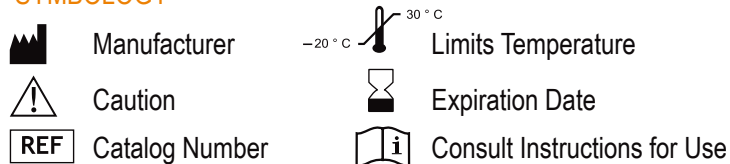


## HumPCR™ PV3 Detection Kit

## SYMBOLOLOGY



## 1. DESCRIPTION

Poliovirus is a type of enterovirus, meaning it enters through the oropharynx (mouth and nasal cavities) and then replicates in the submucosal tissues of the pharynx and the gastrointestinal tract. It is a small virus (27-30 nm) that lacks a viral envelope but has a capsid that surround its single-stranded, positive-sense RNA genome, which is about 7,500 nucleotides long. viremia occurs in 4-8% of individuals, and causes minor illness, including headache, sore throat, and fever. In rare cases, less than 1%, the viremia is persistent enough that the virus can enter the central nervous system. The three serotypes are thought to differ only slightly in structure. Structurally, it was been found that there are slight differences in the capsid proteins of each serotype. It is unknown whether these structural differences contribute, but it has also been observed that there are differences in virulence among the three serotypes. PV2 least commonly also known like “Leon” has not been seen since its 2012 detection in parts of Nigeria and Pakistan.

The HumPCR™ PV3 Detection Kit is the direct detection of Poliovirus 3 (PV3) on the basis of a genetic database, so it can diagnose very fast and accurately. It can amplify only specific gene using the PCR (Polymerase Chain Reaction) method, and take only 3 hours for detection. Therefore, it is a very fast, accurate, and reliable technique.

## 2. STORAGE

The HumPCR™ PV3 Detection Kit is shipped at room temperature (15–25°C) because contains a chemical stabilizer.

The HumPCR™ PV3 Detection Kit should be stored immediately upon receipt at –20°C in a constant temperature freezer. For routine use should be stored at 4°C. When stored under these conditions and handled correctly, these products can be kept at least until the expiration date without showing any reduction in performance.

## 3. KIT CONTENTS

KIT	48	96	
HumPCR™ PV3 RT-PCR Premixture	1	1	vial
HumPCR™ PV3 PCR Premixture	1	1	vial
Brig™ RT-PCR solution	1	1	vial
Biotech™ Transcriptase solution	1	1	vial
DNase/Rnase free water	1	1	vial
PV3 PCR Positive control	1	1	vial
PCR Negative control	1	1	vial
PCR Internal Control (white cap)	1	1	vial
Mineral Oil solution	1	2	vial
Brig™ Molecular Weight marker	1	1	vial
RNA purification Kit	50	100	test

## 4. MATERIALS

Materials required but not provided:

- Microcentrifuge and PCR tubes, Disposable gloves powderless, Pipettes, Sterile pipette tip, Vortex mixer, Centrifuge for microcentrifuge tubes, Thermal cycler, Tube racks, Electrophoresis kit, UV transilluminator, Biohazard waste container.

## 5. PROCEDURE

Please read through the entire procedure before starting.

## 5.1 RNA PREPARATION

This kit includes all reagents necessary for purification of RNA from different samples. Carry out the RNA isolation according to the instructions available inside the kit, the instructions also can be downloaded of our website [www.bioingentech.com](http://www.bioingentech.com). If you need an additional RNA Purification kit, use only the following kits that are standardized for the process: See Item

## 9. ADDITIONAL PRODUCTS.

Note: Completely thaw the components of the kit prior to use; homogenize the solutions for several seconds prior to pipetting.

## 5.2 PREPARATION OF PV3 RT-PCR MIXTURE

1) Prepare the reaction mixture for sample by combining the reagents as shown in the table 1. The final reaction volume should be 10.5µl.

Notes:

- The mineral oil is necessary, even when using a thermal cycler that employs a top heating method.

Table 1. Reaction components for RT-PCR

Kit components	Samples
HumPCR™ PV3 RT-PCR Premixture	4.5µL
DNase/RNase free water	4µl
RNA isolated from the sample	2µl
Mineral Oil Solution	11µl

2) Place the tubes in a thermal cycler and perform RT-PCR according to the program outlined in Table 2.

Table 2. RT-PCR cycling parameters

PCR cycle		Temp	Time
RT-PCR 1	1 cycle	Initial denaturation	65 °C    10 min.
	1 cycle	Stop	4 °C    5 min.
Add 1.0 µl of Brig™ RT-PCR solution			
Add 1.0 µl of Biotech™ Transcriptase solution			
RT-PCR 2	1 cycle	Annealing	25 °C    10 min.
	1 cycle	Extension	37°C    60 min.
	1 cycle	Denaturation	70 °C    10 min.

3) Prepare the reaction mixture for sample, positive control, negative control, and internal control by combining the reagents as shown in the table 3. The final reaction volume should be 13.5µl.

## Notes:

- Run a positive control, a negative control, and an internal control each 12 samples.
- The mineral oil is necessary, even when using a thermal cycler that employs a top heating method.

**Table 3. Reaction components for PCR**

KIT	Sample	Positive control	Negative control	Internal control
HumPCR™ PV3 PCR Premixture	5.5 µl	5.5 µl	5.5 µl	
PCR Internal Control (white cap)				5.5µl
DNase/Rnase free water	6 µl	6 µl	6 µl	6 µl
cDNA from the sample	2 µl			2 µl
PV3 PCR Positive control		2 µl		
PCR Negative control			2 µl	
Mineral Oil solution	11 µl	11 µl	11 µl	11µl

4) Place the tubes in a thermal cycler and perform amplification according to the program outlined in Table 4.

**Table 4. PCR cycling parameters**

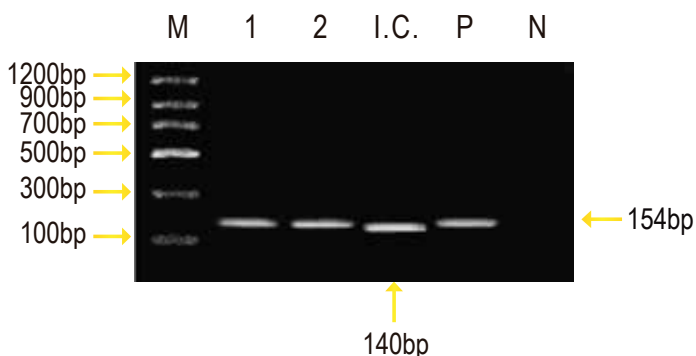
PCR cycle		Temp.	Time
1 cycle	Initial Denaturation	94°C	2 min.
30 cycles	Denaturation	94°C	30 sec.
	Annealing	57°C	30 sec.
	Extension	72°C	30 sec.
1 cycle	Final extension	72°C	5 min.

## 5.3 DETECTION OF AMPLIFIED PRODUCTS

- 1) Prepare 1.5% agarose gel containing Ethidium bromide (Et-Br).
- 2) Load 7µl of PCR product, 7µl of positive control, 7µl of negative control, 7µl of internal control and 2µl of Brig™ Molecular Weight marker on agarose gel without adding a loading-dye buffer and perform electrophoresis.
- 3) Run electrophoresis by 100V (required about 30~40 minutes).
- 4) Identify the result on ultra-violet (UV) transilluminator.

## 5.4 INTERPRETATION OF THE TEST RESULTS

- Expected PCR product size: 154bp



**Fig. 1 Results:**

Lane M: Brig™ Molecular Weight Marker (Bioingentech Ltd.)  
 Lane 1~2: PV3 Positive samples  
 Lane I.C.: Internal control  
 Lane P: Positive control  
 Lane N: Negative control

## 6. TROUBLESHOOTING

- 1.No band in positive control
  - Check Internal control band: If internal control band is seen, PCR has been performed properly.
  - Check PCR machine: check the temperature and make sure to check that the machine is working properly.
- 2.No internal control band
  - Check template cDNA concentration: Competition can occur by high template concentration. Proceed with a lower concentration of cDNA.
  - Check template RNA quality: Even though RNA is isolated from the sample, the RT-PCR reaction can be inhibited depending on RNA purity in some cases. In this case, extracted RNA should be diluted 10 times with distilled water and used to run the RT-PCR reaction again. If still no band is seen, please inquire with our technical support staff.
- 3.Amplicon bands in the negative control
  - Check contamination of distilled water: Distilled water can be contaminated. Perform PCR again with fresh sterile water.
  - Check contamination of laboratory instruments and other environments: We recommend that you use filter tips and a pipette after sterilization to reduce contamination. Proceed with all procedures on a clean bench and keep the location where you procedures are performed sterile.
- 4.Poor resolution on agarose gel
  - We recommend using a 1.5~2% agarose gel and run electrophoresis for 40 minutes at 100 V.

## 7. TECHNICAL ASSISTANCE

At Bioingentech we pride ourselves on the quality and availability of our technical support. Our Technical Service Departments are staffed by experienced scientists with extensive practical and theoretical expertise in molecular biology and the use of Bioingentech products. If you have any questions or experience any difficulties regarding Bioingentech Genomic RNA Detection Kits or Bioingentech products in general, please do not hesitate to contact us.

## 8. SAFETY INFORMATION

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate material safety data sheets (MSDS), available online in our website, where you can find, view, and print the MSDS for each Bioingentech kit and kit component.

## 9. ADDITIONAL PRODUCTS

Product	Product Code	Manufacturer
Bioingentech™ Genomic RNA Purification Kit (50 test)	PU-A004	Bioingentech
Bioingentech™ Genomic RNA Purification Kit (100 test)	PU-A005	Bioingentech

Product use limitations warranty disclaimer

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Products may be covered by pending or issued patents or may have certain limitations. Please visit our web site for more information.

All prices and specifications are subject to change without prior notice.

Product claims are subject to change. Please contact Bioingentech technical services or access the Bioingentech online catalog for the most up-to-date information on Bioingentech products.