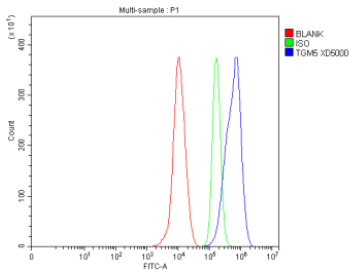
TGM5 Antibody / Transglutaminase 5 (FY12206)

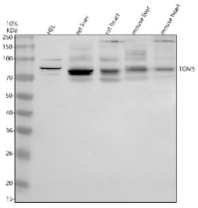
Catalog No.	Formulation	Size
FY12206	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
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	O43548
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This TGM5 antibody is available for research use only.



Flow Cytometry analysis of THP-1 cells using anti-TGM5 antibody. Overlay histogram showing THP-1 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-TGM5 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of TGM5 using anti-TGM5 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human HEL whole cell lysates, Lane 2: rat liver tissue lysates, Lane 3: rat heart tissue lysates, Lane 4: mouse liver tissue lysates, Lane 5: mouse heart 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-TGM5 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. A specific band was detected for TGM5 at approximately 81 kDa. The expected band size for TGM5 is at 81 kDa.

Description

TGM5 antibody detects Transglutaminase-5, encoded by the TGM5 gene on chromosome 15q15.2. TGM5 antibody is used in research on epidermal biology, keratinocyte differentiation, and skin barrier formation. TGM5 belongs to the transglutaminase family of Ca2+-dependent enzymes that catalyze crosslinking of proteins via isopeptide bonds. TGM5 is expressed primarily in epidermis and other stratified epithelia, where it contributes to cornified envelope formation, strengthening skin barrier integrity. Mutations in TGM5 cause acral peeling skin syndrome, highlighting its essential role.

Structurally, TGM5 is a ~78 kDa enzyme with an N-terminal beta-sandwich domain, a catalytic core containing the conserved transglutaminase triad, and two C-terminal beta-barrel domains. The catalytic cysteine forms thioester intermediates during transamidation reactions. Structural similarities to other transglutaminases confirm conserved mechanisms but tissue-specific regulation.

Functionally, TGM5 catalyzes crosslinking of structural proteins including involucrin, loricrin, and small proline-rich proteins. This activity stabilizes the cornified envelope of keratinocytes, ensuring epidermal resilience and barrier function. Knockdown or mutation disrupts barrier integrity, leading to peeling and sensitivity. Researchers employ TGM5 antibody to study keratinocyte biology, epidermal differentiation, and barrier formation.

Clinically, TGM5 mutations cause acral peeling skin syndrome, characterized by painless shedding of the outer epidermis. Pathogenic variants impair catalytic activity, disrupting keratinocyte crosslinking. TGM5 is also studied in cancer, where altered expression influences differentiation and tumor progression. It may serve as a biomarker of keratinocyte differentiation status in skin diseases. NSJ Bioreagents supplies TGM5 antibody as a reagent for dermatology and barrier research.

Experimentally, TGM5 antibody is applied in western blotting to detect the ~78 kDa protein, in immunohistochemistry to study epidermal localization, and in immunofluorescence to visualize keratinocyte differentiation. Enzyme activity assays combined with TGM5 antibody confirm correlations between expression and functional crosslinking activity.

Application Notes

Optimal dilution of the TGM5 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TGM5 recombinant protein (Position: E146-K608) was used as the immunogen for the TGM5 antibody.

Storage

After reconstitution, the TGM5 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.