台塑生醫科技股份有限公司
FORMOSA BIOMEDICAL TECHNOLOGY CORP.

CREATINE KINASE(CK)-Kinetic Method CK

FOR BECKMAN CX AND LX SYSTEMSS

INTENDED USE

For the quantitative determination of creatine kinase activity in serum

CLINICAL SIGNIFICANCE

Creatinine kinase (CK) catalyzes the reversible reaction of creatine and ATP to from creatine phosphate and ADP which plays very important role in the function of energy storage in the human tissue. It presents mostly in skeletal muscle, heart and brain. Damage of muscle and heart tissues will release of CK to the blood stream and result in the increase of CK activity. Determination of CK activity in serum or plasma is a good diagnosis of muscular dystrophy and other skeletal muscle disease myocardial infarction, renal damage and dysfunction.

PRINCIPLE

$$\text{Creatine phosphate} + \text{ADP} \xrightarrow{\text{CK}} \text{creatine} + \text{ATP}$$

$$\text{ATP} + \text{D-glucose} \xrightarrow{\text{Hexokinase}} \text{glucose-6-phosphate} + \text{ADP}$$

$$\text{glucose-6-phosphate} + NAD^+ \xrightarrow{\text{G-6-PDH}} \text{6-phosphogluconate} + NADH + H^+$$

the rate of NADH formation is directly proporational to the CK activity.

SPECIMEN COLLECTION AND PREPARATION

Serum is the choice for the assay. Avoid hemolysis since glucose-6-phosphate dehydrogenase, adenylate kinase, ATP liberated from red cells will interfere with the result. CK is reportedly stable for 4 hrs at room temperature, 8~12 hours at 4℃, and 2~3 days when frozen.

REAGENT

- Each kit contains 2 cartridge of CK reagent (2×200 tests).
- Before use, transfer the entire contents of compartment C into compartment A . Mix gently to secure adequate mixing.
- Components:

creatine phosphate	30mmol/l;	ADP	2 mmol/l;
D-glucose	20 mmol/l;	NAD^+	2 mmol/l;
N-acetylcysteine	20 mmol/l;	Hexokinase	3000 U/L.;
G-6-PDH	3000 U/L.;	Mg^{2+}	10 mmol/l.

STORAGE: 2~8℃

EXPECTED VALUE:

Male: 24~195 u/l; Female:24~170 u/l.

PRECAUTIONS:

1. For in vitro diagnostic use only.
2. Since all specimens are potentially infectious, they should be handled with appropriate precautions and practices in accordance with Biosafety level 2 as recommended by USA NIH manual Biosafety in Microbiological and Biomedical Laboratories, and in accordance with National or local regulations related to the safety precautions of such materials.
3. Each laboratory has to perform the quality control test to assure the results being reliable before running the specimen tests

PROCEDURES:

1. Pipott compartment reagent completely to compartment A.Mix immediately and gently.
2. Use bar code reading to follow the Beckman CX4 parameters and procedures.

NOTE: It is generally recommended that each laboratory establish its own range of normal valus for commonly performed tests.

REFERENCES:

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4. Henry RJ, Clinical Chemistry Principles and Technical, Harper & Row, Hagerstown, MD, p.898, 1974.