Natrium Microplate Assay Kit

User Manual

Catalog # CAK1109

(Version 1.2C)

Detection and Quantification of Natrium (Na^+) Content in Serum, Urine, Saliva and Other biological fluids Samples.

For research use only. Not for diagnostic or therapeutic procedures.

I. INTRODUCTION

Sodium (Na^+) is one of the most important electrolytes along with chloride, calcium and potassium. Na plays vital roles in the maintenance of plasma volume, pH balance, transmission of nerve impulses, and normal cell functions. Healthy individuals can absorb sodium ingested in food, and kidneys maintain proper sodium balance by excreting its excess in urine. Sodium sources include table salt, milk, meat, shellfish, bread, snack food, etc. Normal Sodium intake has been defined to be between 200-500 mg/day. Patients suffering high blood pressure, hypertension, chronic kidney disease, and people suffering salt sensitivity require restricted low-sodium diets due to those conditions. Hyponatremia (low sodium concentration in blood) can occur in patients with nephrotic syndrome, excessive vomiting and diarrhea, while Hypernatremia (high sodium concentration in blood) is developed in patients suffering from liver diseases, burns, and pregnancy.

Natrium Microplate Assay Kit is designed to directly measure natrium content in a variety of samples. It is based on the enzyme kinetic reaction β-galactosidase catalyzed substrate O-NPG, measured at 405 nm is proportional to the natrium concentration in the sample.

II. KIT COMPONENTS

Component	Volume	Storage
96-Well Microplate	1 plate	
Reaction Buffer	20 ml x 1	4 °C
Enzyme	Powder x 1	4 °C
Substrate	Powder x 1	4 °C
Standard	Powder x 1	4 °C
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Note:

Enzyme: add 1 ml Reaction Buffer to dissolve before use, store at -80 °C for 1 month.

Substrate: add 1 ml Reaction Buffer to dissolve before use, store at -20 °C for 1 month.

Standard: add 1 ml distilled water to dissolve before use, the concentration will be 1000 mmol/L, store at 4 °C for 1 month.

III. MATERIALS REQUIRED BUT NOT PROVIDED

1. Microplate reader to read absorbance at 405 nm
2. Distilled water
3. Pipettor, multi-channel pipettor
4. Pipette tips
5. Mortar
6. Centrifuge
7. Timer

IV. SAMPLE PREPARATION

1. For serum and other liquid samples

Detect directly.

2. For tissue samples

Weigh 0.1 g tissue, homogenize with 1 ml distilled water, centrifuged at 10000g for 20 minutes, take the supernatant into a new centrifuge tube for detection.

V. ASSAY PROCEDURE

Add following reagents into the microcentrifuge tube:

Reagent	Sample	Standard	Blank
Reaction Buffer	170 µl	170 µl	170 µl
Sample	10 µl	--	--
Standard	--	10 µl	--
Distilled water	--	--	10 µl
Substrate	10 µl	10 µl	10 µl
Enzyme	10 µl	10 µl	10 µl
Mix, incubate at 37 °C for 10 mins, record absorbance measured at 405 nm.			

Note:

1) Perform 2-fold serial dilutions of the top standards to make the standard curve.

2) The concentrations can vary over a wide range depending on the different samples. For unknown samples, we recommend doing a pilot experiment & testing several doses to ensure the readings are within the standard curve range.

3) Reagents must be added step by step, can not be mixed and added together.

VI. CALCULATION

1. According to the serum sample

$Na+\ (mmol/L) = (C_{Standard} \times V_{Standard}) \times (OD_{Sample} - OD_{Blank}) / (OD_{Standard} - OD_{Blank}) / V_{Sample}$

$= 1000 \times (OD_{Sample} - OD_{Blank}) / (OD_{Standard} - OD_{Blank})$

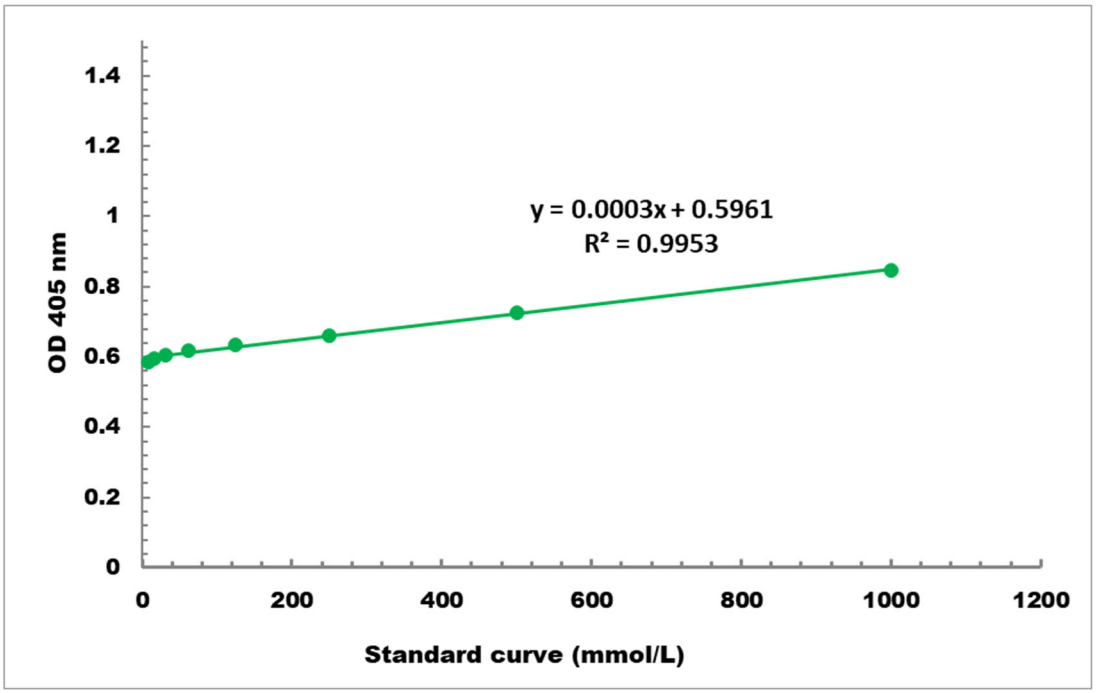
$C_{Standard}$: the concentration of Standard, 1000 mmol/L

$V_{Standard}$: the volume of standard, 0.01 ml

V_{Sample}: the volume of sample, 0.01 ml

VII. TYPICAL DATA

The standard curve is for demonstration only. A standard curve must be run with each assay.



Detection Range: 10 mmol/L - 1000 mmol/L

VIII. TECHNICAL SUPPORT

For troubleshooting, information or assistance, please go online to www.cohesionbio.com or contact us at techsupport@cohesionbio.com

IX. NOTES