

# TGase1 (E-6): sc-166467

## 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  $\gamma$ -glutamyl-lysine isodipeptide bonds, which are formed by the action of transglutaminases (TGases). TGases are intercellularly localizing,  $\text{Ca}^{2+}$ -dependent enzymes that catalyze the formation of isopeptide bonds by transferring an amine on to glutamyl 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. Human keratinocyte transglutaminase (TGase1) is a membrane associated, 817 amino acid protein. Human tissue transglutaminase (TGase2) is an endothelial cell specific, 687 amino acid protein.

## REFERENCES

- Gentile, V., et al. 1991. Isolation and characterization of cDNA clones to mouse macrophage and human endothelial cell tissue transglutaminases. *J. Biol. Chem.* 266: 478-483.
- Yamanishi, K., et al. 1991. Molecular cloning of human epidermal transglutaminase cDNA from keratinocytes in culture. *Biochem. Biophys. Res. Commun.* 175: 906-913.

## CHROMOSOMAL LOCATION

Genetic locus: TGM1 (human) mapping to 14q12; Tgm1 (mouse) mapping to 14 C3.

## SOURCE

TGase1 (E-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-33 at the N-terminus of TGase1 of human origin.

## PRODUCT

Each vial contains 200  $\mu\text{g}$  IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TGase1 (E-6) is available conjugated to agarose (sc-166467 AC), 500  $\mu\text{g}$ /0.25 ml agarose in 1 ml, for IP; to HRP (sc-166467 HRP), 200  $\mu\text{g}/\text{ml}$ , for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166467 PE), fluorescein (sc-166467 FITC), Alexa Fluor<sup>®</sup> 488 (sc-166467 AF488), Alexa Fluor<sup>®</sup> 546 (sc-166467 AF546), Alexa Fluor<sup>®</sup> 594 (sc-166467 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-166467 AF647), 200  $\mu\text{g}/\text{ml}$ , for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-166467 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-166467 AF790), 200  $\mu\text{g}/\text{ml}$ , for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166467 P, (100  $\mu\text{g}$  peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

TGase1 (E-6) is recommended for detection of TGase1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

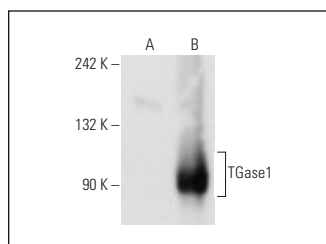
Suitable for use as control antibody for TGase1 siRNA (h): sc-37512, TGase1 siRNA (m): sc-37513, TGase1 shRNA Plasmid (h): sc-37512-SH, TGase1 shRNA Plasmid (m): sc-37513-SH, TGase1 shRNA (h) Lentiviral Particles: sc-37512-V and TGase1 shRNA (m) Lentiviral Particles: sc-37513-V.

Molecular Weight of full-length TGase1 zymogen: 106 kDa.

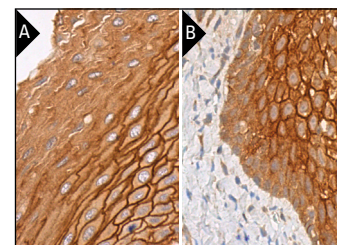
Molecular Weight of TGase1 proteolytically processed forms: 67/33/10 kDa.

Positive Controls: TGase1 (h): 293T Lysate: sc-113816, Caki-1 cell lysate: sc-2224 or HEL 92.1.7 cell lysate: sc-2270.

## DATA



TGase1 (E-6): sc-166467. Western blot analysis of TGase1 expression in non-transfected: sc-117752 (A) and human TGase1 transfected: sc-113816 (B) 293T whole cell lysates.



TGase1 (E-6): sc-166467. Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue (A) and human tonsil tissue (B) showing membrane and cytoplasmic staining of squamous epithelial cells.

## SELECT PRODUCT CITATIONS

- Jiang, H., et al. 2010. Type I transglutaminase accumulation in the endoplasmic reticulum may be an underlying cause of autosomal recessive congenital ichthyosis. *J. Biol. Chem.* 285: 31634-31646.
- Mi, Z., et al. 2017. Receptor-stimulated transamidation induces activation of Rac1 and Cdc42 and the regulation of dendritic spines. *Neuropharmacology* 117: 93-105.
- Hu, Y., et al. 2018. Epigenetic suppression of E-cadherin expression by Snail2 during the metastasis of colorectal cancer. *Clin. Epigenetics* 10: 154.
- Eguarte-Solomon, F., et al. 2021. Twist1 is required for the development of UVB-induced squamous cell carcinoma. *Mol. Carcinog.* 60: 342-353.

## RESEARCH USE

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

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