

Phosphatidylcholine Colorimetric Microplate Assay Kit

Cat #: orb1881038 (manual)

For Research Use Only. Not For Use in Diagnostic Procedures!

Detection and Quantification of Phosphatidylcholine Content in Serum, Plasma, Tissue extracts, Cell lysate, Cell culture media and Other biological fluids Samples.

INTRODUCTION

Phosphatidylcholine (PC) is a phospholipid which incorporates choline as the headgroup of the lipid. PC is a major constituent of biological membranes and is involved in cell signalling through release of choline by phospholipase D leaving the second messenger phosphatidic acid.

Phosphatidylcholine Colorimetric Microplate Assay Kit provides a simple and direct procedure for measuring phosphatidylcholine content in a variety of samples. In this assay, phosphatidylcholine is hydrolyzed, releasing choline which is determined using a specific dye. The optical density of the pink-colored product at 570nm is directly proportional to the phosphatidylcholine concentration in the sample.

KIT COMPONENTS

Component	Volume	Storage
96-Well Microplate	1 plate	
Assay Buffer	30mlx 4	4 °C
Reaction Buffer	10 ml x 1	4 °C
Enzyme	Powder x 1	-20 °C
Dye Reagent	Powder x 1	-20 °C, keep in dark
Standard	Powder x 1	4 °C
Plate Adhesive Strips	3 Strips	
Technical Manual	1 Manual	

MATERIALS REQUIRED BUT NOT PROVIDED

1. Microplate reader to read absorbance at 570 nm
2. Distilled water
3. Pipettor, multi-channel pipettor
4. Pipette tips
5. Mortar
6. Centrifuge
7. Timer

REAGENT PREPARATION

Standard: Briefly centrifuge prior to opening. Dissolve in 0.2 ml distilled water to generate 20 mmol/L of standard stock/top solution, store at -20°C for 1 month after reconstitution. Perform 2-fold serial dilutions of the top standard solution using distilled water to make the standard curve. The concentration of standard curve could be 20 mmol/L, 10 mmol/L, 5 mmol/L, 2.5 mmol/L, 1.25 mmol/L, 0.625 mmol/L, 0.312 mmol/L.

Enzyme: Briefly centrifuge prior to opening. Add 1 ml Reaction Buffer to dissolve before use, mix; store at -80°C for 1 month after reconstitution.

Dye Reagent: Add 10 ml distilled water to dissolve before use, mix; store at -20°C for 1 month after reconstitution.

Note: Divide into small aliquots to avoid repeated freeze-thaw cycles.

SAMPLE PREPARATION

1. For cell and bacteria samples

Collect cell or bacteria into centrifuge tube, discard the supernatant after centrifugation, add 1 ml Assay Buffer for 5×10^6 cell or bacteria, sonicate (with power 20%, sonicate 3s, interval 10s, repeat 30 times); centrifuged at 10000g 4°C for 10 minutes, take the supernatant into a new centrifuge tube for detection.

2. For tissue samples

Weigh out 0.1 g tissue, homogenize with 1 ml Assay Buffer, centrifuged at 10000g 4°C for 10 minutes, take the supernatant into a new centrifuge tube for detection.

3. For liquid samples Detect directly.

ASSAY PROCEDURE

Equilibrate reagents to room temperature before use. Add following reagents into the microplate:

Reagent*	Standard	Blank	Sample**
Reaction Buffer	80 µl	80 µl	80 µl
Enzyme	10 µl	10 µl	10 µl
Standard	10 µl	--	--
Distilled water	--	10 µl	--
Sample	--	--	10 µl
Dye Reagent	100 µl	100 µl	100 µl
Mix, put it in the oven, incubate at 37 °C for 15 minutes, measure at 570 nm and record the absorbance.			

Note:

*Reagents must be added sequentially and should not be premixed prior to addition.

**The concentrations can vary over a wide range depending on the different samples. For unknown samples, we recommend doing a pilot experiment & testing several doses to ensure the readings are within the standard curve range.

**For colored samples, we recommend setting a parallel sample background control well with same volume of sample only. Other reagents were replaced by distilled water to the same total volume. Subtract the OD value of the sample background control from the OD value of the sample to correct for interference from the sample's own color.

CALCULATION

1. Calculate the sample concentration in ASSAY PROCEDURE according to the slope of the standard curve

$$C = \frac{(OD_{\text{Sample}} - OD_{\text{Blank}}) - \text{Intercept}}{\text{Slope}} \times n \text{ (mmol/L)}$$

Calculate the initial concentration according to sample preparation procedure.

2. According to one point of the standard OD and concentration

2.1 According to the protein concentration of sample

$$C = \frac{(C_{\text{Standard}} \times V_{\text{Standard}}) \times (OD_{\text{Sample}} - OD_{\text{Blank}})}{(OD_{\text{Standard}} - OD_{\text{Blank}}) \times C_{\text{Protein}} \times V_{\text{Sample}}} \text{ (}\mu\text{mol/mg)}$$

2.2 According to the quantity of cells or bacteria

$$C = \frac{(C_{\text{Standard}} \times V_{\text{Standard}}) \times (OD_{\text{Sample}} - OD_{\text{Blank}})}{(OD_{\text{Standard}} - OD_{\text{Blank}}) \times N \times (V_{\text{Sample}} / V_{\text{Assay}})} \quad (\mu\text{mol}/10^4)$$

2.3 According to the weight of sample

$$C = \frac{(C_{\text{Standard}} \times V_{\text{Standard}}) \times (OD_{\text{Sample}} - OD_{\text{Blank}})}{(OD_{\text{Standard}} - OD_{\text{Blank}}) \times W \times (V_{\text{Sample}} / V_{\text{Assay}})} \quad (\mu\text{mol}/\text{g})$$

2.4 According to the volume of sample

$$C = \frac{(C_{\text{Standard}} \times V_{\text{Standard}}) \times (OD_{\text{Sample}} - OD_{\text{Blank}})}{(OD_{\text{Standard}} - OD_{\text{Blank}}) \times V_{\text{Sample}}} \quad (\mu\text{mol}/\text{ml})$$

Slope: the absorbance slope of standard curve

n: the dilution factor

C_{Standard} : the standard concentration, mmol/L = $\mu\text{mol}/\text{ml}$

V_{Standard} : the volume of standard in assay procedure, μl

V_{Sample} : the volume of sample in assay procedure, μl

V_{Assay} : the volume of Assay Buffer, μl

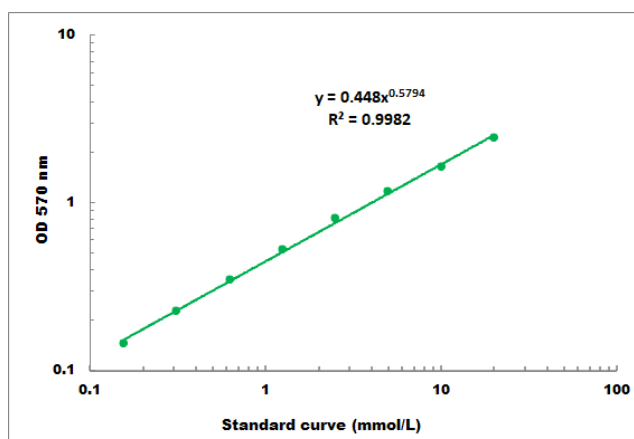
C_{Protein} : the sample protein concentration, mg/ml

W: the weight of sample, g;

N: the quantity of cell or bacteria, 10^4 ;

TYPICAL DATA

The standard curve is for demonstration only. A standard curve must be run with each assay.



Detection Range: 0.2 mmol/L - 20 mmol/L