



CRUDE SAMPLES IN. CLEAN DATA OUT.

Engineered for exceptional inhibitor tolerance, StellarTaq™ DNA Polymerase and StellarScript® HT+ Reverse Transcriptase form the foundation of the **Stellar RT-qPCR and qPCR Kits**. The result is fast, sensitive, and reliable amplification, even with challenging, minimally processed samples.

KEY FEATURES & BENEFITS

- Extreme inhibitor tolerance enables amplification from a range of **unpurified samples or crude extracts**
- **Optimized buffer options** deliver dependable performance across a range of applications
- Ultra-fast amplification for **results in minutes**
- Compatible with both **RNA** (RT-qPCR) and **DNA** (qPCR) targets
- **Flexible formats with individual components** support assay development and optimization
- Custom configurations available, including high-concentration and glycerol-free enzymes to **support lyophilization**

BUILT FOR ASSAY DEVELOPERS

Stellar RT-qPCR and qPCR Kits give assay developers the flexibility to optimize performance and scale with confidence. Start with a complete kit, fine-tune conditions, and transition to the exact buffer, enzyme concentrations, and format your assay requires. Watchmaker combines enzyme engineering expertise with flexible, ISO 13485-certified OEM capabilities to help move from initial optimization to commercialization quickly and confidently.

APPLICATIONS

- Pathogen detection, including bacterial and viral infectious diseases
- Point-of-care assay development
- Rapid testing
- PCR applications where biological inhibitors are present and specificity is important
- Probe-based RT-qPCR and qPCR

EXCEPTIONAL INHIBITOR TOLERANCE FOR EXTRACTION-FREE AMPLIFICATION

To reduce purification time and cost, pathogen detection assays are ideally performed on raw or minimally processed samples. However, such samples frequently contain inhibitors that can disrupt amplification and compromise results. In complex matrices, this interference can delay signal detection, raise cycle thresholds, and increase the risk of false negatives. The Stellar RT-qPCR and qPCR Kits overcome this challenge with engineered enzymes and optimized buffers that support amplification across a wide range of common biological and chemical inhibitors. The result is consistent, high-quality results from real-world samples.

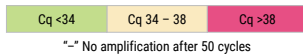
FIGURE 1. Efficient amplification in the presence of common biological and chemical inhibitors. Cq scores for a variety of probe-based (A) one-step RT-qPCR* and (B) qPCR** systems that were tested using approximately 100 template copies in the presence of a range of inhibitors. Watchmaker kits (using supplied Buffers A and B) consistently deliver efficient amplification across the range of inhibitors assessed, as evidenced by low Cq scores relative to other commercially available systems.

*RT-qPCR systems tested:

- KAPA3G HotStart DNA Polymerase, KAPA3G PCR Buffer, and StellarScript HT+
- Brilliant III Ultra-Fast QRT-PCR Master Mix
- GoTaq® Probe 1-Step RT-qPCR System
- GoTaq® Endure RT-qPCR System
- Luna® Universal Probe One-Step RT-qPCR Kit
- QuantiTect Multiplex RT-PCR NR Kit
- SuperScript™ III Platinum™ One-Step qRT-PCR Kit

**qPCR systems tested:

- KAPA3G HotStart DNA Polymerase, with KAPA3G PCR Buffer
- 4X CAPITAL™ qPCR Probe Master Mix
- GoTaq® Endure qPCR Master Mix
- KAPA PROBE FORCE qPCR Master Mix (2X) Universal
- PerfeCTa Multiplex qPCR ToughMix Low ROX



A Summary of Inhibitor Tolerance in RT-qPCR

Inhibitor	Watchmaker A	Watchmaker B	KAPA3G HotStart	Brilliant III	GoTaq Probe	GoTaq Endure	Luna	QuantiTect	SuperScript III Platinum
No inhibitor	27.2	26.3	28.8	34.9	33.1	34.1	30.6	41.2	29.0
Plasma (EDTA, 5% v/v)	35.7	30.7	-	-	36.6	-	32.1	45.0	-
Plasma (Heparin, 3% v/v)	34.8	35.3	-	46.6	34.3	-	32.1	-	-
Blood (EDTA, 3% v/v)	32.1	38.4	33.2	-	39.4	-	35.5	-	-
Blood (Heparin, 1.5% v/v)	33.2	32.5	-	-	38.3	-	30.6	-	44.5
Saliva (27.5% v/v)	29.0	27.3	-	-	35.3	34.7	-	-	-
Urine (27.5% v/v)	33.5	35.2	30.9	-	34.9	-	-	-	-
UTM (27.5% v/v)	30.5	30.6	35.4	-	34.3	-	33.2	-	-
Bile Salts (0.09% w/v)	29.9	30.2	30.9	35.5	36.4	-	37.6	-	-
Ethanol (5% v/v)	30.1	-	31.2	-	-	-	-	-	-
GTC (0.7% w/v)	30.9	30.1	29.6	-	-	-	-	-	-
Humic Acid (1.5 ng/μL)	27.4	27.3	30.4	35.3	33.3	36.3	33.2	46.7	31.8
Melanin (25 ng/μL)	29.3	28.6	30.4	39.2	33.6	39.2	-	47.2	31.6

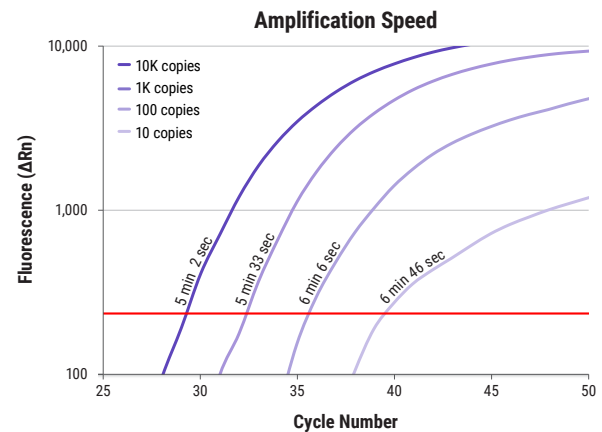
B Summary of Inhibitor Tolerance in qPCR

Inhibitor	Watchmaker A	Watchmaker B	KAPA3G Hotstart	CAPITAL qPCR	GoTaq Endure	KAPA PROBE FORCE	PerfeCTa
No inhibitor	30.3	30.1	30.5	30.2	30.4	32.5	32.2
Plasma (EDTA, 5% v/v)	36.2	33.5	38.0	31.5	30.7	39.9	-
Plasma (Heparin, 3% v/v)	33.6	32.5	37.9	30.3	30.5	-	36.8
Blood (EDTA, 3% v/v)	36.2	47.7	46.1	-	34.0	-	-
Blood (Heparin, 1.5% v/v)	37.9	41.0	38.0	48.3	32.8	-	-
Saliva (27.5% v/v)	32.4	32.7	33.0	30.9	30.0	36.5	34.7
Urine (27.5% v/v)	30.1	37.8	31.0	-	-	-	-
UTM (27.5% v/v)	30.8	30.7	31.9	44.0	44.8	-	-
Bile Salts (0.09% w/v)	32.5	31.2	31.5	30.7	40.1	-	-
GTC (0.7% w/v)	32.2	31.4	36.2	-	-	-	-
Humic Acid (1.5 ng/μL)	30.6	30.2	30.7	30.5	30.9	34.0	33.1
Melanin (25 ng/μL)	30.4	30.2	34.7	30.5	31.0	36.0	32.9

ULTRA-FAST AMPLIFICATION ENABLES POINT-OF-CARE ASSAY DEVELOPMENT

Rapid amplification is critical for pathogen detection in point-of-care settings. New ultra-fast PCR platforms demand chemistries designed to keep up. Featuring StellarTaq Polymerase, engineered for extreme speed, Stellar qPCR Kits are capable of producing reliable results in minutes using your platform of choice.

FIGURE 2. Generate results in minutes. Probe-based qPCR reactions containing a range of 10,000 to 10 template copies were run using the Stellar qPCR Kit (Buffer A) and an OnsiteGene XDive thermal cycler. Reactions containing 10 copies of target template reached the cycle threshold in under 7 minutes.



BROAD DYNAMIC RANGE AND EXCELLENT SENSITIVITY DELIVER ROBUST ASSAYS

Broad dynamic range enables accurate quantification across a wide range of pathogen loads, from early infection to high-titer samples. A low limit of detection supports reliable identification of low-abundance targets, improving sensitivity and reducing the risk of false negatives. Stellar RT-qPCR and qPCR Kits deliver strong performance in both sensitivity and dynamic range, even in multiplex settings.

Multiplexed RT-qPCR

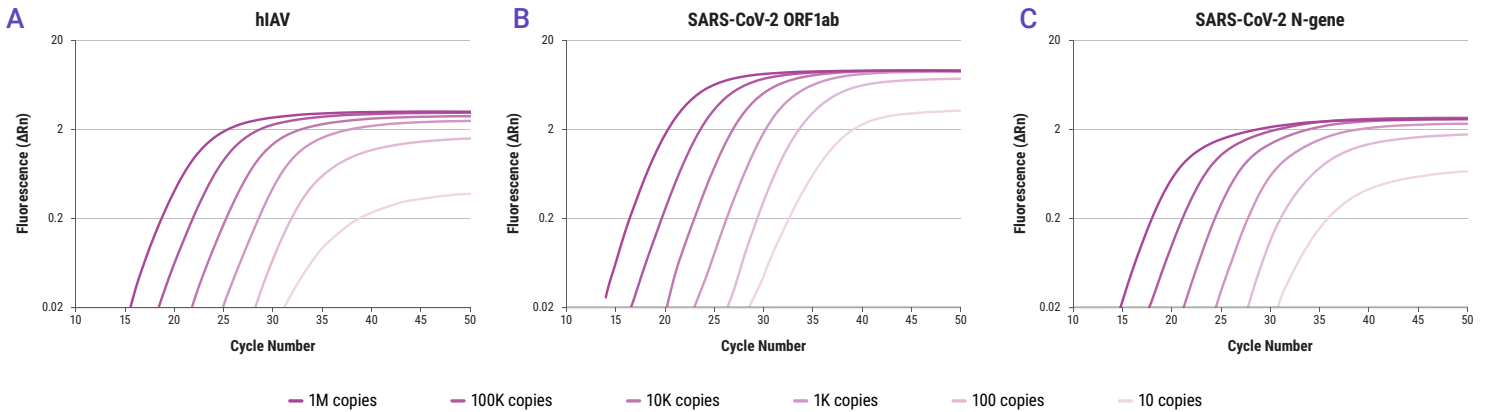


FIGURE 3. Consistent target detection in multiplex RT-qPCR. Multiplex probe-based RT-qPCR standard curves (1,000,000 – 10 copies of target RNA) were generated in a background of 5 ng Universal Human Reference RNA. Primer/probe sets for (A) hIAV, (B) SARS-CoV-2 ORF1ab, and (C) SARS-CoV-2 N gene, as described in Ni, et al.¹ (2021), were used with the Stellar RT-qPCR Kit (Buffer A). Results demonstrate consistent detection across targets in multiplexed reactions.

Multiplexed qPCR

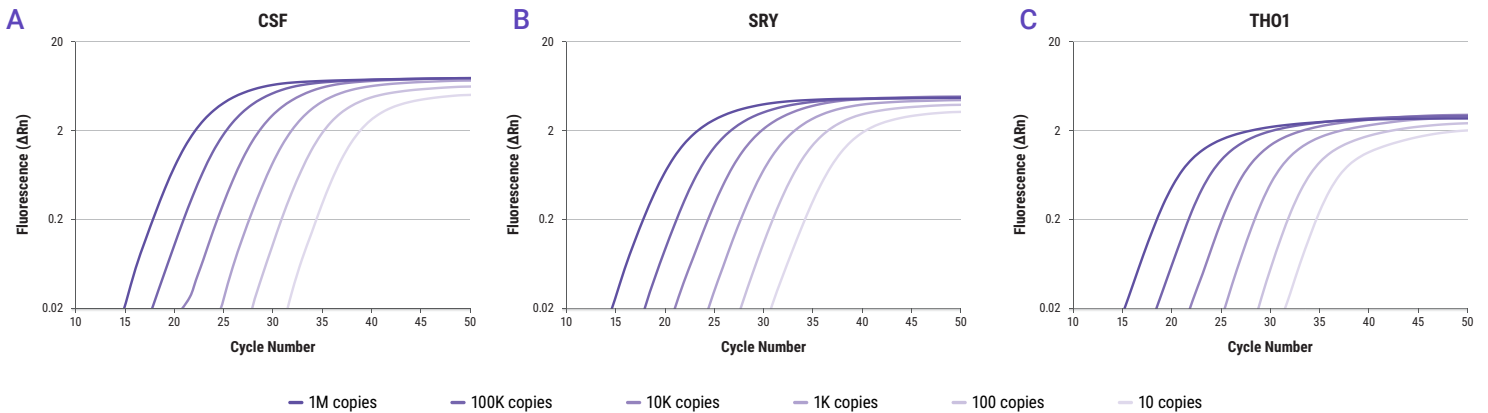


FIGURE 4. Reliable performance in multiplex qPCR. Multiplex probe-based qPCR standard curves (1,000,000 – 10 copies of target DNA) were generated in a background of 5 ng *E. coli* gDNA. Primer/probe sets for (A) CSF, (B) SRY, and (C) TH01, as described in Hudlow, et al.² (2008), were used with the Stellar qPCR Kit (Buffer A). Results demonstrate consistent detection across targets in multiplexed reactions.

¹Ni, et al. *International Journal of Infectious Diseases*. 2021 (103), 517 – 524

²Hudlow, et al. *Forensic Science International: Genetics*. 2008 (2), 108 – 25

CUSTOMIZATION MADE EASY

We aim to make the customization process as painless as possible for our OEM partners. We view ourselves as an extension of your team and offer a variety of tailored services.



Custom fills and formats

minimize waste and maximize your efficiency



Tailored packaging and labeling — including private label — designed to your unique specifications



White glove support and a dedicated project manager make customization seamless

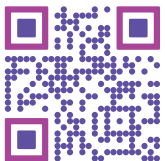


Streamlined processes and flexible terms enable fast turnaround times and serve organizations of all sizes

Our Custom Genomics Solutions team provides technical expertise, custom formats, and private labeling support, including:

- Rigorous process development and functional testing to ensure robust, reliable performance
- All products developed and manufactured under ISO 13485
- Guaranteed minimum shipment life for easy inventory management
- Scalable operations supporting multi-lot validation requests and single-lot production runs
- Change control and product lifecycle management to evolve with your product needs
- Watchmaker as an extension of your team, providing support and guidance at every step

PRODUCT	PART NUMBER
Stellar RT-qPCR Kit <i>Incl. StellarTaq DNAP, StellarScript HT+ RT, 10X Reaction Buffers A and B, and 25 mM MgCl₂. dNTPs not included.</i>	7K0142-500
Stellar qPCR Kit <i>Incl. StellarTaq DNAP, 10X Reaction Buffers A and B, and 25 mM MgCl₂. dNTPs not included.</i>	7K0143-500



For larger pack sizes, contact sales@watchmakergenomics.com.
Visit watchmakergenomics.com/StellarKits to learn more.

For Research Use Only. Not for use in diagnostic procedures.

This content is covered by patents, trademarks, and/or copyrights owned or controlled by Watchmaker Genomics Inc. For more information, please visit watchmakergenomics.com/licenses. The use of these products may require you to obtain additional third party intellectual property rights for certain applications.

© 2026 Watchmaker Genomics. All rights reserved. All trademarks are the property of Watchmaker Genomics or their respective owners.

M460 | WM114 | v1.0.0426