

Product number **T153**
Revision number **RN4.2**

Product Name **Andracon™** – recombinant microbial transglutaminase
(Production grade)

Synonyms EC 2.3.2.13; Protein-glutamine- γ -glutamyltransferase

Background info **Andracon™** is a brand for high quality microbial transglutaminase:

- Recombinantly produced in *E. coli*
- Ultra-pure and highly active
- Batch to batch consistent quality
- Scientific and technical support
- Available from 25 U vials up to bulk amounts
- License free
- Produced according to an SOP in an ISO9001:2015 certified environment
- Characterized for host cell protein, host cell DNA, and endotoxin-levels
- Customer audits for qualification according to guideline ICH Q7 possible

Microbial Transglutaminase (MTG) catalyzes the acyl transfer reaction between γ -carboxyamides of peptide-bound glutamine residues and a variety of primary amines. MTG can be used to covalently cross-link proteins with each other. Therefore, MTG can be used to attach primary-amine coupled functional markers like biotin, fluorescent dyes, click chemistry reagents or cytotoxins to proteins, e.g. antibodies. Essentially, MTG is used for the production of antibody drug conjugates (ADCs).

Characterization Recombinant MTG is purified by a series of column chromatography. Purified MTG is lyophilized and stored at -80°C. Final quality control includes a set of tests summarized below.

Parameter	Specification	Assay
Activity content	≥ 25 U/vial	Microbial Transglutaminase Assay Kit, Zedira
Protein concentration	Report result	A280 ($\epsilon = 55408 \text{ L} \cdot \text{mol}^{-1} \cdot \text{cm}^{-1}$)
Specific activity	≥ 25 U/mg	Microbial Transglutaminase Assay Kit, Zedira
Purity by HPLC	$\geq 98\%$	Anion exchange-HPLC
SDS-PAGE	Band at 38 kDa	12.5% SDS-PAGE, Coomassie stain
Host cell protein	< 0.15 ng/U	<i>E. coli</i> HCP ELISA Kit, Cygnus Technologies
Host cell DNA	< 0.12 ng/U	Quant-iT™ Pico Green® dsDNA, Invitrogen
Endotoxin content	< 0.004 EU/U	Endotoxins Ph. Eur. 2.6.14 c.E.
Sterility	No growth	Steritest™, Merck Millipore

Source Recombinantly produced in *E. coli*. Gene derived from *Streptomyces mobaraensis*.

TSE/BSE-Declaration The only material of animal origin within the MTG production process is lactose, used within the fermentation step. The lactose used is certified by the supplier to be TSE and BSE free. Lactose is not used in any further production or purification step. No other material of animal origin is used for MTG production and purification nor added to the product.

Molecular weight 38,334 Da (Dispase-activated MTG with N-terminal sequence: FRAPDSDDR...)

Product number **T153**
Revision number **RN4.2**

Reagents The purified transglutaminase is lyophilized from 50 mM NaOAc pH 5.0 + 0.3 M NaCl.

Appearance White lyophilized solid.

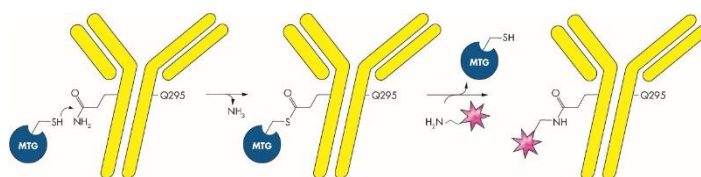
Reconstitution Add the volume of H₂O the protein is lyophilized from (see Certificate of Analysis) to the vial of lyophilized powder. Rotate vial gently until solid dissolves.

Reconstituted MTG solution might be turbid. However, MTG activity is not affected. In this case, centrifuge the solution and collect the supernatant.

After reconstitution, the solution should be stored frozen in working aliquots.

Application Labeling, immobilisation, conjugation and modification of proteins.

MTG can tolerate up to 10% DMSO in aqueous solutions without significant influence on its catalytic activity. A small activity loss of 4% was observed in the presence of 20% DMSO.



MTG reaction pathway for labeling of antibodies. Antibody heavy chains are conjugated with a drug (linked to a primary amine) by MTG on position Q295, resulting in an ADC with two site specifically conjugated drug molecules. Here, the conjugation of only one Q295 is shown.

Storage Store at -80°C.

If storage at -80°C is not possible, storage at ≤ -20°C is recommended. While no formal stability data are available at -20°C, according to our overall experience stability is still given.

Upon reconstitution, store undiluted working aliquots preferably at -80°C (if not possible at ≤ -20°C, see comment above). Storage of diluted aliquots may result in severe activity loss. Avoid repeated freezing and thawing.

Delivery is possible at ambient temperature

Related products

Z009	ZediXclusive Microbial Transglutaminase Assay Kit
A145	Polyclonal Antibody to microbial Transglutaminase
A020	Polyclonal antibody to bacterial protransglutaminase (pro-BTG, pro-MTG)
A143	Monoclonal ab to microbial Transglutaminase (clone XM67)
C001	Z-Gln-Gly-OH
C002	Z-Gln-Gly-CAD-DNS

References

Kaempffe et al., J. Pharm. Sci. 2021, S0022-3549(21)00400-7;
Früh et al., ACS Nano 2021, 15, 12161–70;
Stricker et al., J. Pediatr. Gastroenterol. Nutr. 2019, 68:e43-e50;
Spycher et al., ChemBioChem 2017, 18:1923-7;
Steffen et al., J. Biol. Chem. 2017, 292:15622-35;
Dennler et al., Chembiochem. 2015, 16:861-7;
Dennler et al., Bioconjugate Chem. 2014, 25, 569-78;
Kaufmann et al., Food Addit. Contam. Part. A 2012, 29:1364-73;
Jeger et al., Angew. Chem. Int. Ed. Engl. 2010, 49:9995-7;
Gianfrani et al., Gastroenterology 2007, 133:780-9;
Pfleiderer et al., Microbiol. Res. 2005, 160:265-71;
Ando et al., Agric. Biol. Chem. 1989, 53:2613-17;
Pasternack et al., Eur. J. Biochem. 1998, 257:570-6

Release date 13 December 2022

NOTE INTENDED FOR RESEARCH USE ONLY, NOT FOR USE IN HUMAN, THERAPEUTIC OR DIAGNOSTIC APPLICATIONS.