LAMDA BIOTECH

PRODUCT INFORMATION

Catalog No.: D302-100 & D302-1000

Product Name: **Plant-Direct™ PCR Kit**

Description: **Plant-Direct™ PCR Kit** contains all the reagents needed for quick preparation of plant genomic DNA and PCR amplification with the prepared DNA samples. Any plant tissues can be used such as leaf, stem, root or cultured plant tissues. This kit can be applied to any plant species as long as correct primers are used. The PCR products can be directly loaded onto agarose gel without addition of loading dye for visualization of the experimental results.

Kit Contents:	D302-100	D302-1000
Size:	100 rxns	1000 rxns
DNA Prep Solution:	10ml	2x50ml
2X Direct-PCR Mix:	1ml	10x 1ml

Storage: The whole kit can be stored at 4°C for up to three months or at -20°C for long-term.

General Protocol

I. DNA Sample Preparation:

1. Place the sample into a PCR tube.
   - For plant leaf, stem or root, use a small piece of tissue 1-3mm in length or diameter
   - Or no more than: 1-3mg in weight
   - Or about the size of a sesame seed of plant material
   - Other plant samples: similar amount or volume as above

2. Add 100µl of the **DNA Prep Solution** into the tube containing the sample.

3. Heat the sample for 10 minutes at 95°C in a PCR machine.

4. Take out the sample and mix a few times. The sample is now ready for PCR. **Optional**: the sample can be centrifuged briefly and use the supernatant for PCR. Avoid any undigested tissue or debris.

II. PCR Amplification:

1. To set up the PCR reaction, add the following reagents to a PCR tube or PCR plate, for example:

2X Direct-PCR Mix:	10µl
Primers:	1µl
Sample:	1µl
Water:	8µl
Total volume:	**20 µl**

Note:

A. If needed, scale up your PCR according to your specific case, such as using 50 µl as PCR reaction volume. However, always use half of your PCR volume for the 2X Direct-PCR Mix.

B. When large numbers of samples are processed with same primers the 2X Direct-PCR Mix, water and primers can be premixed and aliquoted.

2. Mix the PCR reaction gently avoid creating foam or bubbles. A brief centrifugation may be needed to collect the reaction mix to the bottom of the PCR tube or plate.

3. Perform the PCR thermal cycling. The following table is a typical example of a PCR.

Step	Temperature	Time	Cycles
Initial Denature	95°C	3 min	1
Denature	95°C	0.5-1 min	30-35
Annealing	50-65°C	0.5-1 min	
Extension	72°C	1 min/kb	
Final Extension	72°C	7 min	1
Hold	4°C	∞	

4. After PCR, the amplified products can be directly loaded onto an agarose gel for checking the results.

Troubleshooting: Problems and Solutions

Q1. Samples are not completely digested or dissolved.

A1. Samples are not expected to be digested or dissolved completely. Do not worry. Sufficient DNA will be released for PCR without complete digestion of the samples.

Q2. Little or no PCR product is detected.

A2. General Solution:

a) Make sure that there were no PCR components missed.
b) More PCR cycles may be needed.
c) Primers may not be designed optimally.
d) Try different annealing temperature and extension time or use a touchdown PCR program.
e) Too much sample may have been used, in that case the samples can be easily diluted 10 times with H_2O or 10mM Tris-HCl buffer, pH 8.5.

f) If you have tried all above and it is still not working, read the Specific Solution below.

A2. Specific Solution: Some templates and primers are difficult for PCR. If you have tried changing all the possible PCR parameters and your PCR is still not working well, we recommend that you try our **Conquest™ Genotyping PCR Optimizing Kit** (**Cat. No. D911**). This kit has successfully performed PCR on many tough PCR templates and primers. The Master Mixes within the **Conquest™ Genotyping PCR Optimizing Kit** are formulated with multiple thermal DNA polymerases and pre-optimized PCR buffers and enhancers. It is in four different ready-to-use 2X format combinations. Using this **Conquest™ Genotyping PCR Optimizing Kit** simplifies the process to determine optimal conditions for each unique combination of template and primers. You will easily find a specific Master Mix that works well with your templates and primers.

Q3. High background or multiple PCR products.

A3. Adjust your annealing temperature or use touchdown PCR program.

Q4. Negative control shows PCR product or false positive result.

A4. Reagents or your samples may be contaminated.

END