# Omni Sample Direct PCR Kit

**Catalog Number:**

CW3010S (100 rxns)
CW3010M (500 rxns)

**Storage Condition:**

-20°C.

**Kit Components:**

| Component | CW3010S (100 rxns) | CW3010M (500 rxns) |
|---|---|---|
| Lysis Buffer A | 5 ml | 5× 5 ml |
| Stable Buffer B | 5 ml | 5× 5 ml |
| 2× Omni PCR MasterMix | 1 ml | 5× 1 ml |
| $ddH_2O$ | 1 ml | 5× 1 ml |

## Product Introduction:

This product is a master mix composed of a novel DNA Polymerase of high amplification efficiency, Mg2+, dNTPs, PCR stabilizers, and PCR enhancers at a concentration of 2×. The DNA polymerase is capable of the direct amplification of DNA from the lysate without the need of DNA extraction. The 2× Omni PCR MasterMix makes the whole reaction system very stable with one-time PCR success rate of more than 98%. At the same time, complicated templates can be effectively amplified, and human error and contamination can be minimized. It is mainly used for genotyping, real-time PCR, and multiplex PCR.

## Quality Control:

No exogenous nuclease activity was detected; No host DNA was detected by PCR; Single copy genes in multiple genomes could be efficiently amplified.

## Protocol:

1. Sample Preparation:

   The kit can be used for a variety of samples. Lyse samples according to the following table. The actual operation may be optimized based on the sample type and amount.

| Sample | Amount | Lysis Buffer A | 3-min incubation | Stable Buffer B |
|---|---|---|---|---|
| Blood | 2 µl | 20 µl | R.T. | 20 µl |
| Cells | 2000 | 20 µl | R.T. | 20 µl |
| Swab | 1 | 400 µl | 95°C | 400 µl |
| Mouse tail/ear | 1-2 mm | 50 µl | 95°C | 50 µl |
| Tissue | 1-2 mm | 50 µl | 95°C | 50 µl |
| Hair follicle | 2-5 | 50 µl | 95°C | 50 µl |
| Leaf | 2-4 mm | 50 µl | 95°C | 50 µl |
| Seed | 2-3 mm/2-5 mg | 50 µl | 95°C | 50 µl |
| Paraffin section | 2-3 (10 µm) | 200 µl | 95°C | 200 µl |

2. PCR reaction system:

   The following is an example of a PCR reaction system and reaction conditions for amplifying a 1 kb fragment using human genomic DNA as the template. The actual operation should be based on the template, the primers, and the size of the target fragment.

| Reagent | 20 µl | Final Conc. |
|---|---|---|
| 2× Omni PCR MasterMix | 10 µl | 1× |
| Forward Primer, 10 µM | 1 µl | 0.5 µM[1)] |
| Reverse Primer, 10 µM | 1 µl | 0.5 µM[1)] |
| Lysate | 1-2 µl[2)] | |
| dd$H_2O$ | up to 20 µl | |

**Note:**

1) The range of the final concentration of the primer is 0.1-1.0 µM. When the amplification efficiency is low, the concentration of the primer can be increased; when a non-specific reaction occurs, the concentration of the primer can be reduced, thereby optimizing the reaction.

2) Optimze the amount of the lysate and increase lysate to 2 µl for complicated DNA template.

3. PCR reaction program:

| Step | Temperature | Time | Cycles |
|---|---|---|---|
| Initialization | 95°C | 5 min | 1 |
| Denaturation<br>Annealing<br>Extension | 95°C<br>55-65°C[1)]<br>72°C | 10 sec<br>30 sec<br>30 sec | 35-50[2)] |
| Final Extension<br>Hold | 72°C<br>4-12°C | 5 min | 1 |

**Note:**

1) In general, the annealing temperature is 5°C lower than the melting temperature (Tm) of the primers. When the desired amplification efficiency cannot be obtained, the annealing temperature is appropriately lowered; when non-specific reactions occur, the annealing temperature is increased, thereby optimizing the reaction conditions.

2) The number of cycles can be set according to the downstream application of the amplification product. If the number of cycles is too small, the amount of amplification is insufficient; if the number of cycles is too big, the probability of mismatch increases, and the non-specific background is severe. Therefore, the number of cycles should be reduced as much as possible yet ensuring the yield of the product.