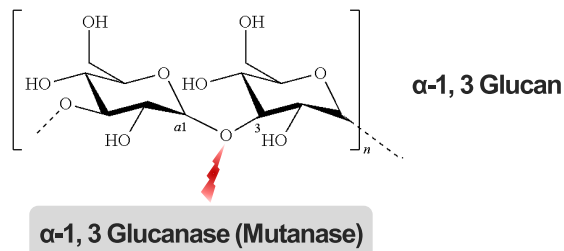


# GF01 Mutanase

## Mutanase

GF01 Mutanase is a mutanase preparation derived from *Trichoderma sp.* The enzyme catalyzes the hydrolysis of  $\alpha$ -1,3 Glucan(Mutan), which is main substance of dental plaque.

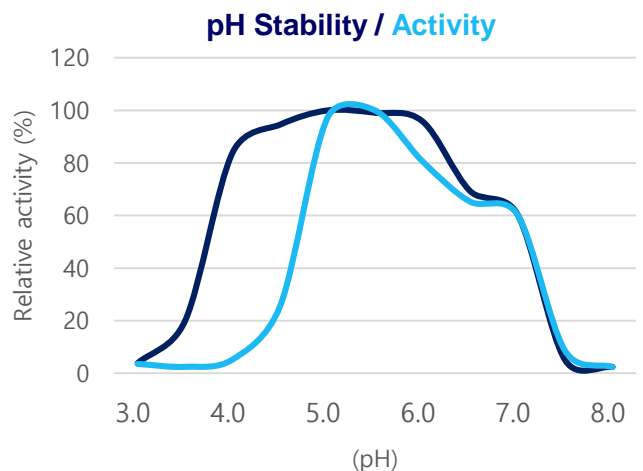
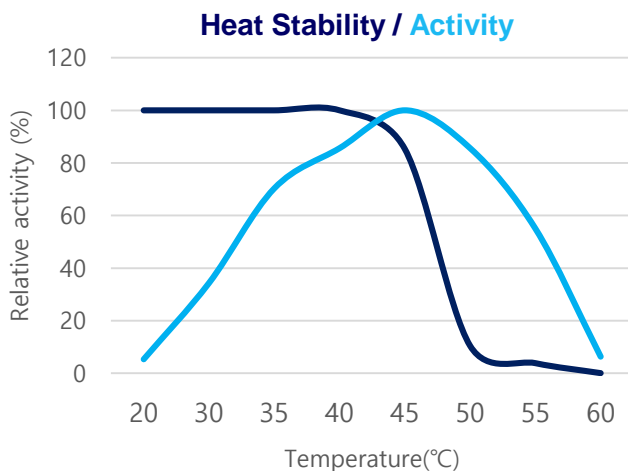
Dental plaque is biofilm, formed by bacteria, salivary glycoproteins and sticky glucose polymers that adhere to tooth surfaces. About 85% of glucose polymers of dental plaque is mutan( $\alpha$ -1,3 Glucan) and remaining 20% is dextran( $\alpha$ -1,6 Glucan).



### ◆ Application of mutanase

- Conventional dental care products(tooth paste, antiseptic mouthwash, etc.) contain Dextranase ( $\alpha$ -1,6 Glucanase). So, dextran can be easily decomposed by conventional dental care products.
- However, mutan, the main structure of dental plaque which is water-insoluble, can not be decomposed by dextranase and remains in the mouth.
- Mutanase can decompose dental plaque mutan. So, it can be applied to dental care products.

### ◆ Stability test for temperature and pH



◆ **Recommendation of operational condition**

- Stable pH range: pH 4.0 ~ 6.5
- Optimum pH: pH 5.0 ~ 5.5
- Temperature stability: stable at 70 °C
- Optimum temperature: 20~45 °C

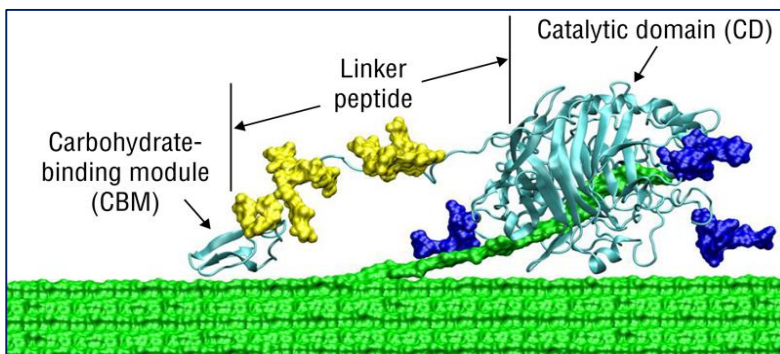
◆ **Characteristics**

- Source: *Trichoderma sp.*
- Activity: > 1,000 unit/g (at 45 °C, pH 5.0.)
- Appearance: Yellow ~ light brown, powder

◆ **Competitiveness of GF mutanase**

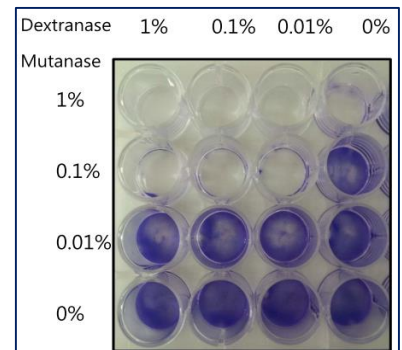
- GF mutanase has CBD(carbohydrate binding domain), whereas conventional mutanase doesn't have. So, decomposition rate of GF mutanase is superior than the others.
- Can be easily mixed with various oral hygiene agents such as toothpaste, mouthwash, etc
- Securing long-term storage stability as a raw material for the end products
- Excellent oral plaque removal effect when applied with dextranase which decomposes water-soluble glucan

**Schematic model of what mutanase look like**



\*Source: National Renewable Energy Laboratory

**Dental plaque decomposition effect**



◆ **Package and Storage**

- Package unit: 10 L, 20 L LDPE bottle (Liquid)
- Available in both liquid and powdered forms
- Storage: store under cool and dry condition

◆ **Expiry date**

- 12 months