

Plasmodium Nucleic Acid Detection Kit (Fluorescent PCR)

■ Product Introduction

Malaria, caused by Plasmodium parasites, presents with symptoms such as sudden chills, high fever, and profuse sweating, often accompanied by headache, body aches, and fatigue. These parasites are transmitted by Anopheles mosquitoes and are responsible for a significant health burden in tropical and subtropical regions. The primary human-infecting Plasmodium species include Plasmodium vivax, Plasmodium falciparum, Plasmodium malariae, and Plasmodium ovale.

The Plasmodium Nucleic Acid Detection Kit (Fluorescent PCR) is specifically designed to detect these Plasmodium species with high accuracy. This kit targets the highly conserved regions common to the four main Plasmodium species, using specific primers and probes to ensure precise amplification and detection. The kit employs a fluorescence-based PCR method, where the Taq polymerase-mediated amplification of the target sequence results in fluorescence emission, indicating the presence of the parasite. An internal control is included to monitor the entire process, from sample collection to nucleic acid extraction and PCR amplification, ensuring reliable and accurate results. This kit is compatible with Bioer Technology's real-time PCR instruments (FQD-96A, FQD-96C, and FQD-A1600), offering rapid detection with exceptional specificity and sensitivity.

■ Product Specifications

Parameters	Description
Sample Type	Whole blood
Limit of Detection (LoD)	500 copies/mL
Target Pathogens	Plasmodium vivax , Plasmodium falciparum, Plasmodium malariae , Plasmodium ovale
Precision	The variation coefficient (CV) of within-day, between-day, within-batch and between-batch were less than 5%
Compatible Platform	Fluorescence Quantitative Detection System LineGene 9600 Plus (FQD-96A) , QuantGene 9600 (FQD-96C), Automatic PCR Analysis System (FQD-A1600)
Recommended Extraction Kit	BSC08 MagaBio plus Blood Genomic DNA Purification Kit BSC73 MagaBio plus Whole Blood Genome DNA Purification Kit
Detection Time	60 min
Storage Condition	-20°C±5°C away from light

Product Features

- **Advantages:** This kit enables the qualitative detection of *Plasmodium vivax*, *Plasmodium falciparum*, *Plasmodium malariae*, and *Plasmodium ovale* nucleic acids, providing valuable information for clinical diagnosis. The inclusion of a human endogenous internal control monitors the entire process—from sample collection, transport, nucleic acid extraction, to PCR amplification—thereby minimizing the risk of false-negative results.
- **High Sensitivity:** The detection sensitivity reaches as low as 500 copies/mL.
- **Strong Specificity:** The kit shows no cross-reactivity with various common pathogens, including rhinovirus A30, human bocavirus, parainfluenza virus type I, respiratory syncytial virus, *Streptococcus pneumoniae*, *Salmonella* spp., *Escherichia coli*, *Staphylococcus aureus*, coxsackievirus A24, enterovirus 71, and *Bordetella pertussis*.
- **Simple Operation:** The PCR process is fully contained within a closed tube, preventing aerosol contamination.

Application Cases

Case 1

Accuracy: To assess accuracy, dissolve the positive control samples P1-P3 and negative control samples N1-N8 from Bioer Technology at room temperature. Extract nucleic acids using Bioer Technology's extraction reagent BSC73S1E, and use the resulting template for accuracy testing.

Results: The results indicate that the kit accurately detects *Plasmodium* nucleic acids. The detection of the company's reference samples showed a 100% positivity rate for positive controls and a 100% negativity rate for negative controls.

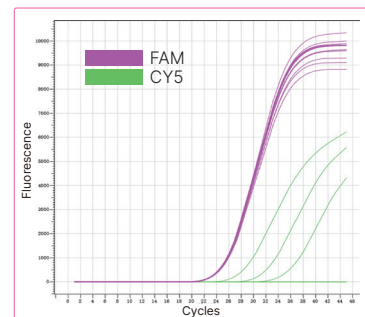


Figure 1: The accuracy of the *Plasmodium* detection using negative and positive control samples.

Case 2

Precision: The low-concentration nucleic acid samples were repeatedly tested 20 times using this kit. The results consistently detected the target, with a coefficient of variation for Ct values of less than 5%. This indicates that the kit has excellent reproducibility, providing stable and reliable results for the same sample. The test results are as follows:

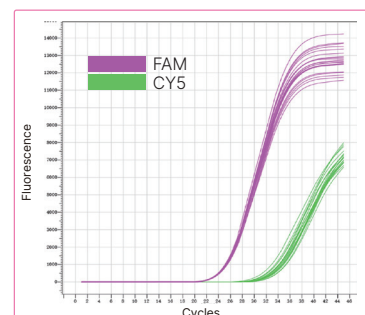


Figure 2: The precision testing experiment for low-concentration nucleic acid samples.

Case 3

Linear Relationship: A specimen containing *Plasmodium* was subjected to serial dilution to create a concentration gradient. Using the extraction reagent BSC73S1E, the samples were extracted and analyzed with a qPCR instrument. The results are as follows:

Results: The results indicate that, following a 10-fold serial dilution, the extraction and detection yielded an amplification correlation coefficient of over 0.995, demonstrating a good linear relationship.

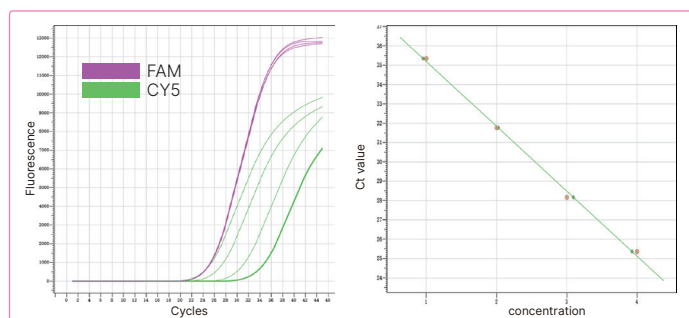


Figure 3: The amplification curves and the standard curve.

Ordering Information

Product Name	Cat. No.	Package
Plasmodium Nucleic Acid Detection Kit (Fluorescent PCR)	BSJ44M1/BSJ44L1	48T/96T



**BIOER
TECHNOLOGY**

Add: 1192 Bin An Rd., Hi-tech (Binjiang) District, Hangzhou, 310053, P.R.China
Tel: +86-571-87774513 **Fax:** +86-571-87774553 **E-Mail:** reagent@bioer.com

Web: www.bioer.com
E-Date: 2024.08