







VetPCR™ R.prowazekii Detection Kit

SIMBOLOGY

 Manufacturer
 Caution
 Catalog Number

 Limits Temperature
 Expiration Date
 Consult Instructions for Use

1. DESCRIPTION

Rickettsia prowazekii causes epidemic typhus in humans and possibly cattle, sheep and goats. This obligate intracellular bacterium has been found worldwide. Foci of disease exist in many countries in Asia, central and east Africa, and the mountainous regions of Mexico, Central and South America. Transmission of epidemic typhus occurs by arthropod vectors. The primary vector in person to person transmission is the human body louse (Pediculus humanus corporis). In the United States, flying squirrels also serve as a reservoir host. VetPCR™ R.prowazekii Detection Kit is the direct detection of Rickettsia prowazekii 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 VetPCR™ R.prowazekii Detection Kit is shipped at room temperature (15–25°C) because contains a chemical stabilizer. The VetPCR™ R.prowazekii 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 | |
|-----------------------------------|----|-----|------|
| VetPCR™ R.prowazekii Premixture | 1 | 1 | vial |
| PCR Internal Control (white cap) | 1 | 1 | vial |
| DNase/RNase free water | 1 | 1 | vial |
| R.prowazekii PCR Positive control | 1 | 1 | vial |
| PCR Negative control | 1 | 1 | vial |
| Mineral Oil Solution | 1 | 1 | vial |
| Brig™ Molecular Weight marker | 1 | 1 | vial |
| DNA 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 DNA PREPARATION

This kit includes all reagents necessary for purification of DNA from different samples. Carry out the DNA isolation according to the instructions available inside the kit, the instructions also can be downloaded of our website www.bioingentech.com. If you need an additional DNA 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 R.prowazekii PCR MIXTURE

1) Prepare the reaction mixture for sample, positive control, negative control, and internal control by combining the reagents as shown in the table 1. 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 1. Reaction components for PCR

| Kit components | Sample | Positive control | control | Internal control |
|-----------------------------------|--------|------------------|---------|------------------|
| VetPCR™ R.prowazekii Premixture | 5.5µL | 5.5µL | 5.5µL | |
| PCR Internal control (white cap) | | | | 5.5µL |
| DNase/RNase free water | 6µl | 6µl | 6µl | 6µl |
| DNA isolated from the sample | 2µl | | | 2µl |
| R.prowazekii PCR Positive control | | 2µl | | |
| PCR Negative control | | | 2µl | |
| Mineral Oil Solution | 11µl | 11µl | 11µl | 11µl |

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

Table 2. PCR cycling parameters

| PCR cycle | | Temp. | Time |
|-----------|----------------------|-------|---------|
| 1 cycle | Initial Denaturation | 94°C | 2 min. |
| 30 cycles | Denaturation | 94°C | 30 sec. |
| | Annealing | 56°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 : 277bp

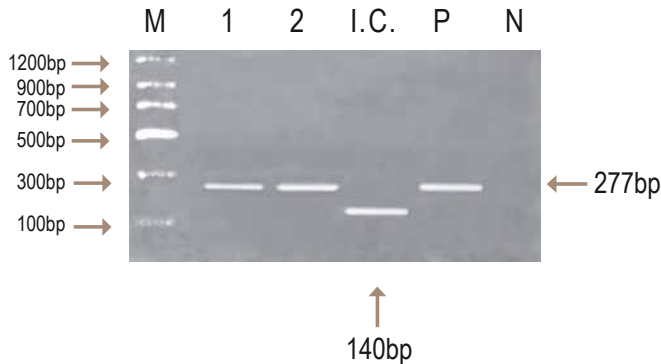


Fig. 1 Result:

Lane M: Brig™ Molecular Weight Marker (Bioingentech Ltd.)

Lane 1~2: R.prowazekii Positive samples

Lane I.C.: Internal control

Lane P: Positive control

Lane N: Negative control

6. TROUBLESHOOTING

1) No band in positive sample

- Check Internal control band: If internal control band is seen, PCR has been performed properly. It is not a problem of the product.
- Check template DNA quality: the PCR reaction can be inhibited depending on DNA purity in some cases. In this case, extracted DNA should be diluted 10 times with DNA rehydration solution and used to perform PCR again.
- Check PCR machine: check the temperature and make sure to check that the machine is working properly.

2) No internal control band

- Check template DNA concentration: Competition can occur by high template concentration. Proceed with a lower concentration of DNA.
- Check template DNA quality: Even though DNA is isolated from the sample, the PCR reaction can be inhibited depending on DNA purity in some cases. In this case, extracted DNA should be diluted 10 times with distilled water and used to run the 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 DNA 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 DNA Purification Kit (50 test) | 230041(50) | Bioingentech |
| Bioingentech™ Genomic DNA Purification Kit (100 test) | 230041(100) | Bioingentech |

Product use limitations warranty disclaimer

2004 – 2013 Bioingentech corporation. All rights reserved.

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.