SANTA CRUZ BIOTECHNOLOGY, INC.

TGase2 (E-3): sc-48387

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 glutaminyl 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.

CHROMOSOMAL LOCATION

Genetic locus: TGM2 (human) mapping to 20q11.23.

SOURCE

TGase2 (E-3) is a mouse monoclonal antibody raised against amino acids 451-687 of TGase2 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.

TGase2 (E-3) is available conjugated to agarose (sc-48387 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-48387 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-48387 PE), fluorescein (sc-48387 FITC), Alexa Fluor® 488 (sc-48387 AF488), Alexa Fluor® 546 (sc-48387 AF546), Alexa Fluor® 594 (sc-48387 AF594) or Alexa Fluor® 647 (sc-48387 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-48387 AF680) or Alexa Fluor® 790 (sc-48387 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

TGase2 (E-3) is recommended for detection of TGase2 of 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 TGase2 siRNA (h): sc-37514, TGase2 shRNA Plasmid (h): sc-37514-SH and TGase2 shRNA (h) Lentiviral Particles: sc-37514-V.

Molecular Weight (predicted) of TGase2: 77 kDa.

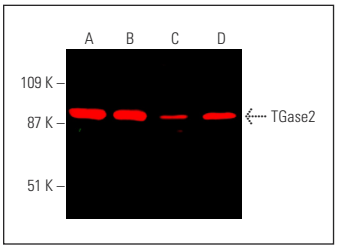
Molecular Weight (observed) of TGase2: 79/90 kDa.

Positive Controls: ECV304 cell lysate: sc-2269, HUV-EC-C whole cell lysate: sc-364180 or HEL 92.1.7 cell lysate: sc-2270.

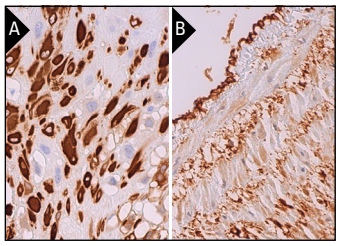
STORAGE

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

DATA



TGase2 (E-3): sc-48387. Near-infrared western blot analysis of TGase2 expression in ECV304 (**A**), HUV-EC-C (**B**), HEL 92.1.7 (**C**) and TF-1 (**D**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.



TGase2 (E-3): sc-48387. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of decidual cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human umbilical cord showing cytoplasmic and membrane staining of umbilical vein endothelial cells and cytoplasmic staining of smooth muscle cells (**B**).

SELECT PRODUCT CITATIONS

1. Balabanov, S., et al. 2013. Combination of a proteomics approach and reengineering of meso scale network models for prediction of mode-of-action for tyrosine kinase inhibitors. PLoS ONE 8: e53668.
2. Chhunchha, B., et al. 2017. Prdx6 retards senescence and restores trabecular meshwork cell health by regulating reactive oxygen species. Cell Death Discov. 3: 17060.
3. Chacón-Solano, E., et al. 2019. Fibroblasts activation and abnormal extracellular matrix remodelling as common hallmarks in three cancer-prone genodermatoses. Br. J. Dermatol. 181: 512-522.
4. Bhedi, C.D., et al. 2020. Glycolysis regulated transglutaminase 2 activation in cardiopulmonary fibrogenic remodeling. FASEB J. 34: 930-944.
5. Shi, W., et al. 2021. Enhanced neural differentiation of neural stem cells by sustained release of Shh from TG2 gene-modified EMSC co-culture *in vitro*. Amino Acids 53: 11-22.
6. Zhao, J., et al. 2021. Structural insights into the recognition of histone H3Q5 serotonylation by WDR5. Sci. Adv. 7: eabf4291.
7. Lu, N., et al. 2021. Black phosphorus nanoparticles promote osteogenic differentiation of EMSCs through upregulated TG2 expression. Nanoscale Res. Lett. 16: 154.
8. Cao, Q., et al. 2022. A role for Collagen VII in matrix protein secretion. Matrix Biol. E-published.

RESEARCH USE

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

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