STI-7 Nucleic Acid Detection Kit (Fluorescence PCR)

Product Introduction

Sexually Transmitted Infections (STIs) refer to a group of infectious diseases primarily transmitted through sexual contact or related behaviors. Common causative agents include viruses, Chlamydia, Mycoplasma, spirochetes, bacteria, fungi, protozoa, and parasites. These pathogens are responsible for a wide range of reproductive and systemic health issues.

The World Health Organization estimates that more than 1 million STIs are acquired daily worldwide. In 2022 alone, there were approximately 374 million new cases of four curable STIs: Chlamydia, Gonorrhea, Trichomoniasis, and Syphilis. Moreover, over 500 million people aged 15 to 49 are living with genital herpes globally.

These statistics underscore the urgent need for sensitive, specific, and efficient diagnostic methods. Multiplex molecular testing for STI pathogens enables simultaneous detection of multiple infections in a single test, greatly improving diagnostic accuracy and reducing time to treatment. This approach is especially important for identifying asymptomatic carriers and mixed infections, facilitating early intervention, tailored therapy, and better public health outcomes.

Principle

This assay targets conserved genomic regions of seven STI pathogens, utilizing specifically designed primers and fluorescently labeled TaqMan probes for each. Compared to conventional PCR, this method offers higher automation, speed, sensitivity, and specificity. The assay employs an optimized reaction buffer system and hot-start DNA polymerase to produce a ready-to-use master mix, minimizing manual preparation steps and enhancing operational efficiency. In addition, the human RNase P gene is introduced as a non-competitive internal control to monitor both nucleic acid extraction and amplification processes, effectively preventing false-negative results.

Product Features

• **All-in-One Premix:** Ready-to-use master mix requires only the addition of sample, significantly reducing hands-on time and minimizing manual errors.

• **Contamination Control:** Incorporates a dUTP/UDG system to effectively prevent carryover contamination between reactions.

• **High Specificity:** No cross-reactivity was observed with a range of non-target pathogens, including Group B Streptococcus, Human Papillomavirus (HPV), Salmonella spp., Pseudomonas aeruginosa, Escherichia coli, Treponema pallidum, Human Cytomegalovirus (CMV), Epstein-Barr Virus (EBV), Human Herpesvirus 6 (HHV-6), Candida albicans, Mycoplasma pneumoniae, Bordetella pertussis, Staphylococcus aureus, Candida glabrata, and Adenovirus.

• **Real-time Monitoring:** The human RNase P gene is incorporated as a non-competitive internal control to monitor the entire nucleic acid extraction and amplification process, ensuring reliability and minimizing the risk of false-negative results.

Product Specifications

Parameters	Descriptions
Sample Type	Male urine, urethral swab, female urine, and cervical swab
Internal control Gene	Human RnaseP gene
UDG	Yes
Pathogen	Chlamydia trachomatis (CT), Neisseria gonorrhoeae (NG), Mycoplasma genitalium (MG), Trichomonas vaginalis (TV), Ureaplasma urealyticum (UU), Ureaplasma parvum (UP) and Mycoplasma hominis (MH)
LOD	Chlamydia trachomatis (CT): 500 copies/mL Neisseria gonorrhoeae (NG): 500 copies/mL Mycoplasma genitalium (MG): 200 copies/mL Trichomonas vaginalis (TV): 200 copies/mL Ureaplasma urealyticum (UU): 500 copies/mL Ureaplasma parvum (UP): 200 copies/mL Mycoplasma hominis (MH): 200 copies/mL
Precision	Inter-batch, intra-batch, inter-day, and intra-day coefficient of variation < 2%
Specificity	No cross-reactivity was observed with Group B Streptococcus, Human Papillomavirus (HPV), Salmonella spp., Pseudomonas aeruginosa, Escherichia coli, Treponema pallidum, Human Cytomegalovirus (HCMV), Epstein-Barr Virus (EBV), Human Herpesvirus 6 (HHV-6), Candida albicans, Mycoplasma pneumoniae, Bordetella pertussis, Staphylococcus aureus, Candida glabrata, or Adenovirus.
Recommended Purification Kit	BSC71 MagaBio plus Virus DNA/RNA Purification Kit II BSC86 MagaBio plus Virus DNA/RNA Purification Kit III BSC110 MagaBio plus Virus DNA/RNA Purification Kit VI
Compatible Platforms	LineGene 9600, QuantGene 9600, FQD-A1600, FQD-A9600, ABI7500, ABI QuantStudio Series Real-Time PCR System
Detection Time	1 hour
Storage Conditions	Store at -20 ± 5°C, protected from light

Performance Data

This kit was used to detect eight pathogens, each at two concentrations: medium-to-high concentration (P) and limit of detection (S). The detection rate was 100%, indicating high specificity and excellent PCR efficiency. The results are shown in the figure below:

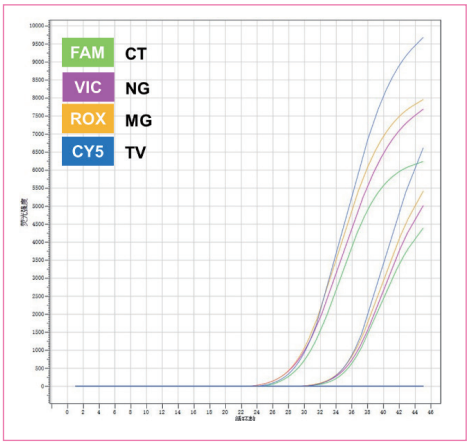

Figure 1 The experimental data using Mix A of the kit for the detection of CT/NG/MG/TV

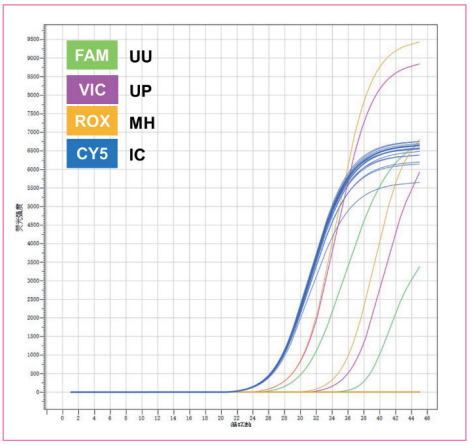

Figure 2 The experimental data using Mix B of the kit for the detection of UU/UP/MH/IC

		PCR Mix A				PCR Mix B			
		FAM	VIC	ROX	CY5	FAM	VIC	ROX	CY5
Positive reference	P1(CT)	29.82	No CT	No CT	No CT	No CT	No CT	No CT	27.66
	P2(NG)	No CT	29.77	No CT	No CT	No CT	No CT	No CT	27.58
	P3(MG)	No CT	No CT	29.82	No CT	No CT	No CT	No CT	27.53
	P4(TV)	No CT	No CT	No CT	29.94	No CT	No CT	No CT	27.5
	P5(UU)	No CT	No CT	No CT	No CT	30.79	No CT	No CT	27.51
	P6(UP)	No CT	No CT	No CT	No CT	No CT	30.18	No CT	27.61
	P7(MH)	No CT	No CT	No CT	No CT	No CT	No CT	30.32	27.55
Test limited reference	S1(CT)	36.1	No CT	No CT	No CT	No CT	No CT	No CT	27.89
	S2(NG)	No CT	36.51	No CT	No CT	No CT	No CT	No CT	27.74
	S3(MG)	No CT	No CT	36.43	No CT	No CT	No CT	No CT	27.61
	S4(TV)	No CT	No CT	No CT	36.13	No CT	No CT	No CT	27.58
	S5(UU)	No CT	No CT	No CT	No CT	39.25	No CT	No CT	27.56
	S6(UP)	No CT	No CT	No CT	No CT	No CT	37.12	No CT	27.72
	S7(MH)	No CT	No CT	No CT	No CT	No CT	No CT	36.02	27.56

Ordering Information

Product Name	Cat. No.	Package	Storage Condition
STI-7 Nucleic Acid Detection Kit (Fluorescence PCR)	BSJ74M1/BSJ74L1	48T/96T	-20 ± 5°C, protected from light

BIOER TECHNOLOGY
Add: 1192 Bin An Rd., Hi-tech (Binjiang) District, Hangzhou, 310053, P.R.China **Web**: www.bioer.com
Tel: +86-571-87774513 **Fax**: +86-571-87774553 **E-Mail**: reagent@bioer.com **E-Date**: 2025.04 CE IVD