyceramides to involucrin by ester bond formation. *Proc. Natl. Acad. Sci. USA* 96: 8402-8407.
6. Bernassola, F., Rossi, A. and Melino G. 1999. Regulation of transglutaminases by nitric oxide. *Ann. N.Y. Acad. Sci.* 887: 83-91.
7. Online Mendelian Inheritance in Man, OMIM™. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 190196. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
8. Grenard, P., Bates, M.K. and Aeschlimann, D. 2001. Evolution of transglutaminase genes: identification of a transglutaminase gene cluster on human chromosome 15q15. Structure of the gene encoding transglutaminase X and a novel gene family member, transglutaminase Z. *J. Biol. Chem.* 276: 33066-33078.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CHROMOSOMAL LOCATION

Genetic locus: Tgm7 (mouse) mapping to 2 E5.

PRODUCT

TGaseZ 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 TGaseZ shRNA Plasmid (m): sc-63120-SH and TGaseZ shRNA (m) Lentiviral Particles: sc-63120-V as alternate gene silencing products.

For independent verification of TGaseZ (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-63120A, sc-63120B and sc-63120C.

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

TGaseZ siRNA (m) is recommended for the inhibition of TGaseZ 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TGaseZ gene expression knockdown using RT-PCR Primer: TGaseZ (m)-PR: sc-63120-PR (20 μl). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.

RESEARCH USE

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