



Recombinant Protein Technical Manual

**Recombinant Human TGM3/Transglutaminase 3
Protein (His Tag)(Active)**
RPES4730

Product Data:

Product SKU: RPES4730

Size: 50µg

Species: Human

Expression host: Baculovirus-Insect Cells

Uniprot: Q08188

Protein Information:

Molecular Mass: 78.8 kDa

AP Molecular Mass: 70 kDa

Tag: N-His

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

Purity: > 95 % as determined by reducing SDS-PAGE.

Endotoxin: < 1.0 EU per µg as determined by the LAL method.

Storage: Lyophilized proteins are stable for up to 12 months when stored at -20 to -80°C. Reconstituted protein solution can be stored at 4-8°C for 2-7 days. Aliquots of reconstituted samples are stable at < -20°C for 3 months.

Shipping: This product is provided as lyophilized powder which is shipped with ice packs.

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

Reconstitution: Please refer to the printed manual for detailed information.

Application:

Synonyms: TGE

Immunogen Information:

Sequence: Ala 2-Glu 693

Background:

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).