（FOR RESEARCH USE ONLY. DO NOT USE IT IN CLINICAL DIAGNOSIS !）

Catalog No：E-BC-K207-S

Specification：200Assays (Can detect 48 samples with spectrophotometer or 196 samples with biochemical analyzer and microplate reader without duplication)

Measuring instrument：Spectrophotometer, Microplate reader, Biochemistry analyzer

Detection range：80-180 mmol/L

Elabscience® Sodium (Na) Colorimetric Assay Kit

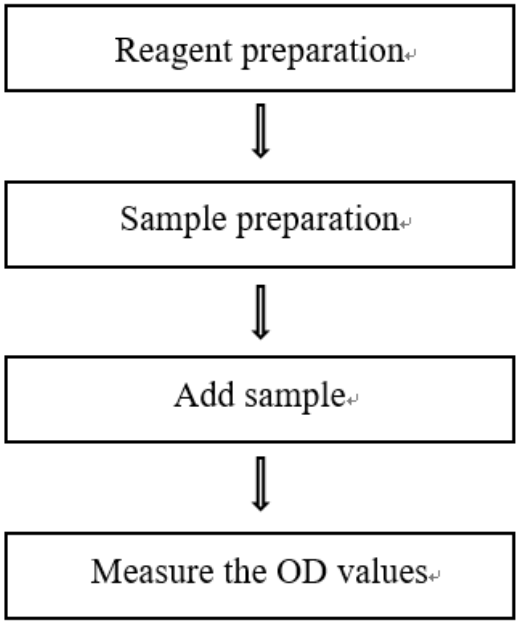
This manual must be read attentively and completely before using this product.
If you have any problem, please contact our Technical Service Center for help：

Toll-free: 1-888-852-8623
Tel: 1-832-243-6086
Fax: 1-832-243-6017
Email: techsupport@elabscience.com
Website: www.elabscience.com

Please kindly provide us the lot number (on the outside of the box) of the kit for more efficient service.

Table of contents

Assay summary



Intended use

This kit can be used for detecting the concentration of sodium ions in serum samples.

Detection principle

Production of o-nitrophenol and galactose by o-nitrophenol-β-D-galactoside (ONPG) catalyzed by sodium dependent β-D-galactosidase. The amount of o-nitrophenol is directly proportional to the concentration of sodium ion in the sample. The o-nitrophenol is yellow in alkaline environment. The increase of absorbance is determined at 405 nm, and the content of sodium ion is calculated indirectly.

Kit components & storage

Item	Component	Specification	Storage
Reagent 1	Tris-HCl Buffer Solution	20 mL ×2 vials	2-8℃,12 months, shading light
	β- Galactosidase		
	Cryptand		
Reagent 2	ONPG	10 mL ×2 vials	
	Tris-HCl Buffer Solution		
Reagent 3	140 mmol/L Standard	2 mL ×1 vial	

Note: The reagents must be stored strictly according to the preservation conditions in the above table. The reagents in different kits cannot be mixed with each other. For a small volume of reagents, please centrifuge before use, so as not to obtain sufficient amount of reagents.

Materials prepared by users

Instruments:

Spectrophotometer (405 nm), Biochemical analyzer (405 nm), Microplate reader (405 nm), Micropipettor, Vortex mixer, Centrifuge, Water bath, Incubator

Reagents:

Double distilled water

Reagent preparation

Equilibrate all the reagents to room temperature before use.

Sample preparation

Separate the serum as soon as possible after blood collection to avoid hemolysis.

The key points of the assay

Please take safety precautions and follow the procedures of laboratory reagent operation. All waste liquid should be handled in accordance with local regulations.

Operating steps

1. Detection with microplate reader

	Blank well	Standard well	Sample well
ddH_2O (μL)	8		
Standard (μL)		8	
Sample (μL)			8
Reagent 1 (μL)	200	200	200
Reagent 2 (μL)	100	100	100

Mix fully and stand for 1 min. Measure the absorbance at 405 nm at 0 min (A1) and 2 min (A2), respectively. Calculate the △A, △A=A_2-A_1.

2. Detection with spectrophotometer

	Blank tube	Standard tube	Sample tube
ddH_2O (μL)	32		
Standard (μL)		32	
Sample (μL)			32
Reagent 1 (μL)	800	800	800
Reagent 2 (μL)	400	400	400
Mix fully and stand for 1 min. Set to zero with ddH_2O, measure the absorbance of each tube with 1 cm cuvette at 405 nm at 0 min (A_1) and 2 min (A_2), respectively. Calculate the △A, △A=A_2-A_1.			

3. Detection with biochemical analyzer

Analysis method	Two-point method	Wavelength (nm)	405
Auxiliary wavelength (nm)	660	Reaction direction	Up
Reagent 1 (μL)	200	Reagent 2 (μL)	100
Sample (μL)	8	Delay time (min)	1
Reaction time (min)	2		

Automatic biochemical analyzer has its own program parameter input language. Reagents matches the analyzer and carry out automatic measurement after the above basic parameters are modified.

Calculation

$$\text{Sodium ions content (mmol/L)} = \frac{(\triangle A_{\text{Sample}} - \triangle A_{\text{Blank}})/\text{min}}{(\triangle A_{\text{Standard}} - \triangle A_{\text{Blank}})/\text{min}} \times c \times f$$

[Note]

ΔA_{Sample}: The change OD value of sample, A_2-A_1

$\Delta A_{Standard}$: The change OD value of standard, A_2-A_1

ΔA_{Blank}: The change OD value of blank, A_2-A_1.

C: The concentration of standard (140 mmol/L)

f: Dilution factor of sample before test.

Performance index

① **Absorbance of blank:** $A_{405} \leq 1$, $\triangle A_{405}$/min ≤0.4 (optical path = 1 cm).

② **Linear range:** 80~180 mmol/L, $|R| \geq 0.995$.

③ **Sensitivity:** (|△A|/min) is between 0.154 ~ 0.504 when testing 140 mmol/L samples

④ **Accuracy:** relative deviation ≤ 10%.

⑤ **Precision:** intra-CV≤ 5.0 %, inter- CV ≤ 8.0 %

Statement

1. This assay kit is for Research Use Only. We will not response for any arising problems or legal responsibilities causing by using the kit for clinical diagnosis or other purpose.
2. Please read the instructions carefully and adjust the instruments before the experiments. Please follow the instructions strictly during the experiments.
3. Protection methods must be taken by wearing lab coat and latex gloves.
4. If the concentration of substance is not within the detection range exactly, an extra dilution or concentration should be taken for the sample.
5. It is recommended to take a pre-test if your sample is not listed in the instruction book.
6. The experimental results are closely related to the situation of reagents, operations, environment and so on. Elabscience will guarantee the quality of the kits only, and NOT be responsible for the sample consumption caused by using the assay kits. It is better to calculate the possible usage of sample and reserve sufficient samples before use.