

TGase1 (A-5): sc-365821

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 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.
- Kim, I.G., et al. 1992. Structure and organization of the human transglutaminase 1 gene. *J. Biol. Chem.* 267: 7710-7717.
- Ueki, S., et al. 1996. Dual functions of transglutaminase in novel cell adhesion. *J. Cell Sci.* 109: 2727-2735.

CHROMOSOMAL LOCATION

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

SOURCE

TGase1 (A-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 754-787 near the C-terminus of TGase1 of human origin.

PRODUCT

Each vial contains 200 μg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TGase1 (A-5) is available conjugated to agarose (sc-365821 AC), 500 μg /0.25 ml agarose in 1 ml, for IP; to HRP (sc-365821 HRP), 200 $\mu\text{g}/\text{ml}$, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365821 PE), fluorescein (sc-365821 FITC), Alexa Fluor® 488 (sc-365821 AF488), Alexa Fluor® 546 (sc-365821 AF546), Alexa Fluor® 594 (sc-365821 AF594) or Alexa Fluor® 647 (sc-365821 AF647), 200 $\mu\text{g}/\text{ml}$, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365821 AF680) or Alexa Fluor® 790 (sc-365821 AF790), 200 $\mu\text{g}/\text{ml}$, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365821 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

TGase1 (A-5) 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 μg per 100-500 μg 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).

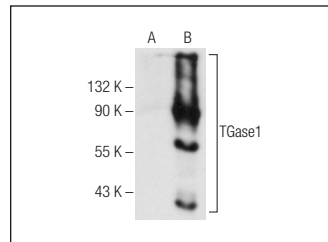
Suitable for use as control antibody for TGase1 siRNA (h): sc-37512, TGase1 siRNA (m): sc-37513, TGase1 shRNA Plasmid (h): sc-37512-SH, TGase1 shRNA Plasmid (m): sc-37513-SH, TGase1 shRNA (h) Lentiviral Particles: sc-37512-V and TGase1 shRNA (m) Lentiviral Particles: sc-37513-V.

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

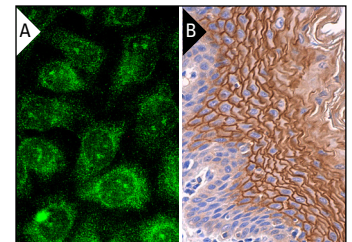
Molecular Weight of TGase1 proteolytically processed forms: 67/33/10 kDa.

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

DATA



TGase1 (A-5): sc-365821. Western blot analysis of TGase1 expression in non-transfected: sc-117752 (A) and human TGase1 transfected: sc-113816 (B) 293T whole cell lysates.



TGase1 (A-5): sc-365821. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human esophagus tissue showing membrane staining of squamous epithelial cells (B).

SELECT PRODUCT CITATIONS

- Kim, I.W., et al. 2018. LGI3 promotes human keratinocyte differentiation via the Akt pathway. *Exp. Dermatol.* 27: 1224-1229.

STORAGE

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

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.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA