



This is a provisional English translation of an excerpt from the original full report.

Safety Assessment Report

Transglutaminase produced using *Streptomyces mobaraensis* TTG-1 strain (Genetically Modified Food)

Food Safety Commission of Japan (FSCJ)
October 2024

ABSTRACT

The FSCJ conducted a safety assessment of “Transglutaminase produced using the *Streptomyces mobaraensis* TTG-1 strain.”

This additive is a transglutaminase produced using the *Streptomyces mobaraensis* TTG-1 strain, which was developed by introducing a modified transglutaminase transgene derived from *Streptomyces mobaraensis* BTG-5 strain into the *Streptomyces mobaraensis* BTG-5 strain as a host. This additive is an enzyme that catalyzes the cross-linking reaction between glutamine residues and lysine residues in proteins, and is used in the manufacturing processes of meat products such as meatball, seafood products such as kamaboko¹, dairy products such as cheese and ice cream, and other food products such as chawanmushi².

The safety assessment was conducted referring to the “Standards for Safety Assessments of Food Additives Produced Using Genetically Modified Microorganisms³”. Specifically, the safety of the inserted gene and the toxicity and allergenicity of the protein produced from the inserted gene were evaluated. From these results, no additional factors were found that could impair safety in this additive compared to conventional ones.

Considering the above, it has been concluded that “Transglutaminase produced using the *Streptomyces mobaraensis* TTG-1 strain” is unlikely to pose safety concerns relevant to human health.

¹ Kamaboko is a type of fish cake manufactured by heating (often steaming) deboned and pureed fish

² Chawanmushi is a savory steamed custard pudding of sorts, seasoned with stock (most often seafood stock)

³ Decision of the FSCJ dated March 25, 2004