

Product & Application Guide

Amplification

Quanta**bio**

First-Strand cDNA Synthesis

Quantabio reverse transcription reagents leverage proprietary, performance-engineered qScript® and qScript Ultra reverse transcriptase in a variety of stabilized, user-friendly reagent formulations that maximize cDNA yield and provide linear cDNA synthesis across a broad dynamic range of input RNA. qScript Ultra cDNA synthesis kits redefine what is possible in speed, convenience, reproducibility, specificity and limit of detection (LOD) sensitivity in qPCR and RT-PCR applications.

	NEW next generation RT enzyme	
	qScript Ultra SuperMix	qScript Ultra Flex Kit
Kit Format	Single Tube	Five Tubes (water included)
RT Enzyme	qScript Ultra RT	qScript Ultra RT
Priming Method	Oligo(dT) & random primers	Oligo(dT) & random primers or gene specific primer
RNA Input Range	1 pg – 2.5 µg	1 pg – 2.5 µg
Amplicon Length	300 bp or less	20 kb or less
Optimal Reaction Time	10 min	10 min

RT-qPCR

Quantabio's innovative 1-Step reverse transcription reagents minimize pipetting, provide highly consistent results, enhance speed and improve overall performance by enabling low limits of detection. eQo 1-step ToughMix® is a lyophilized probe-based 1-step RT-qPCR reagent supplied with a proprietary rehydration buffer when combined with the lyophilized “eQo beads” produces a stabilized 4X concentrated master mix. The kit includes thermolabile UDG for amplicon carryover elimination and an enhanced warm-start reverse transcriptase (RT). The reaction chemistry has been optimized for inhibitor tolerance and delivers exceptional performance in single-plex or highly demanding multiplex formats.

	Quantitative RT-qPCR				
	qScript 1-Step SYBR Green RT-qPCR	qScript XLT 1-Step RT-qPCR ToughMix	UltraPlex 1-Step ToughMix	qScript 1-Step Virus ToughMix	eQo 1-Step ToughMix
Kit Format	2 Tubes	1 Tube	1 Tube	1 Tube	1 tube of lyophilized beads & rehydration buffer
RT Enzyme	MMLV, RNase H+	MMLV, reduced RNase activity	MMLV, reduced RNase activity	MMLV, reduced RNase activity	qScript Ultra RT
Concentration	2x	2x	4x	2x	4x
Yield	+++	++++	++++	++++	++++
Total RNA Input Range	1 pg – 100 ng	1 pg – 100 ng	1 pg – 100 ng	1 pg – 100 ng	1 pg – 100 ng
Amplicon Length	0 – 200 bp	70 – 300 bp	70 – 300 bp	70 – 300 bp	70 – 150 bp
Multiplex PCR	–	✓	✓	✓	✓

PCR

Quantabio PCR reagents are formulated with ultrapure AccuStart DNA polymerase, which contains a stringent antibody hotstart to ensure specific and efficient primer extension only after activation at 94°C. This helps reduce non-specific extension of primers at low temperatures which is a common cause of PCR artifacts and poor assay sensitivity and specificity.

Quantabio enzymes are rigorously purified to remove host *E. coli* genomic DNA and are ideally suited for applied testing applications such as bacterial pathogen detection where residual host DNA in typical recombinant enzyme preparations can limit assay sensitivity and obscure detection of low copy targets.

Available in a variety of optimized formulations designed to support specific PCR applications and starting materials.

	Standard PCR		Tough PCR	High Fidelity PCR	HiFi & Tough PCR	Long PCR
	AccuStart II PCR SuperMix	AccuStart II GelTrack PCR SuperMix	AccuStart II PCR ToughMix	sparQ HiFi PCR Master Mix	repliQa HiFi ToughMix	AccuStart Long Range SuperMix
Concentration	2x	2x	2x	2x	2x	4x
Amplicon size	Up to 4 kb	Up to 4 kb	Up to 4 kb	Up to 4 kb	Up to 24 kb	Up to 24 kb
Extension time	60 sec/kb	60 sec/kb	60 sec/kb	30 sec/kb	1–10 sec/kb	30–60 sec/kb
Multiplex PCR	–	–	–	–	–	Up to 6 Targets
Fidelity vs. Taq	1x	1x	1x	80x Taq	90x Taq	10–12x Taq
dU Tolerant	No	No	No	No	Yes	Yes
Resulting ends	3' dA overhang	3' dA overhang	3' dA overhang	Blunt	Blunt	Blunt/T overhangs
NGS application	–	–	–	Short read	Short read Long read	Long read

RT-PCR

	qScript XLT 1-Step RT-PCR Kit
Concentration	2x
Amplicon size	up to 4 kb
Extension time	60 sec/kb
Multiplex PCR	–
Fidelity vs. Taq	4-6x Taq
dU Tolerant	No
Resulting ends	3' dA overhang

GENOTYPING

AccuStart II PCR Genotyping Kit	
Kit content:	
Extracta® DNA Prep for PCR (95091-02)	Extraction Reagent Stabilization Buffer
AccuStart II GelTrack PCR SuperMix (95136-500)	2X concentrated SuperMix containing optimized concentrations of molecular-grade MgCl ₂ , dNTP blend, AccuStart II Taq DNA Polymerase, reaction buffer, stabilizers, and electrophoretic mobility dyes (4 kb & 50 bp)

Real-Time qPCR

PerfeCta® qPCR reagents combine a stringent, ultrapure antibody hotstart with performance engineered DNA polymerase in stabilized 1-tube formulations optimized for the specific performance needs of real-time quantitative PCR. Proprietary additives help eliminate persistent bubbles to enable efficient vortex mixing and fewer technical replicates thereby conserving precious sample.

ToughMix reagents enable successful amplification of nucleic acid in the presence of common PCR inhibitors.

	SYBR Detection	SNP Detection
	PerfeCra SYBR Green FastMix	Accustart Genotyping ToughMix
Concentration	2x	2x
Performance	++	++++
Inhibitor Tolerance	–	✓
Chemistry	SYBR Green	Probe
Sample Type	gDNA, cDNA	gDNA, cDNA
Cycling Mode	Standard or Fast	Standard or Fast
Multiplex Compatibility	–	Up to 2 targets

	Probe Based Detection		
	PerfeCra FastMix II	PerfeCra qPCR ToughMix	PerfeCra Multiplex qPCR ToughMix
Concentration	2x	2x	5x
Performance	+++	++++	++++
Inhibitor Tolerance	–	✓	✓
Chemistry	Probe	Probe	Probe
Sample Type	gDNA, cDNA	gDNA, cDNA	gDNA, cDNA
Cycling Mode	Standard or Fast	Standard or Fast	Standard or Fast
Multiplex Compatibility	Up to 2 targets	Up to 2 targets	Up to 5 targets
UNG / UDG	–	Available	–

Sample Preparation

Quantabio extraction reagents provide a simplified and cost-effective alternative to traditional nucleic acid (NA) purification methods and are optimized to work in series with Quantabio ToughMix reagents.

Our products cover a wide range of sample types and downstream applications.

The table below provides a brief summary to help you decide which solution is best suited for your experiments.

	Extracta DNA Prep for PCR	Extracta DBS
Sample type	Cells, tissues, buccal swabs, saliva, tail snips, ear punches, hair	Dried blood spots
Analysis	PCR, qPCR	PCR, qPCR, Sanger Sequencing, NGS
Ideal for	Rapid isolation	Samples spotted on collection cards
Extraction time	10 – 30 min	20 min

Table 1 Extracta product selection chart.

Q qPCR Instrumentation

A faster, smaller, better way to qPCR



Ultra-Fast Data Acquisition

35 cycles in 25 minutes



Unrivaled Performance

Detect 2-fold expression level differences



Portable & Compact

4.5 lbs (2 kg) - transport without ever calibrating



Scalable & Wireless

Connect up to 10 instruments (48 samples/instrument)



Magnetic Induction

Eliminate variability vs block-based cyclers



ToughMix. Experience the Amplification Difference.

Quantabio ToughMix® chemistry is the trade secret difference to our mastermix formulations. It has helped scientists for more than 20 years to amplify and analyze difficult/challenging samples by overcoming common PCR inhibitors. Widely used across a multitude of molecular biology applications, ToughMix formulations can be used directly from crude lysates as well as following an extraction protocol.

What can ToughMix do for you

- Work directly with crude lysates
- Avoid expensive and time-consuming purification steps
- Compatible with a wide range of probe designs and detection chemistries
- High quality Taq polymerase-free of residual host *E.coli*
- Neutralize problem causing inhibitors present in crude samples

Inhibitors	Common Source
Polysaccharides	Plants, seeds, stool
Heme, hemoglobin	Blood
Humic acid	Soil, plant material
Melanin	Skin, hair

How we **ADAPT** product solutions in 3 Steps



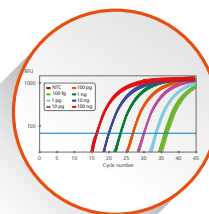
Step 1

Engineered application specific
Enzymes



Step 2

Optimized reagent compositions
Tough Additive



Step 3

Superior product performance

Check out all Quantabio products



Find the right ToughMix



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Quantabio products are intended for molecular biology applications. The products are not intended for the diagnosis, prevention or treatment of a disease.

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