

## ENZYMES

# RNA-direct Realtime PCR Master Mix

CAT# QRT Range

### SPECIFICATION

Functional Test*	Correlation coefficient (r) $\geq$ 0.98
Bacterial DNA contamination	Ct $\geq$ 27
Ribonuclease Activity	None detected

\*Amplification of a G3PDH gene from serial dilutions of human G3PDH control RNA and no-template control.

### PRODUCT FORMAT

PART #	DESCRIPTION	CONTENT/FORMAT
QRT-101	RNA-direct Realtime PCR Master Mix Kit	5x 0.5mL RNA-direct Realtime PCR Master Mix 0.5mL 50mM Mn(OAc) <sup>2</sup> (100 reactions)
QRT-159	RNA-direct Realtime PCR Master Mix	100mL RNA-direct Realtime PCR Master Mix (400 reactions)
QRT-201	RNA-direct Realtime PCR Master Mix (SYBR Green <sup>®</sup> ) Kit	5x 0.5mL RNA-direct SYBR Green <sup>®</sup> Realtime PCR Master Mix 0.5mL 50mM Mn(OAc) <sup>2</sup> (100 reactions)
QRT-259	RNA-direct Realtime PCR Master Mix (SYBR Green <sup>®</sup> )	100mL RNA-direct SYBR Green Realtime PCR Master Mix (400 reactions)

### DESCRIPTION AND FEATURES

This product is a 2 × Master Mix for “1-step real-time PCR” using a thermostable DNA polymerase derived from *Thermus thermophilus* (Tth) HB8. Tth DNA polymerase exhibits reverse transcriptase activity in the presence of Mn<sup>2+</sup> ions. This system allows for “1-step real-time PCR”, including reverse transcription and PCR steps. RNA-direct Realtime PCR Master Mix is applicable for TaqMan<sup>®</sup> assay or hybridization probe assay, in combination with each probe. RNA-direct SYBR Green<sup>®</sup> Realtime PCR Master Mix can be applied to an intercalation assay with SYBR Green<sup>®</sup> I.

- Suitable for high-throughput real-time PCR and increases reliability of product, due to lowered risk of contamination.
- Can be used in systems using glass capillaries (e.g. LightCycler, Roche Molecular Systems, Inc.).
- Can be used in systems using passive reference (e.g. ABI PRISM<sup>®</sup> 7000, 7700, 7900HT, StepOne Plus, Applied Biosystems, Inc.).
- Hot Start technology, using anti-Tth DNA polymerase antibodies, allows for high specificity and reproducible amplification.

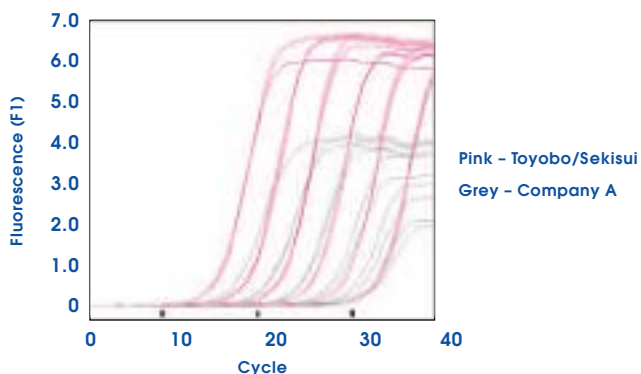
**SEKISUI**  
DIAGNOSTICS

Because every result matters™

ENZYMES  
CAT# QRT Range

## CHARACTERISTICS

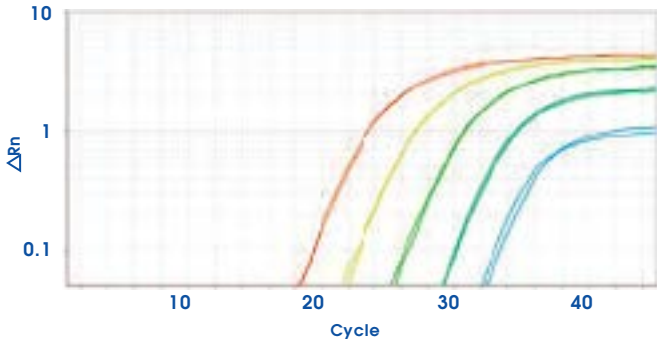
**Application Data:** Amplification of G3PDH mRNA was detected using serially diluted poly(A)+ RNA (10n dilution) with SYBR Green® Realtime PCR kits including Tth DNA polymerase. The *RNA-direct* SYBR Green® Realtime PCR Master Mix showed **greater sensitivity and signal intensity** than the other kit (company A).



**Detection of Hepatitis C Virus (HCV):** The sensitivity and quantitative nature of three one-step qRT-PCR master mix reagents were compared by detecting serially (10n) diluted HCV RNA using TaqMan probe. The *RNA-direct* Realtime PCR Master Mix exhibited higher sensitivity and PCR efficiency than other master mixes.

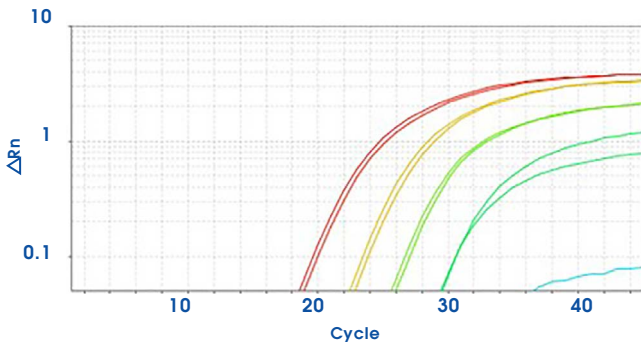
	TOYOBO/SEKISUI <i>RNA-DIRECT</i> REALTIME PCR MASTER MIX		COMPANY A RT-PCR KIT		COMPANY B RT-PCR KIT	
10 <sup>6</sup> copies	19.38	19.36	19.65	19.99	24.32	24.64
10 <sup>5</sup> copies	22.68	22.84	23.86	23.45	28.48	29.06
10 <sup>4</sup> copies	26.60	26.34	26.64	26.97	32.84	33.04
10 <sup>3</sup> copies	30.04	30.22	30.58	30.55	38.13	37.43
10 <sup>2</sup> copies	32.96	33.48	N/A	N/A	42.16	42.30
NTC	N/A	N/A	N/A	N/A	N/A	N/A
Slope	-3.452		-3.557		-4.532	
Efficiency	94.8%		91.0%		66.2%	
r	-0.999		-0.997		-0.999	

RNA Direct HCV Toyobo/Sekisui  
Amplification Plot

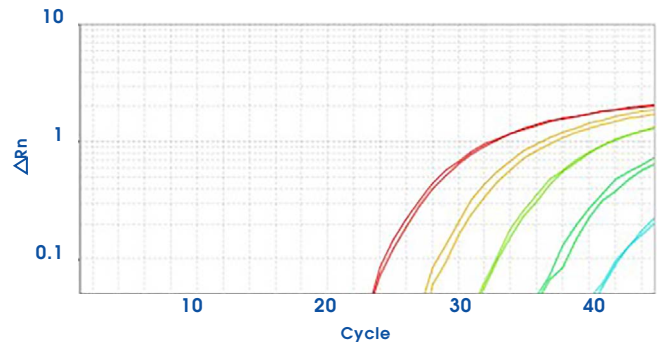


Please inquire about customization options. Our experienced technical team can work with you to optimize mixes for your requirements.

Company A  
Amplification Plot

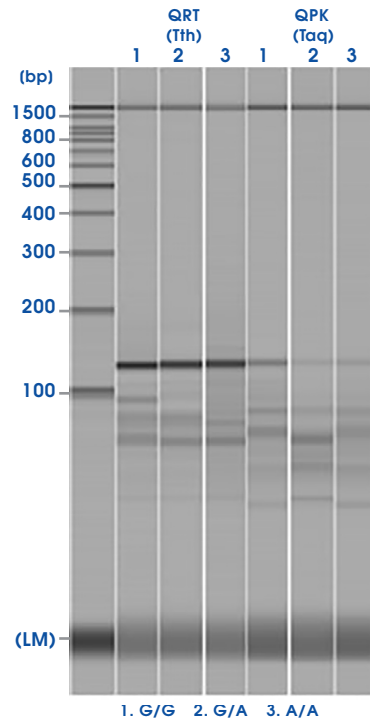


Company B  
Amplification Plot

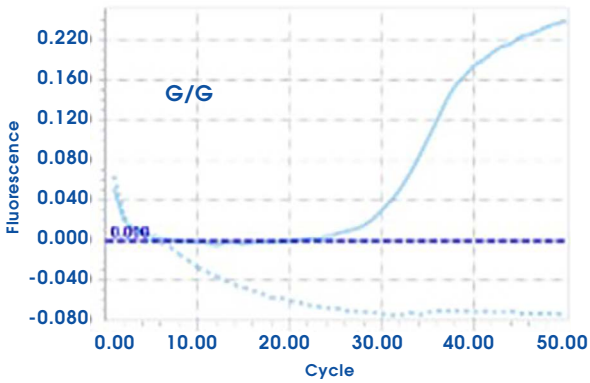


### Detection of single nucleotide polymorphism (SNP) using fresh whole blood:

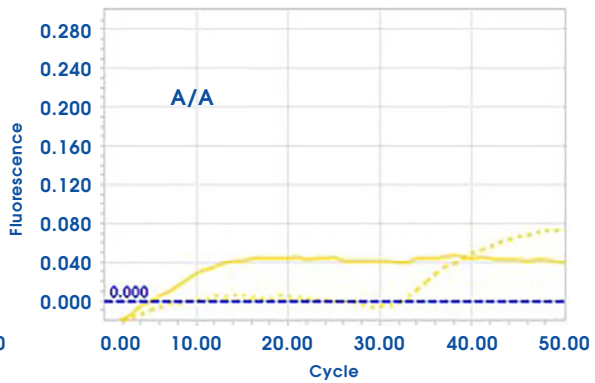
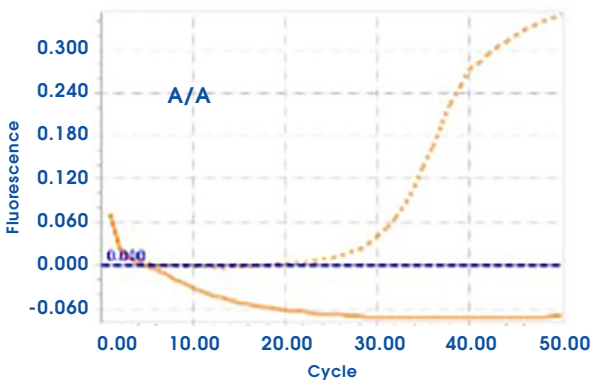
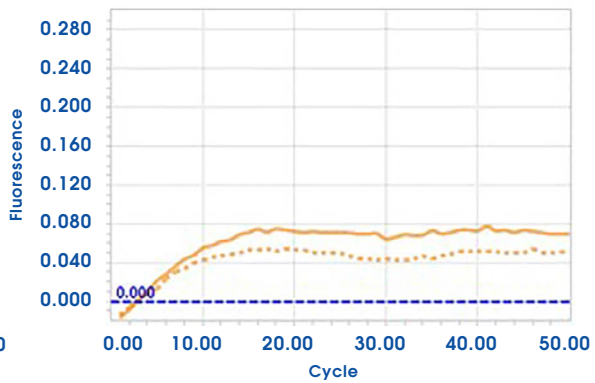
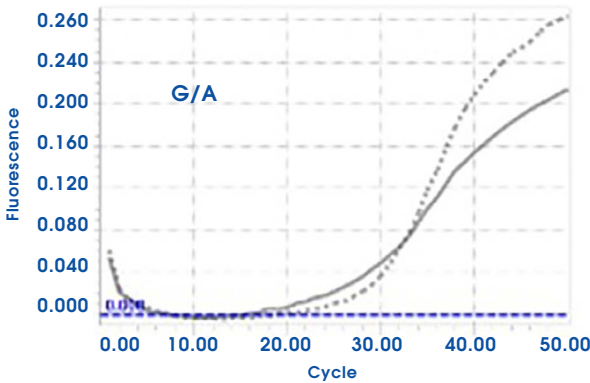
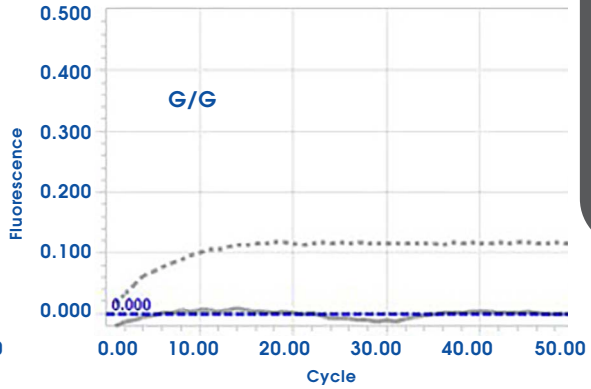
The SNPs of aldehyde dehydrogenase 2 gene (ALDH2) were analyzed using fresh whole blood samples by *RNA-direct* Realtime PCR Master Mix and Realtime PCR Master Mix based on Tth and Taq DNA polymerase, respectively. *RNA-direct* Realtime PCR Master Mix successfully detected all types of SNPs (G/G, G/A, A/A) using TaqMan probe assay. In this experiment, the amplification by *RNA-direct* Realtime PCR Master Mix was performed in the presence of MgCl<sub>2</sub> instead of MnCl<sub>2</sub>.



**RNA-direct Realtime PCR Master Mix**  
(based on Tth DNA Polymerase):



**Realtime PCR Master Mix**  
(based on Taq DNA Polymerase):



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