



# Magnesium Microplate Assay Kit

## User Manual

Catalog # ASK1107

Detection and Quantification of Magnesium ( $Mg^{2+}$ ) 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**

Magnesium (Mg) is one of the most abundant and essential minerals in mammals. Magnesium is involved in more than 300 biochemical reactions in the body and plays important roles in muscle and nerve functions, heart rhythm, immune system and bone formation. Magnesium deficiency may lead to nausea, fatigue, muscle contractions, hypocalcemia and hypokalemia.

The magnesiums can react with calmagite. The products can be measured at a colorimetric readout at 520 nm.

**II. KIT COMPONENTS**

Component	Volume	Storage
96-Well Microplate	1 plate	
Dye Reagent I	Powder x 1	4 °C
Dye Reagent II	11 ml x 1	4 °C
Dye Reagent III	Powder x 1	4 °C
Reaction Buffer	5 ml x 1	4 °C
Standard (10 mmol/L)	1 ml x 1	4 °C
Technical Manual	1 Manual	

**Note:**

**Dye Reagent I:** add 1.5 ml distilled water to dissolve before use.

**Dye Reagent III:** add 1.5 ml distilled water to dissolve before use.

**III. MATERIALS REQUIRED BUT NOT PROVIDED**

1. Microplate reader to read absorbance at 520 nm
2. Distilled water
3. Pipettor
4. Pipette tips
5. Mortar
6. Centrifuge
7. Timer



**IV. SAMPLE PREPARATION**

1. For serum and other biological fluids sample

Detect directly.

**V. ASSAY PROCEDURE**

Add following reagents into the microplate:

<b>Reagent</b>	<b>Blank</b>	<b>Standard</b>	<b>Sample</b>
Reaction Buffer	50 $\mu$ l	50 $\mu$ l	50 $\mu$ l
Dye Reagent I	15 $\mu$ l	15 $\mu$ l	15 $\mu$ l
Dye Reagent II	110 $\mu$ l	110 $\mu$ l	110 $\mu$ l
Dye Reagent III	15 $\mu$ l	15 $\mu$ l	15 $\mu$ l
Mix well.			
Distilled water	10 $\mu$ l	--	--
Standard	--	10 $\mu$ l	--
Sample	--	--	10 $\mu$ l
Mix, measured at 520 nm and record the absorbance.			



**VI. CALCULATION**

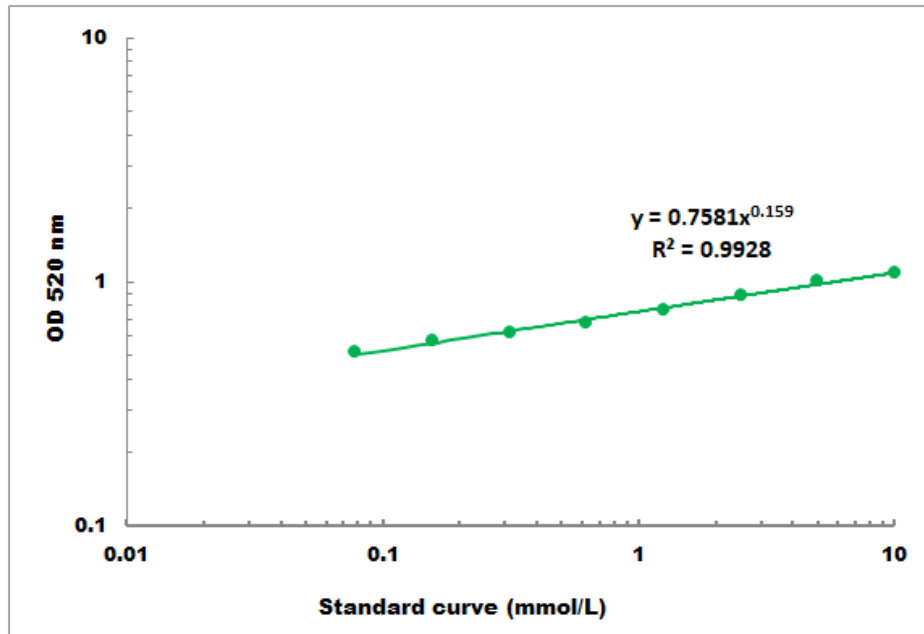
1. According to the serum sample

$$\begin{aligned} \text{Mg}^{2+} (\text{mmol/L}) &= C_{\text{Standard}} \times (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Blank}}) / (\text{OD}_{\text{Standard}} - \text{OD}_{\text{Blank}}) \\ &= 10 \times (\text{OD}_{\text{Sample}} - \text{OD}_{\text{Blank}}) / (\text{OD}_{\text{Standard}} - \text{OD}_{\text{Blank}}) \end{aligned}$$

$C_{\text{Standard}}$ : the concentration of Standard, 10 mmol/L.

**VII. TYPICAL DATA**

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



Detection Range: 0.1 mmol/L - 10 mmol/L