Evolved to excel

KAPA3G HotStart DNA Polymerase – made for IVD

CUSTOMBIOTECH

Evolved to excel

KAPA3G HotStart DNA Polymerase

KAPA3G HotStart DNA Polymerase is a new-generation polymerase evolved for exceptionally high processivity and robustness to shorten assay reaction time and minimize sample preparation time without loss in performance. Produced in CustomBiotech's ISO 13485-certified manufacturing facilities, KAPA3G HotStart DNA Polymerase is now made for in vitro diagnostics – extensively tested, produced and filled to the scale you need, and ready to be lyophilized for a long shelf-life and flexible assay designs.

Exceptional speed: achieve extension times of just 1 second for fast protocols
Broad-spectrum inhibitor tolerance: shorten and simplify workflows by processing crude samples
Lyophilization-ready: create flexible assay designs that retain performance over long time periods

What exactly is KAPA3G HotStart DNA Polymerase?
It is a 3rd generation mutant of the classical Taq polymerase from Thermus aquaticus combined with a monoclonal antibody that confers HotStart functionality. Through directed evolution, this new generation of enzyme is faster and more tolerant of inhibitors.

Exceptional speed

Nearly 1000 bp in 1 second extension time without compromising fluorescence or yield

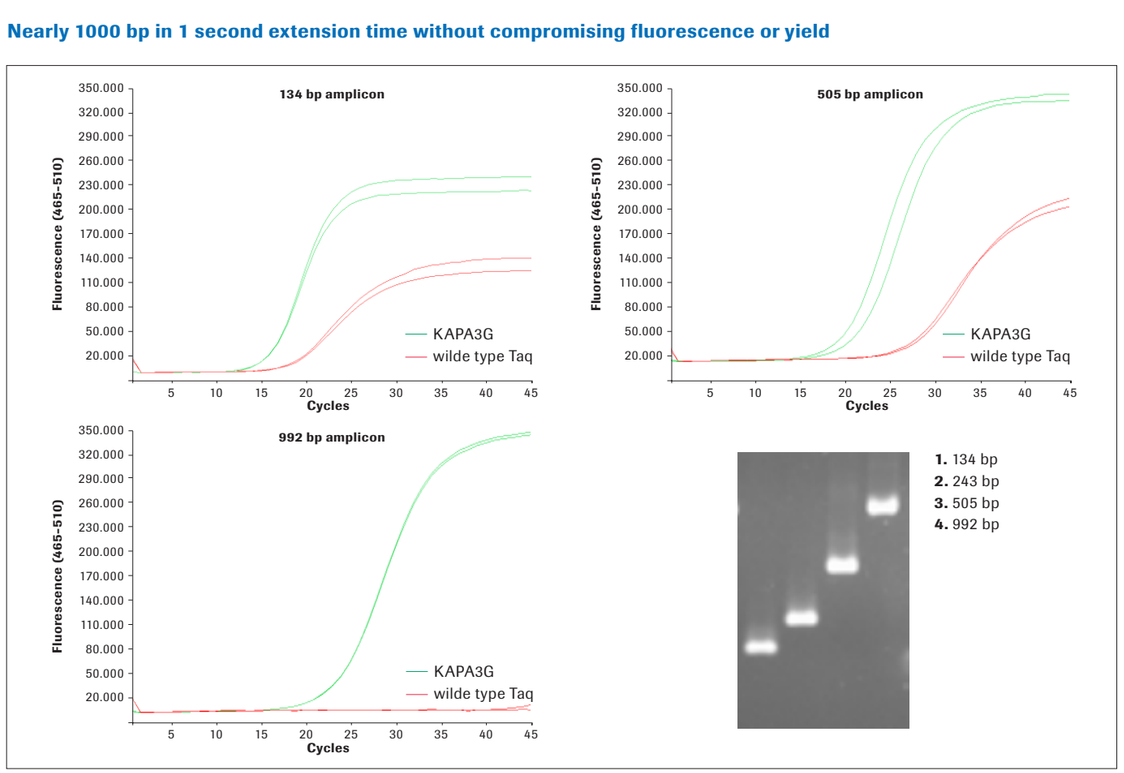

Figure 1. Enhanced amplification efficiency compared to wildtype Taq polymerase. KAPA3G DNA Polymerase consistently achieves higher fluorescence and yields for targets of various lengths with only one second extension time.

Exceptional speed

KAPA3G HotStart DNA Polymerase excels in a fast protocol

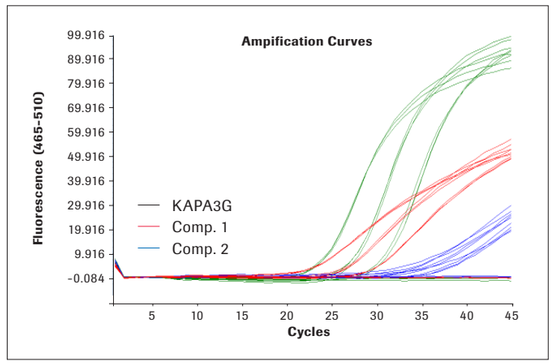

Figure 2. Of three tested polymerases, KAPA3G is the only one that performs well with a fast protocol. KAPA3G DNA Polymerase handles one-second extension and denaturation times with ease, producing consistently high amplification curves. All polymerases were used according to manufacturer's instructions (total assay run time: 23 minutes).

Broad-spectrum inhibitor tolerance

KAPA3G DNA Polymerase exhibits robust performance in presence of a broad range of inhibitors

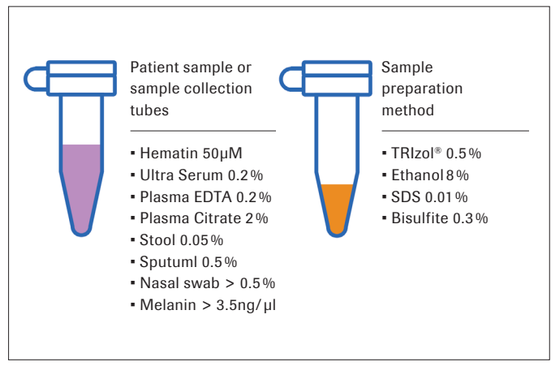

Figure 3. KAPA3G DNA Polymerase was tested with a broad range of inhibitors inherent to liquid biopsies, tissues or standard sample preparation methods. Tolerance is defined as a shift in Cp of ≤ 3 and in fluorescence of ≥ 50% of the control total fluorescence.

Robust multiplexing even in presence of common PCR inhibitors

Inhibitor	FAM				HEX				Cy5			
	cp-shift ≤ 3		fluorescence ≥ 50%		cp-shift ≤ 3		fluorescence ≥ 50%		cp-shift ≤ 3		fluorescence ≥ 50%	
SDS 0.01%	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
EtOH 3%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EDTA 3mM	✓	✗	✓	✗	✗	✗	✗	✗	✓	✗	✓	✗
Citrat 3mM	✓	✗	✓	✗	✓	✓	✓	✓	✓	✗	✓	✗
Urea 180 mM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hematin 30 µM	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓	✗
Heparin 0.1IU/ml	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗
Gua SCN 0.25%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗
Bisulfit 0.1%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
Bile Salt 0.075%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗

KAPA3G
Competitor
✓ passed
✗ failed

Figure 4. High-quality outcomes from multiplex assays spiked with common inhibitors.
KAPA3G shows superior performance with a triplex assay in the presence of inhibitors compared to a competitor polymerase (optimization steps were included that deviate from manufacturer's instructions). Tolerance is defined as a shift in Cp of ≤ 3 and in fluorescence of ≥ 50% of the control total fluorescence. Total assay run times: KAPA3G: 43 minutes; competitor enzyme: 86 minutes.

Lyophilized KAPA3G HotStart DNA Polymerase can be stored for several months at 37°C without loss in performance

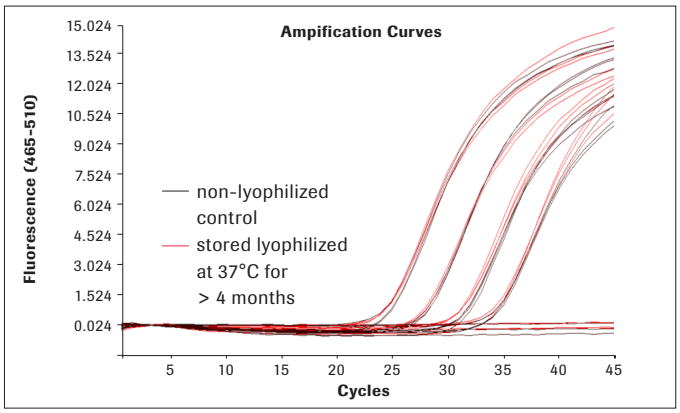

Figure 5. Lyophilized KAPA3G DNA Polymerase retains enzymatic activity even at high storage temperatures. Stored at 37°C for over 4 months, the lyophilized format delivers the same high performance as non-lyophilized enzyme stored at –20°C.

Cut time to result. Extend product shelf life. Catalyze your assay to excel.

Ordering information

Product	Pack size	Catalog number
KAPA3G HotStart DNA Polymerase, glycerol-free, 30 U/µl	custom fill	08918651103
KAPA Probe Force qPCR Master Mix	10 ml	08041237001
	50 ml	08041229001

Regulatory disclaimer

For further processing only.

What extended application data can we send you? Please see contact details below.

custombiotech.roche.com/kapa

Please contact your local CustomBiotech representative

Europe, Middle East, Africa, Latin America
Phone +49 621 759 8580
Fax +49 621 759 6385
mannheim.custombiotech@roche.com

United States
Phone +1 800 428 5433, ext. 14649 (toll-free)
Fax +1 317 521 4065
custombiotech.ussales@roche.com

Canada
Phone +1 450 686 7050
Fax +1 450 686 7012
custombiotech.can@roche.com

Japan
Phone +81 3 6634 1046
Fax +81 3 5479 0585
japan.custombiotech@roche.com

Asia Pacific
Phone +65 6371 6638
Fax +65 6371 6601
apac.custombiotech@roche.com

Published by
Roche Diagnostics GmbH
Sandhofer Straße 116
68305 Mannheim
Germany