

TGase5 (K-14): sc-163448

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 intercellular localized, Ca^{2+} -dependent enzymes, which catalyze the formation of isopeptide bonds by transferring an amine to a glutamyl residue, 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. TGase5 (transglutaminase 5), also known as TGM5 or TGX, is a 720 amino acid cytoplasmic protein that uses calcium to catalyze the cross-linking of proteins and plays an important role in the formation of the cornified cell envelope of keratinocytes. Defects in the gene encoding TGase5 are associated with peeling skin syndrome acral type (APSS), an autosomal recessive disease characterized by the continuous shedding of the outer layers of the epidermis.

REFERENCES

1. Aeschlimann, D., et al. 1998. Isolation of a cDNA encoding a novel member of the transglutaminase gene family from human keratinocytes. Detection and identification of transglutaminase gene products based on reverse transcription-polymerase chain reaction with degenerate primers. *J. Biol. Chem.* 273: 3452-3460.
2. Grenard, P., et al. 2001. Evolution of transglutaminase genes: identification of a transglutaminase gene cluster on human chromosome 15q15. Structure of the gene encoding transglutaminase X and a novel gene family member, transglutaminase Z. *J. Biol. Chem.* 276: 33066-33078.
3. Candi, E., et al. 2002. Expression of transglutaminase 5 in normal and pathologic human epidermis. *J. Invest. Dermatol.* 119: 670-677.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 603805. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Cadot, B., et al. 2004. Overexpressed transglutaminase 5 triggers cell death. *Amino Acids* 26: 405-408.

CHROMOSOMAL LOCATION

Genetic locus: TGM5 (human) mapping to 15q15.2; Tgm5 (mouse) mapping to 2 E5.

SOURCE

TGase5 (K-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of TGase5 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-163448 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

TGase5 (K-14) is recommended for detection of TGase5 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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); non cross-reactive with other TGase family members.

TGase5 (K-14) is also recommended for detection of TGase5 in additional species, including equine and porcine.

Suitable for use as control antibody for TGase5 siRNA (h): sc-90196, TGase5 siRNA (m): sc-154238, TGase5 shRNA Plasmid (h): sc-90196-SH, TGase5 shRNA Plasmid (m): sc-154238-SH, TGase5 shRNA (h) Lentiviral Particles: sc-90196-V and TGase5 shRNA (m) Lentiviral Particles: sc-154238-V.

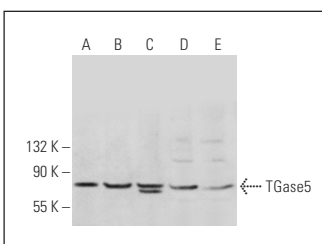
Molecular Weight of TGase5: 84 kDa.

Positive Controls: T-47D cell lysate: sc-2293, MDA-MB-435S whole cell lysate: sc-364184 or HeLa whole cell lysate: sc-2200.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



TGase5 (K-14): sc-163448. Western blot analysis of TGase5 expression in T-47D (A), MDA-MB-435S (B), HeLa (C), Jurkat (D) and K-562 (E) whole cell lysates.

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.