

# TGase2 (4G3): sc-73612

## 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, which 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

1. 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.
2. 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: TGM2 (human) mapping to 20q11.23; Tgm2 (mouse) mapping to 2 H1.

## SOURCE

TGase2 (4G3) is a mouse monoclonal antibody raised against red blood cell transglutaminase of human origin.

## PRODUCT

Each vial contains 200  $\mu\text{g}$  IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for inhibition of cell adhesion, sc-73612 L, 200  $\mu\text{g}$ /0.1 ml.

TGase2 (4G3) is available conjugated to agarose (sc-73612 AC), 500  $\mu\text{g}$ /0.25 ml agarose in 1 ml, for IP; to HRP (sc-73612 HRP), 200  $\mu\text{g}$ /ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-73612 PE), fluorescein (sc-73612 FITC), Alexa Fluor<sup>®</sup> 488 (sc-73612 AF488), Alexa Fluor<sup>®</sup> 546 (sc-73612 AF546), Alexa Fluor<sup>®</sup> 594 (sc-73612 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-73612 AF647), 200  $\mu\text{g}$ /ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-73612 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-73612 AF790), 200  $\mu\text{g}$ /ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

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

## APPLICATIONS

TGase2 (4G3) is recommended for detection of TGase2 first binding domain of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with other transglutaminases.

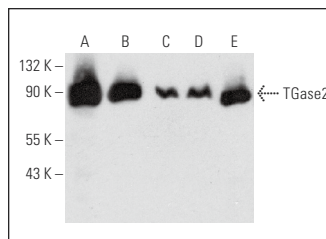
Suitable for use as control antibody for TGase2 siRNA (h): sc-37514, TGase2 siRNA (m): sc-37515, TGase2 shRNA Plasmid (h): sc-37514-SH, TGase2 shRNA Plasmid (m): sc-37515-SH, TGase2 shRNA (h) Lentiviral Particles: sc-37514-V and TGase2 shRNA (m) Lentiviral Particles: sc-37515-V.

Molecular Weight (predicted) of TGase2: 77 kDa.

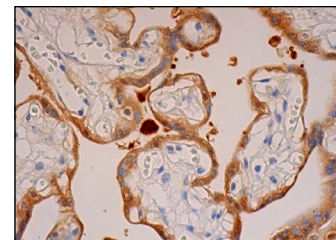
Molecular Weight (observed) of TGase2: 79/90 kDa.

Positive Controls: SW480 cell lysate: sc-2219, TF-1 cell lysate: sc-2412 or U-87 MG cell lysate: sc-2411.

## DATA



TGase2 (4G3): sc-73612. Western blot analysis of TGase2 expression in SW480 (A), TF-1 (B), U-87 MG (C), Hep G2 (D) and Caki-1 (E) whole cell lysates.



TGase2 (4G3): sc-73612. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of trophoblastic cells.

## SELECT PRODUCT CITATIONS

1. McNally, A.K. and Anderson, J.M. 2015. Phenotypic expression in human monocyte-derived interleukin-4-induced foreign body giant cells and macrophages *in vitro*: dependence on material surface properties. *J. Biomed. Mater. Res. A* 103: 1380-1390.
2. Wang, G., et al. 2015. Study of the mechanism underlying the inhibitory effects of transglutaminase II on apoptosis in the osteosarcoma MG-63 cell line under hypoxic conditions. *Oncol. Lett.* 10: 3425-3428.
3. Maffia, P.C., et al. 2018. Cementoin-SLPI fusion protein binds to human monocytes and epithelial cells and shows higher biological activity than SLPI. *Sci. Rep.* 8: 5332.

## 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.