PATHOZYME DIAGNOSTICS

LIQVIPATH CK NAC

(KINETIC METHOD)

CAT NO.: CNL

Reagent kit for quantitative estimation of CK-NAC in Serum or Plasma.

DIAGNOSTIC SIGNIFICANCE:

Creatine Kinase is found in cardiac muscles, skeletal muscle and cerebral tissues. Consequently Damage or disease (e.g. myocardial infarction, acute cerebrovascular disease, muscular dystrophy or injury) of these tissues will result in elevated serum CK levels. In the wake of myocardial infarction, CK activity begins to rise within 4 to 6 hours, peaks between 18 to 30 hours and returns to normal by the third day. Marginally increased levels may be found due to severe exercise and by large multiple intramuscular injections. With other symptoms and suggestive history, serum CK estimation is an important parameter of choice for myocardial infarction and follow up.

PRINCIPLE:

Creatine Kinase catalyzes the formation of ATP from Creatine Phosphate and ADP. Glucose is converted to Glucose -6- Phosphate by Hexokinase using ATP as a source for PO4 moiety. Glucose-6-Phosphate is oxidized by G-6PDH to 6 phosphogluconate reducing NADP to NADPH. The reaction after the lag phase is monitored by the increase in absorbance at 340nm and is directly proportional to the Creatine Kinase activity.

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

$$\text{ATP} + \text{D-Glucose} \xrightarrow{\text{HK}} \text{G-6-P} + \text{ADP}$$

$$\text{G-6-P} + \text{NADP} \xrightarrow{\text{G6PDH}} \text{D-Gluconate-6-phosphate} + \text{NADPH} + \text{H}^+$$

CK = Creatine kinase G-6-P = D-Glucose-6-phosphate
HK = Hexokinase G-6-PDH=Glucose-6-phosphate Dehydrogenase

SPECIMEN COLLECTION:

Serum free of hemolysis. Heparinized or EDTA plasma.

KIT PRESENTATION:

PACK SIZE	2 X 10 ml	2 X 20 ml
R1-CK NAC (Enzyme Reagent)	2 X 8 ml	2 X 16 ml
R2-CK NAC (Starter Reagent)	2 X 2 ml	2 X 04 ml

WORKING REAGENT PREPARATION:

Mixing 4 volumes of R1-CK NAC (Enzyme) with 1 volume of R2-CKNAC (Starter). i.e. 800 µl R1 + 200 µl R2.
The working reagent is stable for **30** days at 2-8°C.

REAGENT STORAGE AND STABILITY:

CK-NAC reagents are stable at 2-8°C until the expiry date stated on the label.

ASSAY PARAMETERS:

Reaction	: Kinetic	Sample Volume	: 20 µl
Wavelength	: 340 nm	R1 + R2 Volume	: 800 µl + 200 µl
Flow Cell Temp.	: 37^{0}C	Factor	: 8095
Initial Delay	: 60 Sec	Reaction Slope	: Increasing
Read Time	: 180 Sec	Zero Setting	: Dist. Water
No. of Reading	: 03	Linearity	: 2000 IU/L

PROCEDURE:

Addition Sequence	Test
R1-CK NAC (Enzyme Reagent)	800 µl
R2-CK NAC (Starter Reagent)	200 µl
Mix well & incubate for 01 minute at 37°C & then add	
Sample (Test)	20 µl

Mix & aspirate immediately and read **first** absorbance of test exactly at 60 seconds and then, **second, third** and **fourth** at an interval of 60 seconds at 340 nm. Determine the mean change in absorbance per minute. (ΔA/min) and calculate the test results.

CALCULATION:

CK NAC Activity (IU/L) = ΔA/min X 8095

NORMAL VALUES:

	At 30°C	At 37°C
MEN:	15-130 IU/L	25-200 IU/L
WOMEN:	15-110 IU/L	25-170 IU/L

Each laboratory should establish its own normal range.

LINEARITY:

This method is linear up to **2000 IU/L**. For values above 2000 IU/L, dilute the sample suitably with 0.9 % saline, and repeat the assay. Apply correction due to dilution to arrive at a final result.

REFERENCES:

- OLIVERS, I.T., Biochem J., 61:116 (1985).
- ROSALKI, S.B., J lab Clin. Med. 69:696 (1967)
- TIETZ, N., (Ed). Fundamentals of Clinical Chemistry. W.B.Saunders Co., Philadelphia PA 1976.

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Expiry Date

IVD
In-Vitro Diagnostics Use


Storage


Mfg. Date

LOT
Batch Number

REF
Catalogue Number


See Package Insert

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