ENZYMES

TTx DNA Polymerase

ORIGIN *E.coli (Recombinant)*

CAT# TTX Range

EC# 2.7.7.7

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ENZYME SPECIFICATION

Ribonuclease Activity: None detected
Endonuclease Activity: None detected
Nicking Activity: None detected
Glycerol Content: ≤ 0.1% (Glycerol free product specification only)

HOT START TTx (DNA) KIT SPECIFICATION

Tested for functional performance by amplifying from dilutions of enterovirus RNA in combination with 5x Buffer for rTth/ TTx (DNA/ RNA)
The slope from analysis is as follows: -3.74 ≤ slope ≤ -3.01
The correlation coefficients from both analyses are as follows: r ≤ -0.980

HOT START TTx (RNA) KIT SPECIFICATION

Tested for functional performance by amplifying from dilutions of enterovirus RNA
The slope from analysis is as follows: -3.74 ≤ slope ≤ -3.01
The correlation coefficients from both analyses are as follows: r ≤ -0.980

PRODUCT FORMAT

PART #	DESCRIPTION	CONTENT/ FORMAT
TTX-119 TTX-129 TTX-159	TTx DNA Polymerase	TTx DNA Polymerase 1KU TTx DNA Polymerase 10KU TTx DNA Polymerase 100KU
TTX-219 TTX-229 TTX-259	TTx DNA Polymerase <Glycerol free>	TTx DNA Polymerase <Glycerol free> 1KU TTx DNA Polymerase <Glycerol free> 10KU TTx DNA Polymerase <Glycerol free> 100KU
HSTTX-101	Hot Start TTx (DNA) kit	Hot Start TTx DNA Polymerase (4U/uL) 62.5uL 2x Buffer for rTth/TTx (DNA) 1.25mL x2
HSTTX-111	Hot Start TTx (RNA) kit	Hot Start TTx DNA Polymerase (4U/uL) 62.5uL 5x Buffer for rTth/TTx (DNA/RNA) 1mL 50mM Mn (OAc)2 250uL 2mM dNTPs 1 mL

DESCRIPTION AND APPLICATION

TTx DNA Polymerase has a high reverse transcription activity in the presence of Mn2+ ions and allows for 1-Step 1-Enzyme RT-PCR, including reverse transcription and PCR steps. Effective for amplification from crude samples containing PCR inhibitors with high efficiency for both DNA and RNA. Suitable for amplification from low copies of template DNA/RNA and is efficient even in fast cycle condition. Glycerol free format available, enabling the making of a lyophilized mix.

In addition, TTx DNA Polymerase has a 5 `→ 3' exonuclease activity, so it can be used for real-time PCR using probe assays such as TaqMan® assay.

SEKISUI DIAGNOSTICS
Because every result matters™

CHARACTERISTICS

Enzyme features:

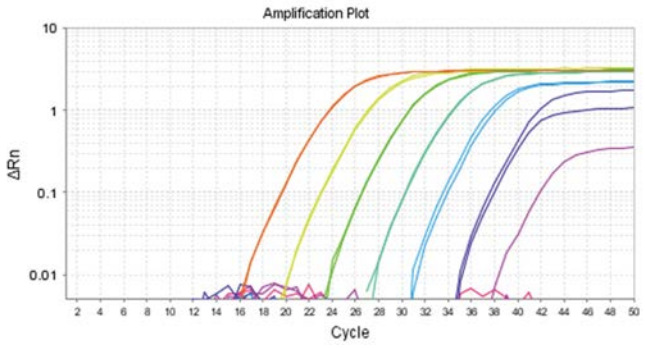
- Enables highly efficient 1-Step 1-Enzyme RT-PCR
- Effective amplification from crude samples
- Fast- High speed qPCR cycling detection
- Suitable for Multiplex PCR
- Lyo-ready glycerol free format available

Highly efficient 1-Step 1-Enzyme RT-PCR

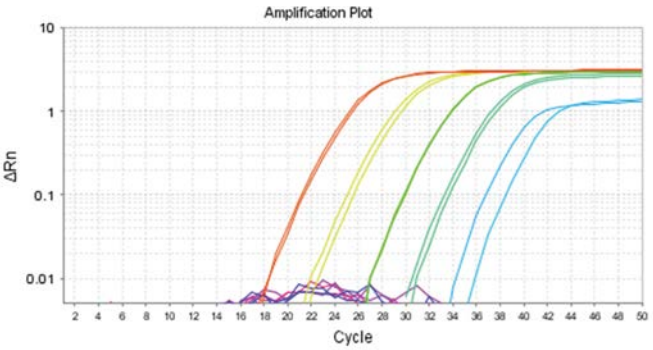
Influenza virus RNA was detected using TaqMan® probes. The Hot Start TTx (RNA) Kit obtained higher sensitivity than Tth DNA Polymerase based reagent (QRT-101), and 2 competitor PCR enzyme kits. By using TTx DNA Polymerase, efficient detection is possible even from low copies of template.

TARGET GENE DILUTION	HSTTX-111 Ct		RNA-DIRECT (QRT-101; TTH) Ct		COMPETITOR A Ct		COMPETITOR B Ct	
$1/10^2$	17.98	17.90	19.83	19.64	19.56	19.32	17.42	17.43
$1/10^3$	21.50	21.52	23.45	23.97	22.90	22.68	20.88	20.83
$1/10^4$	25.01	25.10	28.35	28.40	26.23	26.38	24.26	24.28
$1/10^5$	28.71	28.79	32.21	31.75	29.89	29.70	27.49	27.64
$1/10^6$	32.09	32.41	36.94	35.35	33.92	32.85	31.12	30.92
$1/10^7$	36.08	36.37	N/A	N/A	N/A	N/A	N/A	N/A
$1/10^8$	N/A	39.94	N/A	N/A	N/A	36.54	N/A	N/A
H_2O	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

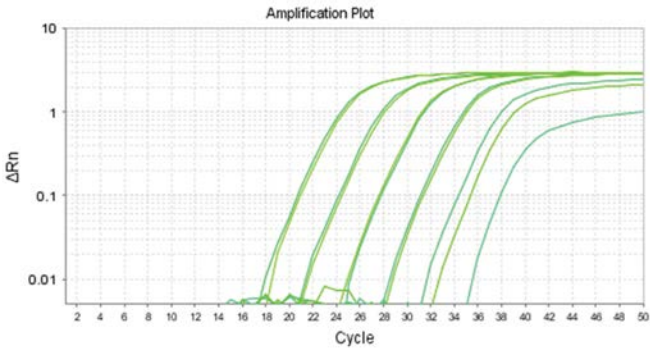
HSTTX-111



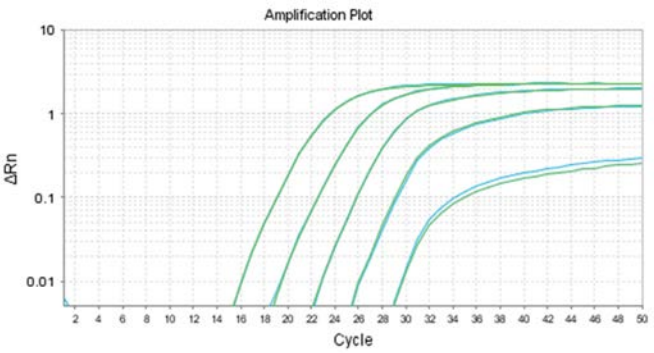
RNA-direct (QRT-101; Tth)



Competitor A



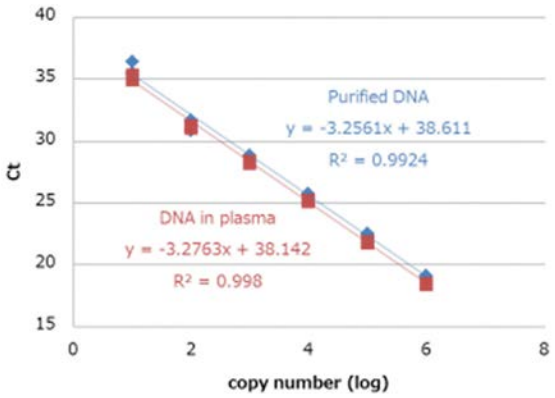
Competitor B

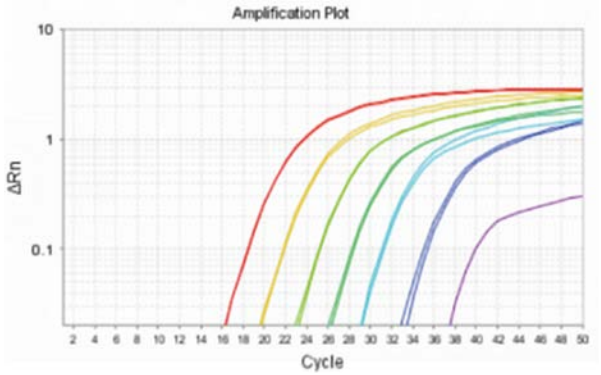


Effective amplification from crude samples

African swine fever virus DNA was detected using TaqMan® probes. Performing the reaction in 20µL mixture with and without 2.5µL of plasma, Hot Start TTx (DNA) Kit was able to detect the African swine fever virus DNA.

HOT START TTx (DNA Kit)





Fast- High speed qPCR cycling detection

African swine fever virus DNA was detected using TaqMan® probes. Only TTx polymerase could detect at high speed cycling conditions.

TARGET GENE SIZE	HSTTH-301 Ct		HSTTX-101 Ct		COMPETITOR A Ct	
2pg	19.57	21.94	18.88	19.09	12.45	13.62
0.2pg	28.46	N/A	21.91	22.09	17.25	18.25
0.02pg	32.72	29.93	24.63	24.65	20.78	19.99
2fg	N/A	N/A	27.44	27.47	24.02	22.44
0.2fg	N/A	N/A	30.99	30.89	27.04	26.82
0.02fg	N/A	N/A	34.34	34.38	30.63	29.08
0.002fg	N/A	N/A	35.21	36.85	34.00	35.56
NTC	N/A	N/A	N/A	N/A	N/A	N/A

PCR cycling conditions

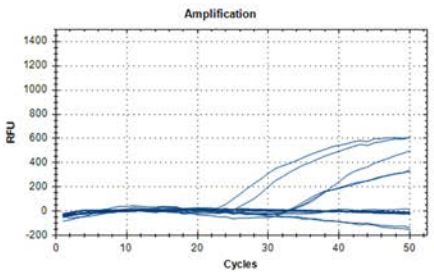
95°C, 2 min

95°C, 1 sec

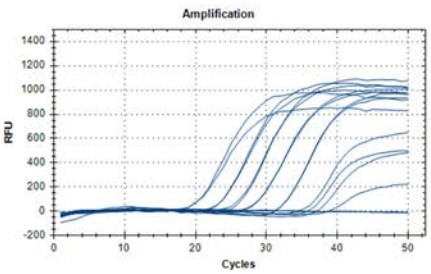
60°C, 1 sec

X50

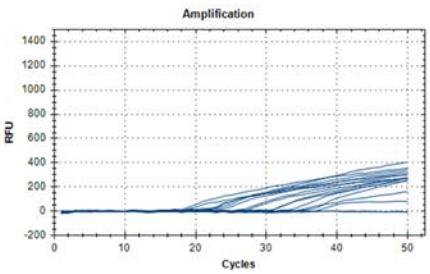
HSTTH-301



HSSTX-101

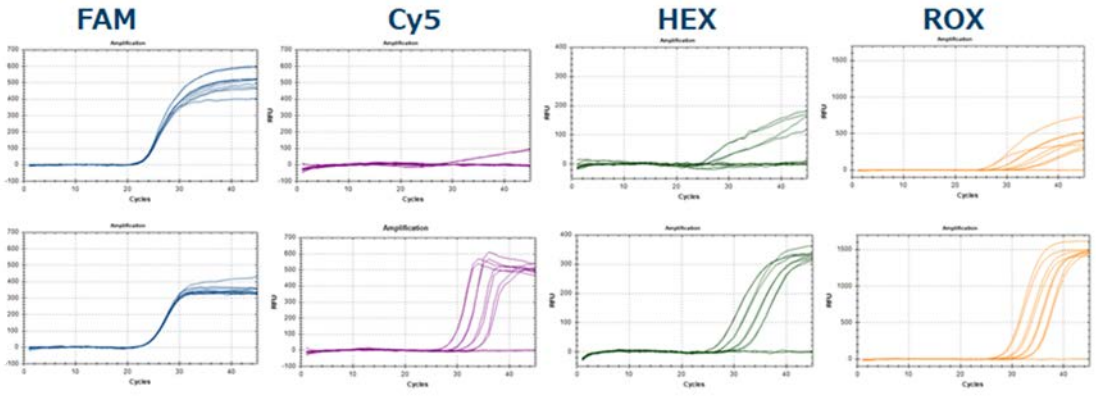


COMPETITOR A



Suitable for Multiplex PCR

The Hot Start TTx (DNA) Kit and Taq DNA Polymerase based real-time PCR reagents were mixed with a TaqMan Probe of primers to detect Salmonella, Shigella, and O157, and multiplex PCR was used to detect genes (1,000, 250, 63, and 15 copies).



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