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Product datasheet

Glucose Uptake Assay Kit (Colorimetric) ab136955

★★★★★ 1 Abreviews 159 References 3 Images

Overview

Product name	Glucose Uptake Assay Kit (Colorimetric)
Detection method	Colorimetric
Sample type	Adherent cells, Suspension cells
Assay type	Cell-based (quantitative)
Sensitivity	<= 0.01 nmol/well
Assay time	3h 00m
Species reactivity	**Reacts with:** Mammals, Other species
Product overview	Glucose Uptake Assay Kit (Colorimetric) (ab136955) is a highly sensitive and easy to use non-radioactive assay kit which can detect glucose uptake as low as 10 pmol/well in a variety of cell types. 2-deoxyglucose (2-DG) is used in glucose uptake assay protocols because of its structural similarity to glucose. 2-DG is taken up by glucose transporters and metabolized to 2-DG-6-phosphate (2-DG6P). 2-DG6P cannot be further metabolized, and thus accumulates within cells. The accumulated 2-DG6P is directly proportional to 2-DG (or glucose) uptake by cells. In this assay, the 2-DG6P is oxidized to generate NADPH, the level of which can be determined by an enzymatic recycling amplification reaction. Glucose uptake assay protocol summary: - prepare cells with suitable glucose starvation / uptake stimulation depending on experimental set-up - add 2-DG to cells and incubate for 20 mins at 37ºC - wash cells with PBS to remove exogenous 2-DG - lyse cells with extraction buffer and repeated pipetting - freeze/thaw lysates and heat at 85ºC for 40 min - cool on ice for 5 min - add neutralizing buffer, spin and transfer supernatant to new tubes - add supernatants and standards to wells - add reaction mix A and incubate for 1 hr at 37ºC - add extraction buffer and heat to 90ºC for 40 min - cool on ice for 5 min and add neutralizing buffer - add reaction mix B - analyze every 2-3 mins on microplate reader in kinetic mode at 37ºC

TEST

Notes

This product is manufactured by BioVision, an Abcam company and was previously called K676 Glucose Uptake Colorimetric Assay Kit. K676-100 is the same size as the 100 test size of ab136955.

Review our **Metabolism Assay Guide** to learn about assays for metabolites, metabolic enzymes, mitochondrial function, and oxidative stress, and also about how to assay metabolic function in live cells using your plate reader.

Platform

Microplate reader

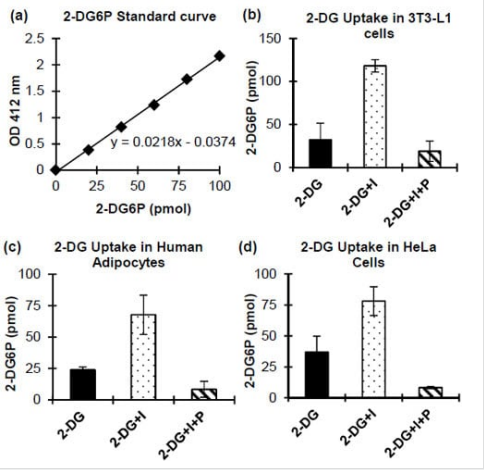
Properties

Storage instructions

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

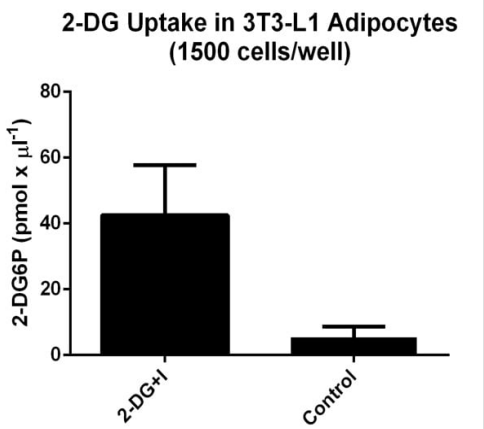
Components	100 tests
2-Deoxyglucose	1 x 1ml
2-DG6P Standard	1 vial
Assay Buffer III	1 x 25ml
DTNB	2 vials
Enzyme Mix III	1 vial
Extraction Buffer I	1 x 17ml
Glutathione Reductase	2 vials
Neutralization Buffer II	1 x 2.5ml
Recycling Mix	1 vial

Images



Standard curve and example data.

2-DG6P Standard curve (a) and 2-DG uptake in 3T3-L1 cells (b), Human adipocytes (c) and HeLa cells (d) respectively. I=Insulin; P=Phloretin.



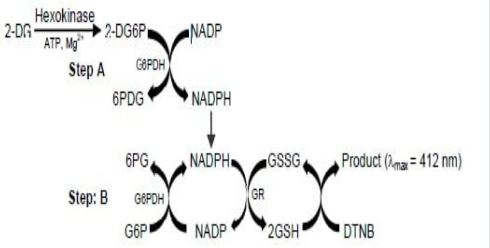
Functional Studies - Glucose Uptake Assay Kit (ab136955)

Glucose uptake in 3T3-L1 adipocytes stimulated with insulin (I). 3T3-L1 adipocytes were differentiated using:

Dexamethasone **ab120743** (1mM, 1:1000)

IBMX **ab120840** (11.5 mg/mL, 1:100)

Insulin **ab123768** (1 mg/mL, 1:1000)



Assay Procedure

Step A: 2-DG oxidation to generate NADPH; Step B: NADPH recycling amplification Reaction.

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