Cholinesterase (CHE) assay kit (thiobutyrylcholine method)

Product name
Generic Name: Cholinesterase (CHE) assay kit (thiobutyrylcholine method)
Abbreviation: CHE

Package Specifications

Reagent1	Reagent2
40ml×2	16ml×1
50ml×2	10ml×2
50ml×2	20ml×1
80ml×2	16ml×2
80ml×4	32ml×2

Calibrator (optional): 1ml/bottle×1;
Quality control (optional): 1ml/bottle×1

Intended use
It is used to detect the content of Cholinesterase in human serum samples.

Clinical significance
Cholinesterase is found in red blood cells and the gray matter of the central nervous system. Increased levels are commonly seen in symptoms such as nervous system diseases, hyperthyroidism, diabetes, hypertension, bronchial asthma, type IV hyperlipoproteinemia, and renal failure. Decreased levels are commonly seen in symptoms such as organophosphorus poisoning, hepatitis, cirrhosis, malnutrition, pernicious anemia, and acute infections.

Principle
Thiobutyrylcholine generates butyrate and thiocholine under the action of cholinesterase (CHE). Thiocholine reacts with 5,5'-dithio-2-nitrobenzoic acid to generate 5-thio-2-nitrobenzoic acid. The reaction formula is as follows:

$$\text{Thiobutyrylcholine} + H_2O \xrightarrow{\text{CHE}} \text{butyrate} + \text{thiocholine}$$

$$\text{Thiocholine} + \text{5,5'-dithio-2-nitrobenzoic acid} \longrightarrow \text{5-thio-2-nitrobenzoic acid}$$

The generated 5-thio-2-nitrobenzoic acid produces turbidity. The substance has a maximum absorption at a wavelength of 405nm. By detecting the turbidity change rate, the increase rate of 5-thio-2-nitrobenzoic acid can be determined, and the activity of cholinesterase in serum can be measured.

Main ingredient

Name	Ingredient	Concentration
Reagent	Sodium carbonate	5.00g/l
	Nitrotetrazolium blue	0.25 g/l

Storage and stability
The kit should be stored in the dark at 2°C to 8°C and is valid for 18 months.
After opening, the reagent should be stored in the dark at 2°C to 8°C and is stable for 30 days.

Assay procedure
1. Reagent preparation
This reagent is liquid and can be used totally.

Main wavelength	405nm	Sample	2μl
Subwavelength	660nm	Reagent 1	300μl
Reation temperature	37°C	Reagent 2	60μl
Cuvette light path	1cm	Reaction type	Rate
Reaction direction	Up		

2. Operation steps

Add to the cuvette:	
Sample (S)	2μl
R1	300μl
Mix well, incubate at 37°C for 5 minutes, then add	
R2	60μl
Mix well, delay for 1 minute, measure continuously for 2 minutes, and calculate ΔA/min.	

Note: △A/min=A2-A1/time
Calculation formula for calibration method: sample concentration = (△A/min measurement/△A/min calibration) × Cs (calibration solution concentration)

Calibration and Quality Control
Use this kit with calibrators and quality control materials.

Reference interval
Female: 4.0 KU/L~12.6 KU/L/L
Male: 5.1 KU/L~11.7 KU/L
It is recommended that each laboratory should establish its own reference interval.

Quality control
The control intervals and limits should be adapted to each laboratory's individual requirements. Values obtained should fall within the defined limits. Each laboratory should establish corrective measures to be taken if values fall outside the limits.

Performance characteristics

1. Measuring range:
3KU/L-13KU/L
Samples above this concentration should be diluted 1+1 with 0.9% NaCl solution and the result multiplied by 2.
2. Sensitivity:
When the sample concentration is 6000U/L, its absorbance change (ΔA) should be not smaller than 0.029.

Automation

Special adaptations for automatic analyzers can be made on request.

General precautions

For in vitro diagnostic use only.
Diagnosis should only be made after taking clinical symptoms and the results of other tests into consideration.
Exercise the normal precautions required for handling all laboratory reagents.
Disposal of all waste material should be in accordance with local guidelines.

Precautions for measurement

Specimens should be treated as potentially infectious (HIV, Hepatitis B virus, Hepatitis C virus, etc.) and handled with appropriate caution.
Reagents with different lot numbers should not be interchanged or mixed.
For diagnostic purposes, the results should always be assessed in conjunction with the patient's medical history, clinical examination and other findings.
Material safety data sheet available for professional user on request.

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