Creative Enzymes®

Glycogen branching enzyme from Escherichia coli, Recombinant

Cat. No. NATE-1208

Lot. No. (See product label)

Introduction

Description

Glycogen branching enzyme is an enzyme that adds branches to the growing glycogen molecule during the synthesis of glycogen, a storage form of glucose. More specifically, during glycogen synthesis, a glucose 1-phosphate molecule reacts with uridine triphosphate (UTP) to become UDP-glucose, an activated form of glucose. The activated glucosyl unit of UDP-glucose is then transferred to the hydroxyl group at the C-4 of a terminal residue of glycogen to form an α-1,4-glycosidic linkage, a reaction catalyzed by glycogen synthase. Importantly, glycogen synthase can only catalyze the synthesis of α-1,4-glycosidic linkages. Since glycogen is a readily mobilized storage form of glucose, the extended glycogen polymer is branched by glycogen branching enzyme to provide glycogen breakdown enzymes, such as glycogen phosphorylase, with a large number of terminal residues for rapid degradation. Branching also importantly increases the solubility and decreases the osmotic strength of glycogen.

Synonyms

Branching enzyme, amylo-(1,4→1,6)-transglycosylase; Q-enzyme; α-glucan-branching glycosyltransferase; amylose isomerase; enzymatic branching factor; branching glycosyltransferase; enzyme Q; glucosan transglycosylase; glycogen branching enzyme; plant branching enzyme; α-1,4-glucan:α-1,4-glucan-6-glycosyltransferase; starch branching enzyme; 1,4-α-D-glucan:1,4-α-D-glucan 6-α-D-(1,4-α-D-glucano)-transferase

Product Information

Source	Escherichia coli str. K-12 substr. W3110
Form	Supplied in 3.2 M ammonium sulphate
EC Number	EC 2.4.1.18
CAS No.	9001-97-2
Molecular Weight	88157.0 Da
Purity	> 95 % as judged by SDS-PAGE
Activity	15.44 U/mg
Concentration	45.58 U/ml
Unit Definition	One unit is defined as the amount of enzyme required to cause a fall of 1.0 absorbance units, where the reaction mixture comprises 3.33 mg/mL starch in 41.7 mM sodium phosphate buffer, pH 7.5, and where 0.24 mL of the reaction mixture is withdrawn at each time point, and mixed with 1.0 mL of deionised water and 0.2 mL of iodine reagent immediately prior to reading at 660 nm.

Usage and Packaging

Preparation Instructions

Agitate bottle sufficiently to fully homogenise enzyme precipitate before use. Dilute

Preparation Instructions	Agitate bottle sufficiently to fully homogenise enzyme precipitate before use. Dilute in 50 mM sodium phosphate buffer, pH 7.5, containing 2 mg/mL BSA. Do not dilute in water.

Storage and Shipping Information

Storage	Store at 4°C (shipped at room temperature)