Tribioscience

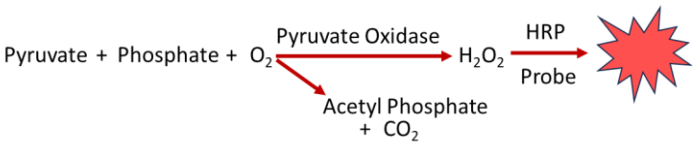
Pyruvate Colorimetric Assay Kit (TBS2023C, 100 assays; store at -20°C)

DESCRIPTION

Pyruvate is a central molecule in metabolic pathways. Pyruvate can be converted to carbohydrates via gluconeogenesis, to fatty acids or energy through acetyl-CoA, to the amino acid alanine and to ethanol. Abnormal levels of pyruvate have been linked to liver diseases and metabolic disorders.

Tribioscience's Pyruvate Colorimetric Assay kit is designed to be a robust, simple and high throughput method in which pyruvate is oxidized to generate hydrogen peroxide. The resulting hydrogen peroxide is catalyzed and reacts with the probe measured by the colorimetric method at OD = 570 nm.

ASSAY PRINCIPLE



APPLICATIONS

Direct Assays: Detect as low as 4 µM of pyruvate in cells, serum and other biological samples.

KIT CONTENTS

Name	Size (100 tests)
Pyruvate standard (500 µM)	200 µL
Enzyme Mix (5X)	1 mL
Pyruvate assay buffer	10 mL
Pyruvate Probe	60 µL

STORAGE AND HANDLING

Store kit at -20°C. Shelf life of 12 months.

ASSAY PROTOCOL

Except Enzyme, warm all the components to room temperature before use. Briefly centrifuge all small vials prior to opening.

1. Sample Preparation:
Tissue (1-10 mg) or cells (1 x 10^6) can be lyses in 100 µL of Assay Buffer. Centrifuge ice cold at 15,000 x g for 2 minutes to pellet insoluble materials and collect the supernatant. For more accurate assays, the sample should be quick frozen using liquid N_2 or dry ice if it is to be assayed later.

2. Standard Curve Preparations:

Tube	Pyruvate (µL)	Assay Buffer (µL)	Pyruvate Conc (µM)
1	100 µL stock	300	125
2	200 µL of Tube#1	200 µL	62.5
3	200 µL of Tube#2	200 µL	31.2
4	200 µL of Tube#3	200 µL	15.6
5	200 µL of Tube#4	200 µL	7.8
6	200 µL of Tube#5	200 µL	3.9
7	0	200 µL	0

Add 50 µL/well standards and samples to 96-well plate.

3. Pyruvate Reaction Mix: Prepare enough mix for 100 tests as the table:

Pyruvate Reaction Mix	Volume
Pyruvate assay buffer	3.95 mL
Enzyme Mix (5X)	1 mL
Pyruvate Probe	50 µL

Add 50 µL of the Reaction Mix to each well containing the Pyruvate Standard and test samples. Tap plate lightly to mix.

4. Incubation: Incubate at 37ºC for 30 minutes with gentle shaking and protect from light.

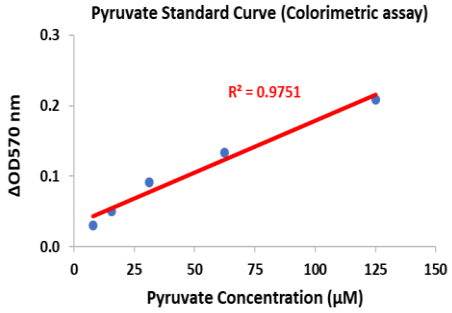
5. Measurement: Measure OD at 570 nm for colorimetric assay.

6. Calculation: Correct background by subtracting the value of the 0 Pyruvate standard (blank) from all standard readings. Plot the value against standard concentration. Determine the slope using linear regression fitting.

Typical standard curve is y=Ax+B, A is the slope and B is the y-intercept.

Pyruvate = N* [(OD_{sample}-OD_{blank}) -B]/A (µM)

Where: OD_{sample} and OD_{blank} are optical density values of the sample and buffer. **(Note:** If unknown sample results over standard curve range, dilute sample with assay buffer. Repeat the assay; multiply the results by the dilution factor *N*.)



RELATED PRODUCTS

Pyruvate Fluorometric Assay (TBS2023F)
Glycerol Colorimetric Assay (TBS2204C)
Glycerol Fluorometric Assay (TBS2204F)
Triglyceride Colorimetric Assay (TBS2205C)
Triglyceride Fluorometric Assay (TBS2205F)
LDH Cytotoxicity Assay (TBS2002)
ATP Colorimetric/Fluorometric Assay (TBS2010)
ADP Colorimetric/Fluorometric Assay (TBS2020)
Cell Count Kit -8 (TBS2022)
XTT Cell Viability Assay (TBS2021)
Caspase-3 Colorimetric Assay (TBS2030)
Thiol Fluorometric Assay (TBS2026)
GSH Assay (TBS2028)
Cytochrome c Reductase Activity Assay (TBS2116)
NNMT Inhibitor Screening Assay (TBS2097)
NNMT Activity Fluorometric Assay (TBS2098)
G6PDH Activity Colorimetric Assay (TBS2102

FOR RESEARCH ONLY

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