Natrium Microplate Assay Kit

User Manual

Catalog # ASK1109

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.

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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.

The reaction products can be measured at a colorimetric read out at 420 nm.

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II. KIT COMPONENTS

Component	Volume	Storage
96-Well Microplate	1 plate	
Assay Buffer	30 ml x 4	4 °C
Dye Reagent	15 ml x 1	4 °C, keep in dark
Dissolution Buffer	30 ml x 1	4 °C
Standard (15 mmol/L)	1 ml x 1	4 °C
Technical Manual	1 Manual	

III. MATERIALS REQUIRED BUT NOT PROVIDED

1. Microplate reader to read absorbance at 420 nm
2. Distilled water
3. Pipettor
4. Pipette tips
5. Mortar
6. Centrifuge
7. Timer

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IV. SAMPLE PREPARATION

1. For serum sample

Add 100 µl serum and 900 µl assay buffer into the microcentrifuge tube, mix, centrifuged at 10,000g 4 °C for 10 minutes, take the supernatant into a new centrifuge tube for detection.

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V. ASSAY PROCEDURE

Add following reagents into the microcentrifuge tube:

Reagent	Blank	Standard	Sample
Distilled water	50 µl	--	--
Standard	--	50 µl	--
Sample	--	--	50 µl
Dye Reagent	150 µl	150 µl	150 µl
Mix, wait for 15 minutes, centrifuged at 3,000g for 5 minutes, discard the supernatant.			
Dissolution Buffer	300 µl	300 µl	300 µl
Vortex dissolve, add 200 µl solution into the microplate, record absorbance measured at 420 nm.			

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VI. CALCULATION

1. According to the serum sample

$Na^+ (mmol/L) = C_{Standard} \times (OD_{Sample} - OD_{Blank}) / (OD_{Standard} - OD_{Blank}) \times 10$

$= 150 \times (OD_{Sample} - OD_{Blank}) / (OD_{Standard} - OD_{Blank})$

$C_{Standard}$: the concentration of Standard, 15 mmol/L.

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