

Lot-No.

## MANUAL – one step

**Ref. K772**

100 Tests (Ready to use kit)

**Expiry time: 1 year**

**STORE AT -20°C**

BRUCELLA GENUS

**-Only for in vitro use-**

**-Only for research use (human)-**

**-Only for veterinary use-**

**-To be used by a technical person-**

### **Principle and use:**

This amplification kit has been manufactured by *Genekam Biotechnology AG*, Germany to detect Brucella genus (in one step).

This kit needs DNA which can be isolated from blood, milk, aborted fetus, culture, vaginal swabs, tissue and any body fluid. Kindly use good methods to isolate the DNA.

Safety precautions should be taken as Brucella genus may be infectious for human beings. Always clean your hands before the test use and clean the hands after the test. Wash your face after the test, if possible. Disinfect your working place.

### **Composition:**

It contains the following:

- Tube A (2 tubes)
- Tube B (2 tubes)
- Positive (+Ve) Control (D1) (1 tube)
- Negative (-Ve) Control (D2) (1 tube)
- Marker (tube E) (1 tube) (max 1000 bp ): 100, 150, 200, 300, 400, 500, 600, 700, 800, 900, 1000 bp
- Dye (tube F) (1 tube)

Please check them before you start.

### **Equipment needed:**

- PCR Thermocycler
- Laboratory centrifuge
- UV platform
- UV safety goggles
- microtubes (0.2ml)
- Pipette-tips with and without filter (20µl, 5µl & 1µl)
- Pipettes (quality pipettes)
- Gel Agarose chamber
- Power supply
- Paper
- Pen
- Agarose (good quality)
- Staining (Ethium Bromide)
- TAE buffer 1x
- Ice
- Vortexer

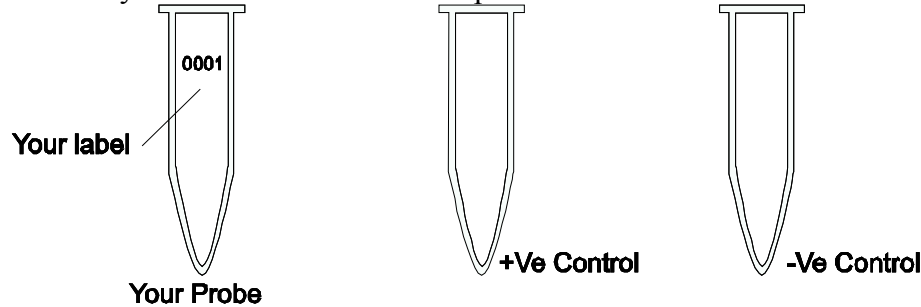
**Procedure:**

After your DNA isolation is completed. (Kindly use good quality isolation method).

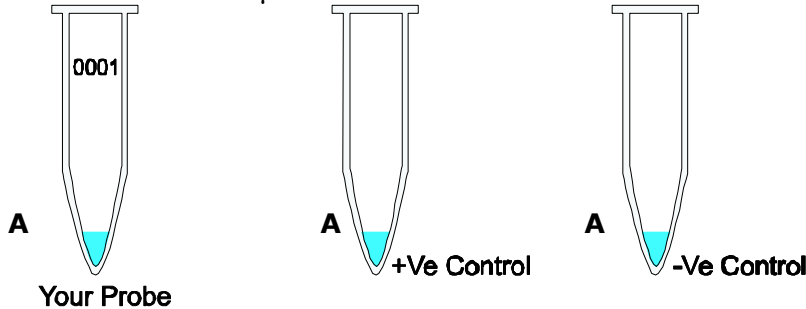
**STEP A**

1. Kindly thaw **one tube** each of A, B, D1, D2, E and F. After thawing, kindly put the tubes at 4°C (as it is better). If the kit is not in use, store them at -20°C.

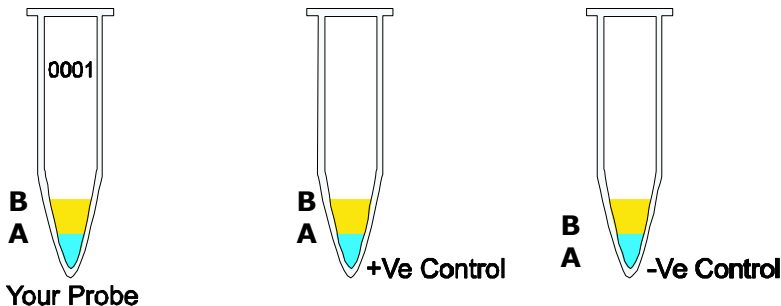
2. Mark your microtubes with a sample number and with +Ve Control and -Ve Control.



3. Thaw tube A. Add 8µl of tube A to each tube.

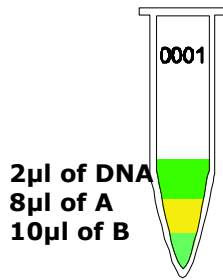


4. Add 10µl of B to each microtube. Avoid to touch the wall of the microtubes.

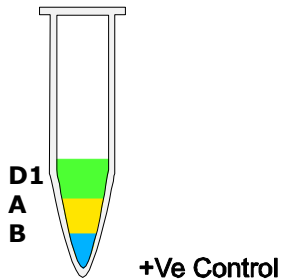


**TIP:** you can calculate the total requirement of chemicals needed . You need 8µl A + 10µl B = 18µl per reaction. You want to run 10 reactions i.e. you need total 180µl, therefore you should mix 80µl of A + 100µl of B = 180µl from which you can take 18µl and add to each tube. This way you can save time and hardware.

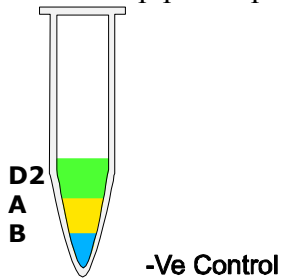
5. Add 2µl of your DNA template (DNA isolated from samples) with pipette tip with filter to each microtube according to your label except +Ve and -Ve (Avoid touching the wall). Use **everytime a new pipette tip** (for each sample)! Mix it.



6. Use new pipette tip with filter. Add 2µl of +Ve (tube D1) to +Ve Control (avoid to touch the wall). Use a new pipette tip. Mix it.

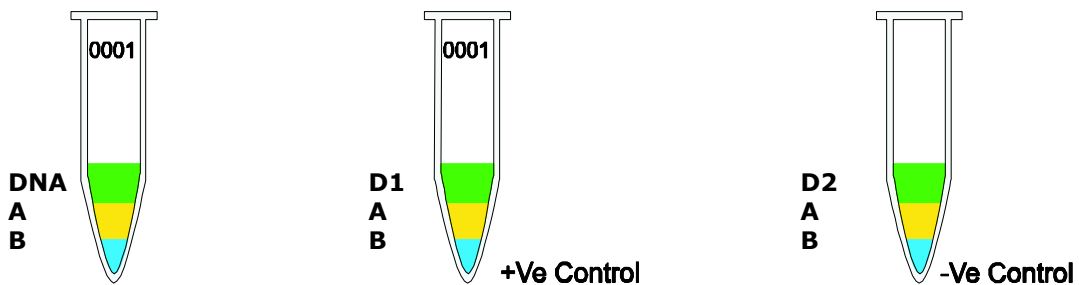


7. Use a new pipette tip. Add 2µl of -Ve (Tube D2) to -Ve Control (avoid the wall). Mix it.



8. Centrifuge all tubes for 20 sec. for 8000 rpm (this is not necessary but it is better).  
 Run PCR now.

9. Run the program of your thermocycler as followings: Kindly check whether you have added everything correctly as the level of the volume of each tube must be almost the same.



Now program your PCR machine as follows.

1. 75 seconds at 95°C  
 120 seconds at 55,5 °C  
 120 seconds at 72°C
  2. 300 seconds for 72°C
- } x 35 cycles

Before you start the PCR program, kindly check whether tubes are closed properly.

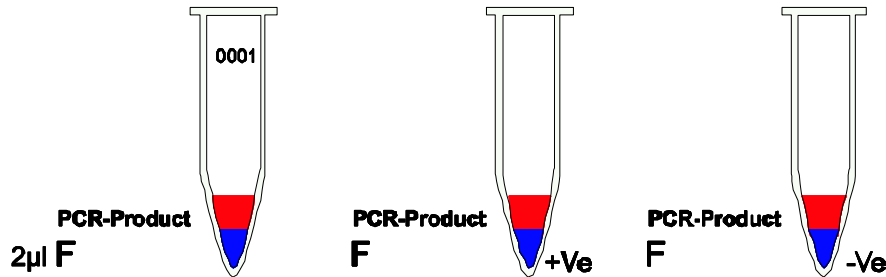
**Microtubes must be in contact with metal block** (very important!). There should be no air or lose contact with metal block of thermocycler. Run PCR now.

10. After step 9 is finished take out the microtubes.

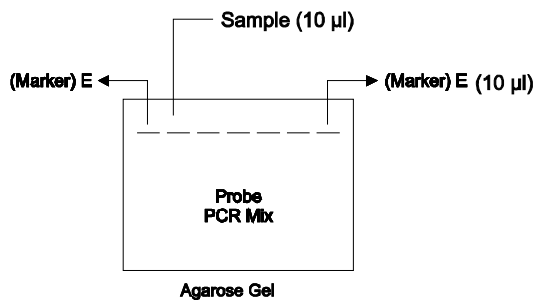
To see Brucella genus, you can go directly to step gel electrophoresis (STEP B).

## STEP B

1. Prepare the gel Agarose 1.5% in TAE (1x) buffer.
2. Let the gel dry and add this TAE (1x) buffer in gel chamber.
3. Take the tube E (marker). Make ready to use for gel electrophoresis.
4. After the PCR step is finished, now you can prepare for gel Agarose electrophoresis. Take 2µl of dye (tube F) and add to each microtube (with the same number as your PCR microtubes including +Ve & -Ve Controls) containing PCR product.



5. Add 10µl of marker (tube E: 100bp) to first and last lane of electrophoresis. (Kindly make lane plan on paper according to your probes in order to identify later and see the results).



6. Add 10µl of mix of step 4 to each lane of gel Agarose (between first and last lane). Change the pipette tip for each lane.
7. Run the gel for **60 min.** at **100 Volt.**
8. Make staining solution ready.
9. Put the gel for 5-15 minutes staining solution (0.5µg/ml).
10. View the gel under UV light. UV light is dangerous for your eyes. Use UV goggles.
11. You must find the band in +Ve Controls and no bands in -Ve controls. (842 bp in +Ve sample for Brucella genus and positive samples). **There may be some non-specific bands in some cases, but one should look for specific bands. Gene sequencing is recommended !**

**Recommendation: gene sequencing is highly recommended to reconfirm the positive results.**

**If you should find any mistakes, please let us know. Thank you.**

### Suggestion:

This manual has been written specifically for beginners, hence persons with experience in PCR must use their experience to keep each step as small as possible e.g. you should calculate the amount of the needed chemicals, before starting with testing.

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