



Maintenance-free analyzer



Single-use cartridge



Integrated barcode reader and printer



Including ionized magnesium (iMg<sup>2+</sup>)



K<sup>+</sup>

Na<sup>+</sup>

Cl<sup>-</sup>

iCa<sup>2+</sup>

iMg<sup>2+</sup>

# ELECTROLYTE ANALYZER

# Electrolyte Analyzer

- ◆ Maintenance-free: No fluid pipe inside the device, no reagent pack required
- ◆ Easy to use: Convenient bedside testing with whole blood
- ◆ Fast, Lab-quality results: Provides accurate results in approximately 5 minutes, auto-calibration before each test
- ◆ Portable: Size: 240 × 120 × 110 mm  
Weight: 1.5 ± 0.2 kg (including battery)
- ◆ Including ionized magnesium (iMg<sup>2+</sup>): Used for hypomagnesemia and hypermagnesemia monitoring



## Electrolyte Cartridge

- ◆ "5 in 1" cartridge: Concurrently tests 5 parameters: K<sup>+</sup>, Na<sup>+</sup>, Cl<sup>-</sup>, iCa<sup>2+</sup> and iMg<sup>2+</sup>, addressing more comprehensive clinical needs
- ◆ No risk of sample contamination: Dry chemistry method, single-use cartridge eliminates the risk of contamination

## Parameters



**Potassium (K<sup>+</sup>):** Even small changes in extracellular K<sup>+</sup> concentration will have significant effects on the transmembrane potential gradient, and thereby the function of neuromuscular and cardiac tissues.<sup>[1]</sup>

**Sodium (Na<sup>+</sup>):** As the most abundant extracellular fluid solute, Na<sup>+</sup> is the major determinant of its osmolality and thereby the principal determinant of water distribution between the intracellular and extracellular compartments.<sup>[2]</sup> This highlights the role of Na<sup>+</sup> in the maintenance of blood volume and thereby blood pressure.

**Chloride (Cl<sup>-</sup>):** As the second most abundant extracellular fluid ion after Na<sup>+</sup>, and the most abundant extracellular fluid anion, Cl<sup>-</sup> is essential for the maintenance of normal plasma osmolality.<sup>[3]</sup>

**Ionized Calcium (iCa<sup>2+</sup>):** The maintenance of iCa<sup>2+</sup> within normal limits is not only important for the structural integrity of bones but for a range of physiological functions, including: hemostasis, cardiac and skeletal muscle cell contraction, neuromuscular transmission and action of many hormones (calcium-signaling).<sup>[4]</sup>

**Ionized magnesium (iMg<sup>2+</sup>):** iMg<sup>2+</sup> relates to the stabilization of intracellular potassium, which ensures the normal functionality of myocardium, nerve and muscle.

# Performance

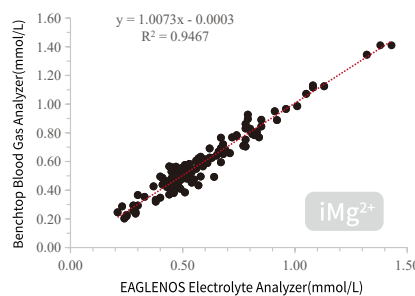
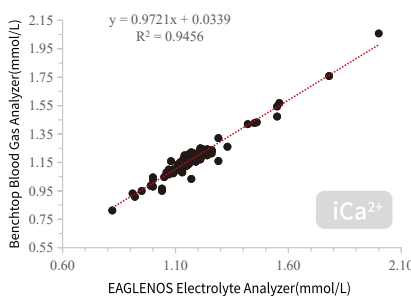
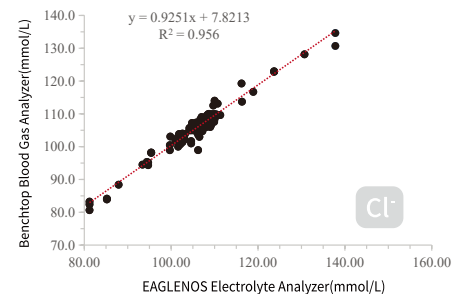
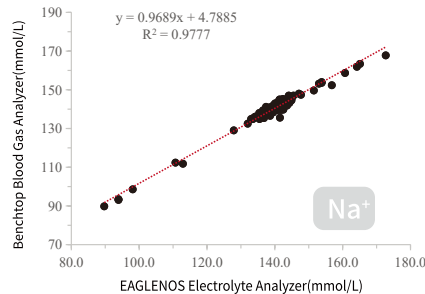
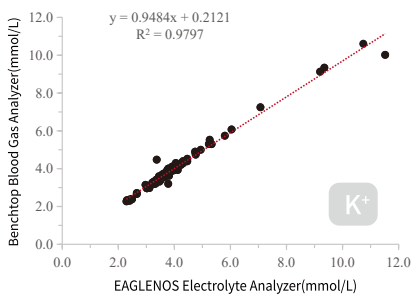
Parameter	Accuracy	Precision	Stability	Test Range (mmol/L)
K <sup>+</sup>	±3.0%	≤1.5%	≤2.0%	1.0-15.0
Na <sup>+</sup>	±3.0%	≤1.5%	≤2.0%	100-200
Cl <sup>-</sup>	±3.0%	≤1.5%	≤2.0%	65-160
iCa <sup>2+</sup>	±5.0% or ±0.05 mmol/L	≤1.5%	≤3.0%	0.25-4.00
iMg <sup>2+</sup>	±5.0% or ±0.05 mmol/L	≤3.0%	≤3.0%	0.2-1.5

\*Study conducted in 2020. Data on file, Eaglenos Co., Ltd.

## Accuracy Comparison

The accuracy of Eaglenos Electrolyte Analyzer has been validated by comparing with the wet chemistry blood gas biochemical analyzer (using 136 sets of samples). The linear regression analysis shows a strong positive, linear relationship between the results of the two analyzers ( $R^2 > 0.94$  for all parameters), demonstrating the accuracy of our analyzer for testing K<sup>+</sup>, Na<sup>+</sup>, Cl<sup>-</sup>, iCa<sup>2+</sup> and iMg<sup>2+</sup> concentration.

### Correlation with Benchtop Blood Gas Analyzer



# Applications



Emergency Department  
Monitoring of electrolytes in critically ill patients with poisoning, coma and convulsions



ICU  
Monitoring of electrolytes in critically ill patients



Surgery  
Monitoring of electrolytes during operation



Anesthesiology Department  
Monitoring of electrolytes during surgical anesthesia (preoperative, intraoperative and postoperative)



Dermatology Department  
Monitoring of electrolytes in patients with severe trauma, burn and scald



Gastroenterology Department  
Monitoring of electrolytes in patients with diarrhea and vomiting accompanied by coma



Nephrology Department  
Monitoring of electrolytes for patients in dialysis ward



Primary Medical Institution  
Electrolytes test

# How to Use



**Step 1:** Scan the barcode on the cartridge pouch and take out the cartridge from its pouch



**Step 2:** Fill the inlet with sample to the fill mark and slide the cap to seal the inlet



**Step 3:** Insert the cartridge into the analyzer until it clicks. Wait for the results

For in vitro diagnosis only.

If you need to know the intended use of the product, precautions and contraindications, please refer to the instructions.

This material is intended for academic exchange and training of professionals only.

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### References

[1]Zull DN. Disorders of potassium metabolism. Emerg Med Clin North Am 1989, 7, 4: 771-94.

[2]Wennecke G. Useful tips to avoid preanalytical errors in blood gas testing: electrolytes. [www.acutecaretesting.org](http://www.acutecaretesting.org) Oct 2003

[3]Berend K, Hulsteijn L, Gans R. Chloride: the queen of electrolytes. Eur J Intern Med 2012; 23: 203-11.

[4]Ramasamy I. Recent advances in physiological calcium homeostasis. Clin Chem Lab Med 2006; 44: 237-73.

