PCR Detection Kit for Chlamydia psittaci

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Product code: 56166

Product Introduction

Chlamydia psittaci, also known as*Chlamydophila psittaci*, is an obligate intracellular parasitic prokaryote in the family Chlamydiaceae. It has a broad host range that includes many bird species, such as parrots, as well as many mammals.

*Chlamydia psittaci*can be transmitted through direct contact, bird droppings, nasal secretions, and aerosols. It can cause respiratory disease in birds and mammals and may remain infectious in the environment for several months. Human infection is generally acquired from domestic or wild birds. Infection may be asymptomatic or flu-like, and in some cases may progress to severe pneumonia, endocarditis, or encephalitis. Human-to-human transmission remains to be confirmed.

Culture and serological methods can be used to detect*Chlamydia psittaci*, but culture methods are time-consuming and require specialized skills and equipment. Serological methods may cross-react with other chlamydiae and may have low sensitivity, making them unsuitable for early infection detection.

PCR is an in vitro enzymatic method for synthesizing specific DNA fragments. It is suitable for detecting*Chlamydia psittaci*because it offers high sensitivity, strong specificity, and rapid detection, typically requiring only two to three hours. Compared with conventional PCR, quantitative PCR enables precise quantification, is easier to operate, and is less affected by environmental contamination.

This kit uses primers designed for the 16S-23S rRNA gene interval sequence to specifically recognize*Chlamydia psittaci*. BLAST verification showed no cross-reaction with other biological genomes. Testing with 9 different chlamydiae, 20 bacteria, and 4 viruses that may cause similar symptoms detected no nonspecific signal. Testing of 327 avian samples yielded 47 positive results.

Product Packing List

Product Code	Component	20T	50T
56166.1	Component A	250 µL	625 µL
56166.2	Component B	50 µL	125 µL
56166.3	Component C	50 µL	125 µL
56166.4	Pure Water	200 µL	500 µL
56166.m	Manual	1 copy	1 copy

Quality Standards and Safety Instructions

Raw Material and Packaging Name	Quality Standard	Main Toxicity
Component A	--	--
Component B	--	--
Component C	--	--
Pure Water	--	--

Transportation and Storage

Transportation	Transport with ice packs.
Storage	Store at -20°C. Shelf life: 1 year.

Instructions for Use

1. Use DNA extracted from samples such as swabs or tissue with a DNA extraction kit. Measure the DNA concentration and purity before use in PCR experiments.
2. Thaw each kit component at room temperature and protect from light. Gently tap the bottom of each tube with a finger to mix, then briefly centrifuge to collect the liquid at the bottom of the tube. Do not vortex.
3. Prepare a 25 μL reaction volume according to the table below. Each experiment requires one negative control and one positive control, and may include multiple test reaction tubes.

After Components A and B are mixed thoroughly, aliquot the mixture into PCR tubes, then add water, and finally add the DNA sample or Component C. Wear a mask during preparation and avoid vigorous operation to prevent aerosol-induced cross-contamination between samples. Operation in airflow-controlled equipment, such as a clean bench or biosafety cabinet, is recommended. After preparation, briefly centrifuge to collect the liquid at the bottom of the tube.

Component	Negative Control Tube	Positive Control Tube	Test Reaction Tube
Component A (μL)	12.5	12.5	12.5
Component B (μL)	2.5	2.5	2.5
Component C (μL)	-	2.5	2.5 / 0
Pure Water (μL)	10	7.5	5.5 / 8
Test Sample (μL)	-	-	2
Total Volume (μL)	25	25	25

Adding Component C to the test reaction tube can determine whether the test sample contains PCR inhibitors. If bands at 301 bp and/or 549 bp appear after Component C is added to the sample reaction, there are no PCR inhibitors. If no band appears, PCR inhibitors may be present, and false-negative results should be considered.

Reaction Conditions

Step	Temperature	Time	Cycles
Initial denaturation	95°C	4 minutes	1
Denaturation	95°C	15 seconds	45
Annealing	60°C	30 seconds	45
Extension	72°C	40 seconds	45

Agarose Gel Electrophoresis

1. Prepare a 2% agarose gel by the conventional method and add EB or another suitable stain for visualization.
2. Load 8 μL of each reaction mixture directly into the gel well. Loading buffer does not need to be added.
3. Reserve one well for a DNA marker, preferably with visible bands in the 300-550 bp range.
4. Run electrophoresis at 120 V for approximately 20 minutes.
5. Observe the electrophoresis results under ultraviolet light.

The positive control should show a band at 549 bp. The negative control should show no band. The*Chlamydia psittaci*target band is at 301 bp.

Precautions

1. Component A contains dye. The dye does not affect the PCR reaction, and the reaction product can be used directly for electrophoresis.
2. When preparing the reaction system, use larger-volume pipetting where possible. Larger volumes reduce pipetting error.
3. PCR is highly sensitive. Trace aerosols generated during operation can cause cross-contamination between samples. Handle carefully and avoid vigorous operation.
4. When adding liquid, place the pipette tip against the tube wall where possible. Cap all tubes immediately after use, and add controls and test samples in the final step.
5. Discard pipette tips that have contacted samples immediately after use to minimize contamination risk.
6. Use uncontaminated disposable tips, preferably filter tips, and operate in a ventilated, clean area.
7. For long-term use of this product, use filter tips and take care to avoid environmental DNA contamination of the tips.

8. Wear powder-free gloves during operation.
9. It is best to divide the work area and separate different steps, such as DNA extraction and PCR reaction mixture preparation, into different stages and different areas.
10. This product is for research use only and is not intended for diagnostic use.