

# TGase2 (N-16): sc-48314

## 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

1. Yamanishi, K., et al. 1991. Molecular cloning of human epidermal trans-glutaminase cDNA from keratinocytes in culture. *Biochem. Biophys. Res. Commun.* 175: 906-913.
2. 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.
3. Kim, I. G., et al. 1992. Structure and organization of the human transglutaminase 1 gene. *J. Biol. Chem.* 267: 7710-7717.
4. Ueki, S., et al. 1996. Dual functions of transglutaminase in novel cell adhesion. *J. Cell Sci.* 109: 2727-2735.
5. Nemes, Z., et al. 1999. A novel function for transglutaminase 1: attachment of long-chain  $\alpha$ -hydroxyceramides to involucrin by ester bond formation. *Proc. Natl. Acad. Sci. USA* 96: 8402-8407.
6. Bernassola, F., et al. 1999. Regulation of transglutaminases by nitric oxide. *Ann. N.Y. Acad. Sci.* 887: 83-91.

## CHROMOSOMAL LOCATION

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

## SOURCE

TGase2 (N-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of TGase2 of human origin.

## PRODUCT

Each vial contains 200  $\mu\text{g}$  IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-48314 P, (100  $\mu\text{g}$  peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

TGase2 (N-16) is recommended for detection of TGase2 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

TGase2 (N-16) is also recommended for detection of TGase2 isoforms 1 and 2 in additional species, including bovine and porcine.

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: HEL 92.1.7 cell lysate: sc-2270, ECV304 cell lysate: sc-2269 or TF-1 cell lysate: sc-2412.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.