abcam

Product datasheet

Cellulase Activity Assay kit (Fluorometric) ab189817

14 References 2 Images

Overview

Product name	Cellulase Activity Assay kit (Fluorometric)
Detection method	Fluorescent
Sample type	Tissue Lysate
Assay type	Enzyme activity (quantitative)
Species reactivity	**Reacts with:** Plants
Product overview	Cellulase Activity Assay Kit (Fluorometric) (ab189817) provides a simple method to measure cellulase activity in plant tissues, as well as purified cellulase extracted from plants, bacteria or fungi. The assay uses a long-wavelength fluorescent substrate, resorufin cellobioside. Upon cleavage of the substrate by cellulases present in the sample, the fluorescent compound resorufin is released and fluorescence can be easily detected at Ex/Em = 530/595 nm (peak Ex/Em = 571/585 nm) in a fluorescent microplate reader. The amount of fluorescence will correlate with cellulase activity.
Notes	Cellulases (EC 3.2.1.4) are a family of enzymes that include ß-Glucosidases, endoglucanases, and exoglucanases. These enzymes cleave the ß-1,4-D-glycosidic bonds that link the glucose units comprising cellulose. In addition to being produced by plants, cellulase activity is found in many fungi and bacteria, including some plant pathogens. Most animal cells are not known to produce cellulase; cellulolytic activity is often carried out in animals by symbionts. However, recent evidence does suggest cellulase production in some animals, such as insects and arthopods. The study of cellulase activity has many applications in plant molecular biology, agriculture, and manufacturing. Cellulase is also becoming important in the development of alternative fuel sources, as glucose obtained from cellulose hydrolysis is easily fermented into ethanol.
Platform	Microplate reader

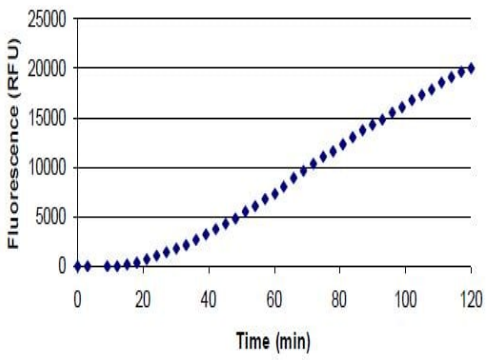
Properties

Storage instructions	Store at -20°C. Please refer to protocols.

Components	200 tests
DMSO	1 x 5ml
Reaction Buffer	1 x 30ml

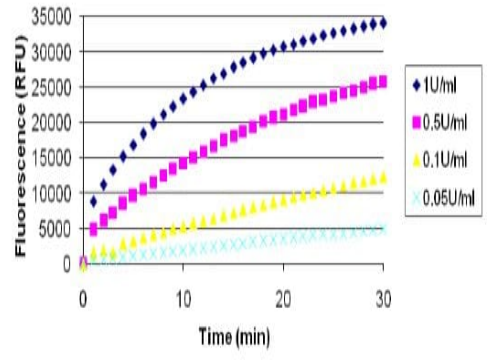
Components	200 tests
Reference Standard	1 x 250µl
Stop Buffer	1 x 10ml
Substrate Reagent	1 x 1ml

Images



Cellulase Assay of Arabidopsis thaliana using Resorufin Cellobioside.

Flowering buds from two mature *Arabidopsis thaliana* plants (strain CS-20) were removed (0.09 g tissue) and ground to a fine powder in liquid nitrogen. Powder was suspended in Reaction Buffer (200 µL) and centrifuged (13000 rpm) for 10 minutes. Supernatant was collected and added in triplicate (50 µL) to wells on a 96-well microtiter plate (clear, flat bottom). A 0.5 mM substrate solution was prepared by diluting Substrate Reagent 1:10 in Reaction Buffer and added to wells (50 µL/well). Fluorescence was recorded with 550nm excitation filter and 595nm emission filter.
Fluorescence readings were taken at 3-minute intervals for 120 minutes. Fluorescence values of blank (50 µL Substrate Reagent added to 50 µL Reaction Buffer) were subtracted at each time point.



Cellulase Assay using Resorufin Cellobioside.

Several dilutions of purified cellulase from *Trichoderma reesei* were prepared in Reaction Buffer . Each preparation was added in triplicate (50 µL) to wells on a 96-well microtiter plate (clear, flat bottom). A 0.5 mM substrate solution was prepared by diluting Substrate Reagent 1:10 in Reaction Buffer and added to wells (50 µL/well). Fluorescence was recorded with 550nm excitation filter and 595nm emission filter. Fluorescence readings were taken at 1-minute intervals for 30 minutes. Fluorescence values of blank (50 µL substrate reagent added to 50 µL reaction buffer) were subtracted at each time point.

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