Creative Enzymes®

Glycogen branching enzyme from Bacillus subtilis, Recombinant

Cat. No. NATE-1207

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 Bacillus subtilis subsp. subtilis str. 168

Form Supplied in 3.2 M ammonium sulphate

EC Number EC 2.4.1.18

CAS No. 9001-97-2

Molecular Weight 77485.4 Da

Purity > 95 % as judged by SDS-PAGE

Activity 38.04 U/mg

Concentration 39.8 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comprises 3.33 mg/mL starch in 41.7 mM sodium phosphate buffer, pH 7.5, and where 0.24 mL of the reaction mixture is withdrawn at each time point, and mixed with 1.0 mL of deionised water and 0.2 mL of iodine reagent immediately prior to reading at 660 nm.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 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)

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