

Transglutaminase 2/TGM2 Protein, Human, Recombinant (His)

General Information

Synonyms:	G- α -h;HEL-S-45;TGC;transglutaminase 2;TG2;GNAH;G-ALPHA-h
Protein Construction:	A DNA sequence encoding the human TGM2 (NP_004604.2) (Met 1-Ala 687) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: His
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P21980-1
Molecular Weight:	79.6 kDa (predicted); 80 kDa (reducing conditions)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 97 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ μ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μ m filter, containing 50 mM Tris, 100 mM NaCl, 2 mM DTT, 10% glycerol, pH 8.0. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:	Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Protein-glutamine gamma-glutamyltransferase 2, also known as Tissue transglutaminase, Transglutaminase C, Transglutaminase-2, and TGM2, is a member of the transglutaminase superfamily. TGM2 plays a role in cell growth and survival through the anti-apoptosis signaling pathway. It is a calcium-dependent acyltransferase that also undergoes a GTP-binding/GTPase cycle even though it lacks any obvious sequence similarity with canonical GTP-binding (G) proteins. TGM2 is a multi-functional protein which catalyzes transamidation reactions or acts as a

G-protein in intracellular signalling. As an enzyme which is responsible for the majority of transglutaminase (TG) activity in the brain, TGM2 is likely to play a modulatory role in nervous system development and has regulatory effect on neuronal cell death as well. Most importantly, numerous studies have presented data demonstrating that dysregulation of TGM2 may contribute to the pathogenesis of many neurodegenerative disorders, including Huntington's disease, Alzheimer's disease, Parkinson's disease and amyotrophic lateral sclerosis as well as nervous system injuries.

Reference

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- Filiano AJ, et al. (2010) Transglutaminase 2 protects against ischemic stroke. *Neurobiol Dis.* 39(3): 334-43.
- Park D, et al. (2010) Transglutaminase 2: a multi-functional protein in multiple subcellular compartments. *Amino Acids.* 39(3): 619-31.
- Miyoshi N, et al. (2010) TGM2 is a novel marker for prognosis and therapeutic target in colorectal cancer. *Ann Surg Oncol.* 17(4): 967-72.

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