

Human TGM3 / Transglutaminase 3 Protein (His Tag)

Catalog Number: 11923-H07B



Sino Biological Inc.
Biological Solution Specialist

General Information

Gene Name Synonym:

TGE; AI893889; TG(E); TGase-3; TGaseE; TGE

Protein Construction:

A DNA sequence encoding the human TGM3 (Q08188) (Ala 2-Glu 693) was expressed, with a polyhistidine tag at the N-terminus.

Source: Human

Expression Host: Baculovirus-Insect Cells

QC Testing

Purity: > 95 % as determined by SDS-PAGE

Bio Activity:

Measured by its ability to cleave a synthetic peptide Benzyloxycarbonyl-Gln-Gly and NH₂OH. The specific activity is > 450 pmoles/min/μg.

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: His

Molecular Mass:

The recombinant human TGM3 consists of 710 amino acids and predicts a molecular mass of 78.8 kDa. It migrates as an approximately 70 kDa band in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile 20mM Tris, 500mM NaCl, pH 8.5, 10% gly

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

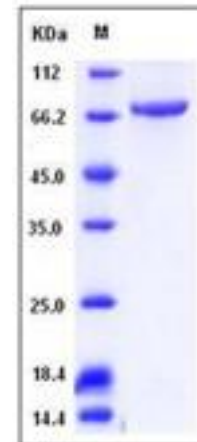
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Transglutaminases (TGase) are a family of calcium-dependent acyl-transfer enzymes ubiquitously expressed in mammalian cells and responsible for catalyzing covalent cross-links between proteins or peptides. Transglutaminase 3 (TGM3) is a member of a family of Ca²⁺-dependent enzymes that catalyze covalent cross-linking reactions between proteins or peptides. TGM3 isoform is widely expressed and is important for epithelial barrier formation. It is a zymogen, requiring proteolysis for activity. Calcium-activated TGM3 can bind, hydrolyze, and is inhibited by GTP, despite lacking structural homology with other GTP binding proteins. TGM3 displays a diffuse cytoplasmic distribution in vitro consistent with its proposed role in the early phase of cornified cell envelope assembly in the cytoplasm. TGM3-driven specific isopeptide bonds between intermediate filaments and KAPs participate to the progressive scaffolding of the hair shaft. Additionally, TGM3 may be a novel prognostic biomarker for esophageal squamous cell carcinoma (ESCC).

References

- 1.Ahvazi B, *et al.* (2002) Three-dimensional structure of the human transglutaminase 3 enzyme: binding of calcium ions changes structure for activation. *EMBO J.* 21(9): 2055-67.
- 2.Hitomi K, *et al.* (2003) Analysis of epidermal-type transglutaminase (transglutaminase 3) in human stratified epithelia and cultured keratinocytes using monoclonal antibodies. *J Dermatol Sci.* 32(2): 95-103.
- 3.Ahvazi B, *et al.* (2004) The emerging structural understanding of transglutaminase 3. *J Struct Biol.* 147(2): 200-7.

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