



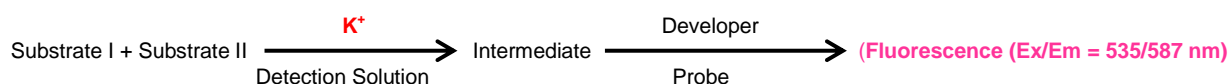
Potassium (Serum) Detection Assay Kit (Fluorometric)

(Catalog # K940-100; 100 assays; Store at -20°C)

rev 03/20

I. Introduction:

Potassium (K^+) is an essential micronutrient that regulates osmotic balance in the body along with sodium, calcium, magnesium, chloride and phosphate. It is required for various body functions such as muscle contraction, neural impulses and also as a co-factor for several enzymes. Blood potassium level is tightly regulated and ranges between 3.5 - 5.2 mM for healthy adults. Hypokalemia (low potassium levels) can lead to hypertension, whereas hyperkalemia (high serum potassium level) indicates heart problems or kidney failure. **BioVision's Potassium Assay Kit** is a simple plate based assay kit for the measurement of potassium concentration in human serum samples. It is based on a potassium detection agent that is activated by potassium. The detection agent catalyzes a reaction between two substrates in presence of potassium, leading to the formation of an intermediate, which further reacts with the developer and oxidizes a non-fluorescent probe producing a strong, stable fluorescence signal. The rate of the reaction is proportional to the potassium concentration present in the sample and can be monitored at $Ex/Em = 535/587$ nm. Sodium concentrations of up to 10 fold that of potassium, do not interfere with the assay. However since serum has about 25-30 times higher sodium levels than potassium, it can slightly activate the potassium detection agent (although to a much lower extent than potassium). A sodium masking agent has been included in our kit, which prevents any activation caused due to sodium present in serum delivering highly specific for the detection of potassium. The kit can detect as low as 10 nmol of potassium per well and is linear up to 50 nmol.



II. Applications:

Measurement of potassium concentration in serum

III. Sample Type:

- Serum

IV. Kit Contents:

Components	K940-100	Cap Code	Part Number
K Assay Buffer	25 ml	WM	K940-100-1
K Substrate I	1 vial	Orange	K940-100-2
K Substrate II	1 vial	Purple	K940-100-3
K Detection Solution	1 vial	Blue	K940-100-4
K Developer	1 vial	Green	K940-100-5
K Probe	200 μ l	Red	K940-100-6
Sodium Masking Solution	500 μ l	White	K940-100-7
K Standard (5 mM)	500 μ l	Yellow	K940-100-8

V. User Supplied Reagents and Equipment:

- 96-well black plate with flat bottom
- Multi-well spectrophotometer

VI. Storage Conditions and Reagent Preparation:

Upon arrival, store the kit at -20°C, protected from light. Briefly centrifuge all small vials before opening. Read the entire protocol before performing the assay.

- **K Assay Buffer:** Warm to room temperature (RT) before use.
- **K Substrate I and Substrate II:** Reconstitute each vial with 220 μ l water each. Divide into aliquots and store at -20°C.
Note: If precipitates are observed while thawing the reconstituted reagents, the thawed vials may be incubated on a water bath at 37°C for 20-30 min (until the precipitates completely dissolves).
- **K Detection Solution and K Developer:** Reconstitute each vial with 220 μ l K Assay Buffer. Divide into aliquots and store at -20°C.
- **K Probe and Sodium Masking Solution:** Thaw at RT before use. Protect from light. Divide into aliquots and store the remaining stock at -20°C in dark.
- **K Standard (5 mM):** Thaw at RT before use. Divide into aliquots and store the remaining at -20°C.

VII. Potassium Detection Assay Protocol:

- 1. Sample preparation:** Serum samples can be used "as is" without any processing. We recommend using "off the clot" serum that is free from additives such as EDTA. Add up to 2.5 μ l sample into each well of a 96 well black plate. Serum may be diluted with K Assay buffer before addition to wells if higher than 10 mM potassium level is expected. Make up the volume to 50 μ l with K Assay Buffer.
- 2. Standard Curve Generation:** Add 0, 2, 4, 6, 8 and 10 μ l of the provided K Standard (5 mM) into a series of wells in a black 96-well plate to obtain 10, 20, 30, 40 and 50 nmol/ well. Adjust the volume of each well to 50 μ l with K Assay Buffer.
- 3. Reaction Mix:** Prepare reaction mix immediately before running the assay. Mix enough reagents for the number of assays to be performed. Add reaction Mix to all sample and Standard wells. For each well, prepare 50 μ l:
- 4.**

