Creative Enzymes®

Glycogen branching enzyme from Bacteroides fragilis, Recombinant

Cat. No. NATE-1209

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 Bacteroides fragilis NCTC 9343

Form Supplied in 3.2 M ammonium sulphate, containing 0.5 M imidazole and 0.5 M NaCl, pH ~ 6.8.

EC Number EC 2.4.1.18

CAS No. 9001-97-2

Molecular Weight 81104.6 Da

Purity > 95 % as judged by SDS-PAGE

Activity 50.88 U/mg (pH 7.0; 3.3 mg/mL starch)

Concentration 330.14 U/ml

Optimum pH ~ 7.0

Optimum temperature > 37°C

Unit Definition One unit is defined as the amount of enzyme required to cause a fall of 1.0 absorbance unit per minute, where the reaction mixture comprises 3.33 mg/mL starch (boiled for 5 min prior to use to fully solubilise) in 41.7 mM sodium phosphate buffer, pH 7.5, containing 0.69 mg/mL BSA and 173.6 mM sodium chloride, and where 0.050 mL of the reaction mixture (boiled for 5 min to inactivate the enzyme) is mixed with 1.0 mL iodine reagent (0.5 mg/mL iodine and 1 mg/mL potassium iodide in water) prior to reading at 660 nm.

Usage and Packaging

Preparation Instructions	Agitate vial sufficiently to fully homogenise enzyme precipitate before use.

Storage and Shipping Information

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