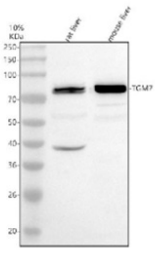
TGM7 Antibody / Transglutaminase 7 (FY13348)

Catalog No.	Formulation	Size
FY13348	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q96PF1
Applications	Western Blot: 0.25-0.5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This TGM7 antibody is available for research use only.



Western blot analysis of TGM7 using anti-TGM7 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: rat liver tissue lysates Lane 2: mouse liver tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-TGM7 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. The expected molecular weight of TGM7 is ~75-80 kDa.

Description

TGM7 antibody detects Transglutaminase 7, a cytoplasmic and membrane-associated enzyme encoded by the TGM7 gene on chromosome 15q15.2. TGM7 belongs to the transglutaminase enzyme family and catalyzes calcium-dependent protein crosslinking by forming ?-(gamma-glutamyl)lysine bonds between proteins. This post-translational modification stabilizes protein assemblies and contributes to epithelial differentiation, wound healing, and barrier function. TGM7 is

expressed in skin, gastrointestinal epithelium, and reproductive tissues, with developmental expression during keratinocyte maturation and spermatogenesis.

Functionally, TGM7 participates in the formation of insoluble protein structures within epithelial cells, supporting tissue integrity under mechanical and environmental stress. It crosslinks structural proteins such as keratins, involucrin, and loricrin, enhancing the strength of epithelial layers. Co-localization studies show TGM7 associating with the plasma membrane and cytoskeletal components during terminal differentiation of keratinocytes. The enzyme also contributes to barrier maintenance in the gastrointestinal tract and reproductive system.

Structurally, TGM7 shares conserved catalytic residues with other transglutaminases, including the catalytic triad of cysteine, histidine, and aspartate. It contains a core transamidase domain flanked by beta-sandwich and beta-barrel domains that facilitate substrate recognition and enzymatic activity. TGM7 is part of the transglutaminase enzyme family, which includes TGM1-6 and Factor XIIIa, all of which catalyze similar crosslinking reactions. Calcium binding activates TGM7, promoting conformational changes that expose the catalytic site for substrate processing.

TGM7 plays roles beyond structural reinforcement, including regulation of cell adhesion, apoptosis, and immune responses. It has been shown to modulate integrin signaling and extracellular matrix interactions. Dysregulation of TGM7 expression is linked to skin disorders, inflammatory bowel disease, and cancer. Overexpression has been observed in colorectal and pancreatic tumors, where TGM7 may promote cell migration and invasion through cytoskeletal remodeling. Pathway involvement includes keratinocyte differentiation, cell adhesion, and calcium signaling.

Tissue-specific studies indicate that TGM7 expression is high in differentiated epithelial cells and germ cells, reflecting its contribution to terminal differentiation and reproductive tissue function. During embryonic development, it supports epithelial morphogenesis and barrier establishment. Its enzymatic crosslinking activity provides stability to tissues exposed to environmental stressors such as mechanical abrasion and chemical insult.

Immunohistochemical staining using TGM7 antibody shows cytoplasmic and membrane localization in epithelial tissues and testis. The TGM7 antibody from NSJ Bioreagents is an excellent reagent for investigating transglutaminase-mediated crosslinking, epithelial differentiation, and barrier function in normal and pathological conditions.

Application Notes

Optimal dilution of the TGM7 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TGM7 recombinant protein (Position: E147-D701) was used as the immunogen for the TGM7 antibody.

Storage

After reconstitution, the TGM7 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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