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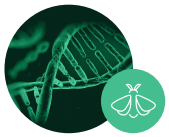
Product datasheet



ATT01

Tissue Transglutaminase (tTG) Recombinant Antigen

Product name	Tissue transglutaminase (tTG)
Description	Purified full-length human protein
Source material	Sf21 insect cells
Purity	>90% pure (by Coomassie SDS-PAGE)

Antigen overview

Tissue transglutaminase (tTG) is a ubiquitously expressed, calcium-dependent enzyme that plays key roles in extracellular matrix remodelling, wound healing, cell adhesion and intracellular signalling[1-3]. Human tTG is a 687 amino acid protein with a molecular weight of approximately 80 kDa and comprises four structural domains: an N-terminal β-sandwich domain, a catalytic core domain and two C-terminal β-barrel domains[4].

tTG catalyses calcium-dependent transamidation reactions that cross-link glutamine and lysine residues and, under appropriate conditions, deamidates glutamine residues[1-2]. In coeliac disease, tTG-mediated deamidation of gluten peptides generates immunogenic T-cell epitopes, making tTG the principal autoantigen in the disease[2,5]. Increased tTG expression is observed in the intestinal mucosa of affected individuals, and circulating anti-tTG IgA autoantibodies are highly sensitive and specific biomarkers widely used for the diagnosis and monitoring of coeliac disease[5-7].

tTG exists in two distinct conformational states. In the compact, GTP-bound conformation, the C-terminal domains fold over the catalytic core, producing a catalytically inactive enzyme[4,8]. Binding of Ca^{2+} induces a major conformational change, rotating the C-terminal domains to generate an extended, catalytically active structure in which both the active site and conformational epitopes become fully accessible[2,3,9].

AROTEC Tissue Transglutaminase antigen is full-length recombinant human tTG with a C-terminal His tag, expressed in *Spodoptera frugiperda* insect cells. The antigen is supplied in a storage buffer containing 10 mM EDTA to chelate Ca^{2+} and maintain tTG in its inactive, closed conformation during storage and transport. For optimal performance, the antigen should be diluted into a coating buffer containing 5–10 mM Ca^{2+} prior to immobilisation on ELISA plates or other surfaces. Calcium promotes conversion to the open conformation, maximising exposure of diagnostically relevant conformational epitopes and improving antibody recognition [9,10].

Storage conditions & handling

- Store at -65°C or below
- Avoid repeated freezing and thawing
- Storage buffer contains 10 mM EDTA
- Addition of Ca^{2+} in assay buffer is recommended
- Mix gently before use and keep on ice

Ordering information

ATT01-02 - tTG antigen (recombinant) - 0.20 mg

ATT01-10 - tTG antigen (recombinant) - 1.0 mg

Custom vial sizes available on request

Applications

Reactive in ELISA with anti-tTG antibody or anti-tTG autoantibody positive patient serum

Product profile

Fig 1 **AROTEC tTG Antigen Titration**

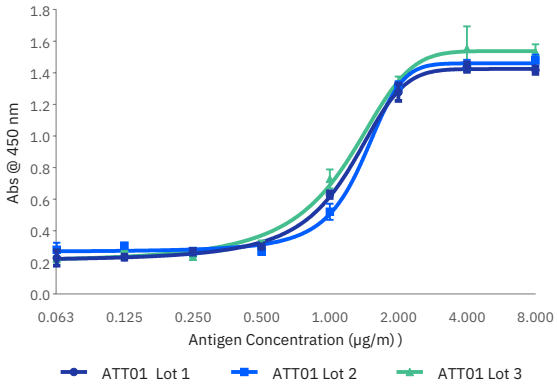


Fig 2

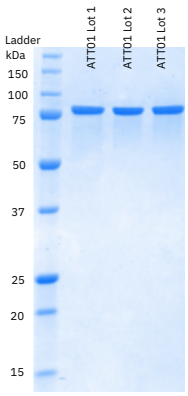


Fig.1. ELISA titration assay of ATT01 tTG antigen using patient serum (1:800 dilution)

Fig.2. SDS-PAGE of ATT01 tTG antigen; All lanes loaded with 2 µg protein; Coomassie stained

References

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