Genuine Biosystem

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DR. PYRUVAVTE

DIAGNOSTIC KIT FOR DETERMINATION OF PYRUVATE ACTIVITY

Kit name	Kit size	Cat. No
DR.Pyruvate	1 x 50 ml	PYR01DR
DR.Pyruvate	1 x 100 ml	PYR02DR

INTRODUCTION

Pyruvate, mainly used in clinical diagnosis of diabetic ketoacidosis. Pyruvate is the major intermediates for glucose catabolism and anabolism, pyruvate is the product of glycolysis, to oxidize to CO2 and H2O by citric acid cycle, keep the blood of L / P ratio at about 9. When the body is under hypoxic metabolism, pyruvate is reduced to lactate, L / P increased. More severe hypoxia, more obvious of the L / P increasing. According to L / P ratio, the severity of circulatory failure can be speculated. Vitamin B1 deficiency, chronic alcoholism, chronic pulmonary heart disease, diabetes and ketoacidosis can cause pyruvate level elevate in blood

METHOD PRINCIPLE

PYR + NADH +H+ LDH LAC + NAD+ + H2O
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Measuring the change in absorbance of NADH at 340 nm wavelength, it is proportional to decrease in the content of the absorbance of the sample pyruvate.

REAGENTS

Package

	DR.Pyruvate 1 x 50 ml	DR.Pyruvate 1 x 100 ml
R1-Pyruvate	1 x 40 ml	2 x 40 ml
R2-Pyruvate	1 x 10 ml	2 x 10 ml
R3-Pyruvate Calibrator	1 vial	1 vial

The reagents when stored at 2-8°C are stable up to expiry date printed on the package.

Working reagent preparation and stability

Assay can be performed with use of separate R1-PYR and R2-PYR reagents or with use of working reagent. For working reagent preparation mix gently 4 parts of R1-PYR with 1 part of R2-PYR. Avoid foaming.

Stability of working reagent : 1 day at 2-8°C

Concentrations in the test

NADH	0.35 mmol/L
Tris Buffer with preservatives	
LDH	300 U/L

ADDITIONAL EQUIPMENT

- automatic analyzer or photometer able to read at 340 nm;
- thermostat at 37ºC;
- general laboratory equipment;

SPECIMEN

Serum. Day of fasting serum without hemolysis, because long-term placement of whole blood would reduce the concentration of pyruvate, so the separation of blood plasma were measured promptly.

PROCEDURE

These reagents may be used both for manual assay in several automatic analyzers. Applications for them are available on request.

Manual procedure

wavelength	340 nm
temperature	37°C
cuvette	1 cm

The determination can be also performed with use of separate R1-Hcy and R2-Hcy reagents.
Pipette into the cuvette:

	Calibrator (C)	Test (T)
R1 PYR	800 µl	800 µl
Calibrator	80 µl	
Sample		80 µl

Mix well and incubate at (37°C) for 5 mins, read A1

R2 PYR	200 µl	200 µl

Mix well & incubate for 5 min. at 37°C. Measure the absorbance A2 of calibrator & sample, Calculate ΔA = A2-A1

Calculation

PYR concentration = ΔA (T) / ΔA(C) x calibrator concentration

REFERENCE VALUES

Serum 20 to 100 µmol/L

It is recommended for each laboratory to establish its own reference ranges for local population.

QUALITY CONTROL

To ensure adequate quality control, each run should include assayed normal and abnormal controls. If commercial controls are not available it is recommended that known value samples be aliquoted, frozen and used as controls

PERFORMANCE CHARACTERISTICS

Linearity: upto 1000 µmol/L ($R \geq 0.990$)

LITERATURE

1. Zhang Xiuming,, Study of clinical and biochemical examination,Beijing:The Military Press,2010.
2. Han Zhijun, Used Items of Clinical Chemistry Automatic Analysis Method,Liaoning Science and Technology Press,2005

WASTE MANAGEMENT

Please refer to local legal requirements.

SYSTEM PARAMETERS

Method	:	**Fixed-Time Kinetic (2-point)**
Wavelength	:	**340 nm**
Zero Setting	:	**Distilled water**
Temperature Setting	:	**37°C**
Incubation Temperature	:	**37°C**
Incubation Time	:	**----**
Delay time	:	**300 secs**
Read time	:	**300 secs**
No. of Reading	:	**2**
Interval time	:	**---**
Sample Volume	:	**0.08 ml (80 ul)**
Reagent Volume	:	**1.0 ml (1000 ul)**
Standard Concentration	:	**Refer calibrator vial**
Units	:	**µmol/L**
Factor	:	**—**
Reaction slope	:	**Decreasing**
Linearity	:	**1000 µmol/L**

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