CREATIVE BIOMART®
Assay Kit

Potassium Assay Kit

Product Information

Cat

Kit-0882

Cat.No. Kit-0882

Product Overview

Potassium Assay is based on a kinetic coupling assay system using potassium dependent pyruvate kinase. Pyruvate generated is converted to lactate accompanying conversion of NADH analog to NAD analog. The corresponding decrease of optical density at 380 nm is proportional to the potassium concentration in the serum.

Description

Potassium plays an important function in the well-being of healthy individuals. Deviations from normal levels can have severe consequences. It is thus important that researchers identify causes of fluctuations in potassium.

Applications

The Potassium Kit is for the quantitative determination of potassium in serum. Please read the complete kit insert before performing this assay. The kit is for RESEARCH USE ONLY. It is not intended for use in diagnostic procedures.

Notes

The Potassium Assay is formulated for use with non-hemolysed serum samples. No special handling or pretreatment is required. Serum samples should be collected such that testing is performed as soon as possible and within 5 days after the specimen collection.

Storage

Upon receipt of the Potassium Kit, store it at 2-8°C (do not freeze the kit or hold it at temperatures above 25°C).

Warning

1. Only appropriately-trained personnel should use the kit. Laboratory personnel should wear

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suitable protective clothing. All chemicals and reagents should be considered potentially hazardous. Avoid ingestion and contact with skin and eyes.
2. Some assay components contain human sourced materials. Accordingly, all assay components should be handled as if potentially infectious using safe laboratory procedures.
3. Reagents contain lithium azide, which may react with lead and copper plumbing to form highly explosive compounds. On disposal, flush with a large volume of water to prevent buildup.
4. Do not use the reagents after the expiration date.

Size

96 Assays

Kit Components

CC1: Reagent CC1 (liquid), 1 X 20 mL
CC2: Reagent CC2 (liquid), 1 X 5 mL
CAL1: Calibrator 1 (liquid), 1 X 3 mL
CAL2: Calibrator 2 (liquid), 1 X 3 mL

Materials Required but Not Supplied

Micropipettes and disposable tips
Clean glass tubes and test tube racks
Incubator (37°C)
Distilled water
Spectrophotometer (should read A380 values)

Preparation

I.1. Preparation of reagents
All reagents are provided ready-to-use and should be brought to room temperature for at least 30 minutes prior to use. Reagents should be stored at 2-8°C immediately after use. Before use, mix the reagents thoroughly by gentle agitation or swirling
I.2. Preparation of samples, calibrators, and controls
1. Bring all samples, calibrators, and controls to room temperature.

Assay Protocol

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I.3. Assay procedure

The procedure below reflects a manual procedure performed using a glass tube with a spectrophotometer. The assay can also be adopted to work on various automated analyzers.

1. Add 200 IL of Reagent CC1 and 5 IL of sample, calibrator, or control into a clean glass tube and mix well by repeated pipetting.
2. Place glass tube in incubator (37°C) and allow microplate to equilibrate to 37°C over 5 minutes.
3. Pipette 50 IL of Reagent CC2 into the glass tube and mix well by repeated pipetting. Start timer immediately upon addition of Reagent CC2.

Note: The accuracy of the assay is based on measuring the change in absorbance at 1 min and 4 mins upon the addition of Reagent CC2. Slight variations in the timing of the readings (ie. 1.5 mins and 4.5 mins) should not affect the results as long as the timing of the readings is consistent for both the calibrators and samples. Said another way, it is important that CC2 be added to the calibrators and samples at the same time and readings for both calibrators and samples be taken at the same time to obtain comparable absorbance
readings.

4. Measure absorbance using a spectrophotometer (measure A380 values) 1 min and 4 mins after the addition of Reagent CC2.

Analysis

I.4. Determining the Potassium concentration

1. Calculate the change in absorbance JA (4 mins ~ 1 min)

ΔA = (OD380nm, 4 mins) - (OD380nm, 1 mins)

2. Using linear graph paper, construct the Potassium calibration curve by plotting the mean change in absorbance value for each calibrator on the Y axis versus the corresponding potassium concentration on the X axis.

Note: Calibrator values vary per lot and should be obtained from the calibrator labels. A calibration curve should be plotted every time the assay is performed.

3. Potassium concentrations in the samples are interpolated using the calibration curve and mean absorbance values for each sample. The Potassium concentration is expressed as mmol/L.

Note: Samples with a Potassium concentration (8.0 mmol/L) should be reported as greater than 8.0 mmol/L.

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Sensitivity

The Potassium assay has a linear range from 2.0 - 8.0 mmol/L.

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