Cellular 2DG Measurement Kit (Fluorometric)

A complete reagent set to measure 2DG in cells after cell lysis by sonication

NON RADIOACTIVE

Background

Studies of the effects of insulin and other growth factors on cells behavior and metabolism often include measurements of glucose uptake following cell stimulation. Glucose uptake experiments are typically performed using radioactive non-metabolizable glucose analogs such as 3H-2-deoxyglucose (2DG). However, the use of radioisotopes is not available to all labs and is subject to many restrictions. This assay kit was developed to provide a rapid, simple and convenient means to measure 2DG in cell lysates without the use of radioisotope.

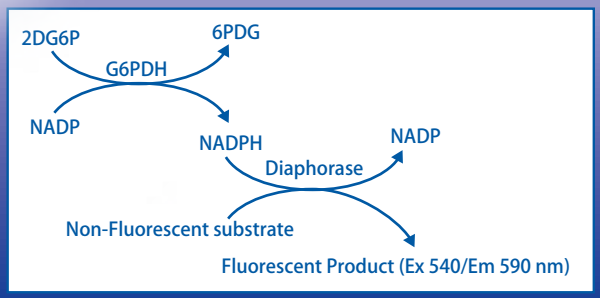

Figure 1: Scheme of 2DG Detection Scheme

About this Kit

- Assay measures amount of 2-deoxyglucose (2DG) (Glucose analog) uptake.
- Like glucose, 2DG taken up by cells is rapidly phosphorylated by hexokinase to 2-deoxyglucose-6-phosphate (2DG6P). However, 2DG6P is not further metabolized and accumulates in cells.
- Cell lysates are assayed for 2DG6P levels in a coupled enzymatic re-dox reaction that produces a fluorescent signal of intensity proportional to the amount of accumulated 2DG6P.
- 2DG levels in cell lysate samples are calculated by comparing their fluorescence intensity to a standard curve produced with known amounts of 2DG6P.

Comparison of Cosmo Bio 2DG Measurement kits

	Glucose Cellular Uptake Measurement Kit, Broad Range, Fluorometric Cat. No. CSR-MBR-PMG-K01	2-Deoxyglucose (2DG) Uptake Measurement Kit Cat. No. CSR-OKP-PMG-K01
Assay Format	Non-radioactive	Non-radioactive
Detection Method	Fluorometric (Ex 540 nm/Em 590 nm)	Chromogenic (420 nm)
Assay time (after sample prep)	3 hours	5-7 hours
Measurement Range	Broad (0-50 µM 2DG6P)	High sensitivity (0 to 5 µM 2DG6)
Features	• Fast • Convenient • Single step suitable for high sample throughput	• Sensitivity comparable with radioactive assays • High accuracy • High precision

Kit Components

Reagent	Amount	Quantity	Storage conditions once opened
2DG6P Solution (1 mM)	500 µL	3 x 3 mL	-20°C (Protect from light)
Sample Diluent Buffer Concentrate (100x)	5 mL	1 vial	
Substrate Buffer	9 mL	1 vial	
Fluorescent Substrate	120 µL	1 vial	
Enzyme Solution	270 µL	1 vial	

Experimental Results

2DG uptake by insulin-stimulated adipocytes following the differentiation of 3T3-L1 cells in culture.

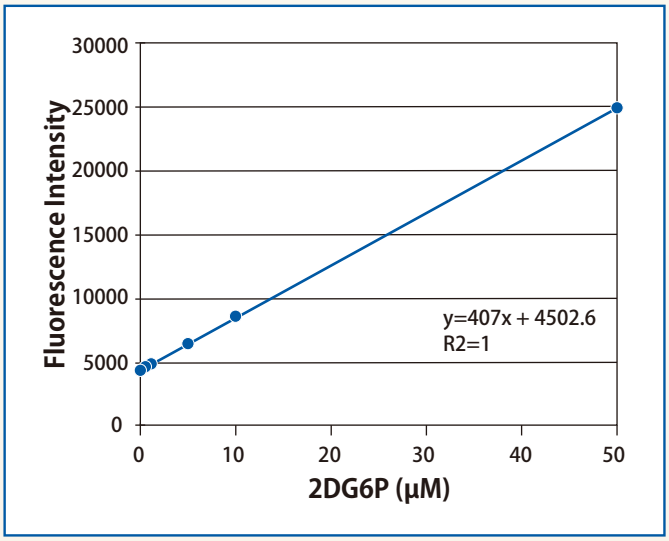

Figure 2: Calibration curve with 2DG6P Solution

Additives	Sample A	Sample B	Sample C
Insulin	−	−	+
2DG	−	+	+

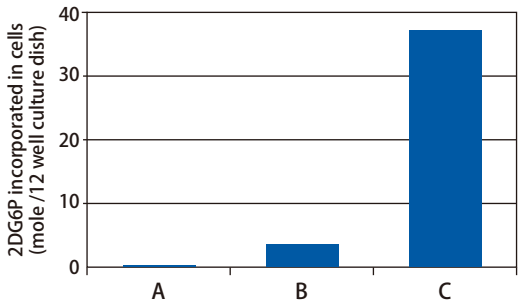

Figure 3: Measurement results

Ordering Information

Product Description	Cat. No.	Size
Glucose Cellular Uptake Measurement Kit (Broad Range, Fluorometric)	CSR-MBR-PMG-K01	1 kit (100 tests)
2-Deoxyglucose (2DG) Uptake Measurement Kit (Chromogenic)	CSR-OKP-PMG-K01	1 kit (50 tests)

Shipping Condition: Dry Ice

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