Whip your experiments into shape with the toughest mix around

Experience the Amplification Difference. **ToughMix®**.

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 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 DNA
- Neutralize problem causing inhibitors present in crude samples

Inhibitor	Common sources	Reagent performance	
		Competitor	ToughMix
Polyphenols	Plant extracts	–	✓
Humic acids	Soil Plant tissues	–	✓
Hematin	Dried bloods Blood spots	–	✓
Hemoglobin	Blood	✓	✓
Polysaccharides	Feces Plant tissues	–	✓
Melanin	Hair Skin	–	✓

ENGINEERED APPLICATION SPECIFIC ENZYMES + OPTIMIZED TOUGH REAGENT = SUPERIOR PRODUCT PERFORMANCE

Inhibitor resistance of ToughMixes

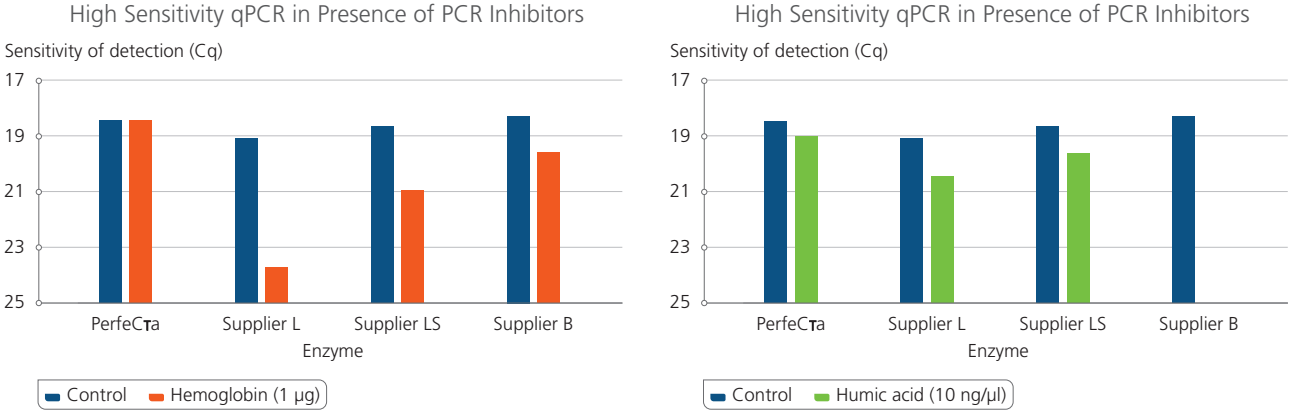


Figure 1 **High sensitivity in the presence of inhibitors.** Comparison of PerfeCTa® qPCR ToughMix sensitivity against other enzyme manufacturers in the presence of hemoglobin (left panel) and humic acid (right panel). ToughMix maintained Cq values compared to control experiments when challenged with inhibitors.

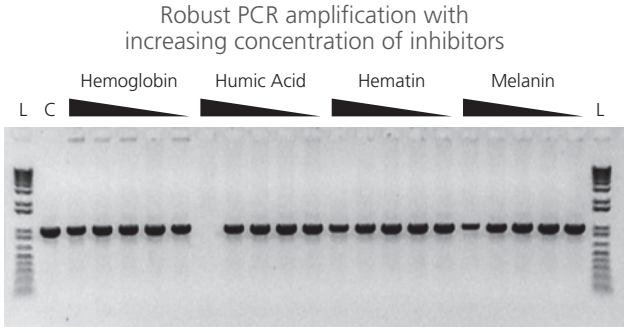


Figure 2 **Inhibitor Resistance of AccuStart II PCR ToughMix against different PCR inhibitors.** A 1-kb fragment from 1 x 10^4 copies of the Tetracyclin resistance gene was amplified in 20 µL reaction volumes according to the recommended protocol. Reactions were challenged with varying concentrations of different PCR inhibitors and analysed by gel electrophoresis.
Hemoglobin: 316–3.16 ng/µL, **Humic Acid:** 31.6–0.316 ng/µL,
Hematin: 100–1 µM, **Melanin:** 10–0.1 ng/µL,
C: control reactions without inhibitor, **L:** 1 Kb Plus DNA Ladder.

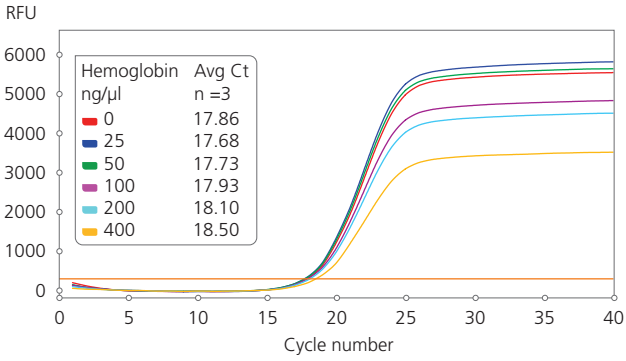
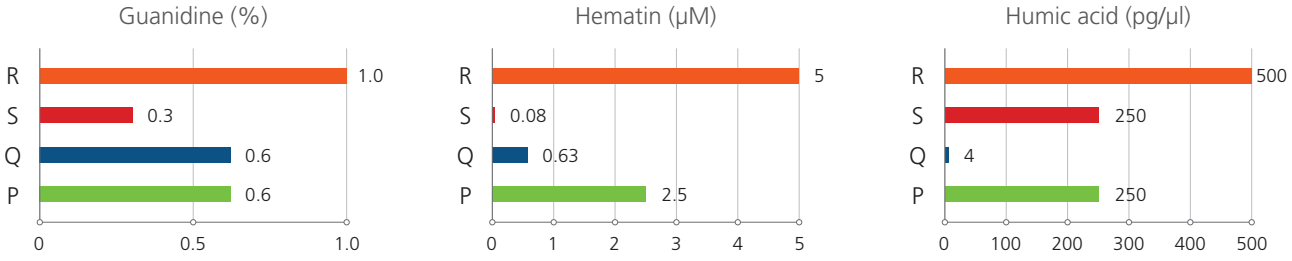


Figure 3 **Inhibitor resistance for 1-Step RT-qPCR.** c-myc was amplified from 10 ng total RNA using qScript XLT 1-step RT-qPCR ToughMix in the presence of increasing concentrations of hemoglobin. Ct values are maintained even when challenged with up to 400 ng/µL inhibitor.



R: repliQa HiFi ToughMix
S: Thermo Invitrogen Platinum SuperFi Master Mix
Q: NEB Q5 High-Fidelity 2x Master Mix
P: NEB Phusion High Fidelity Master Mix

Figure 4 **Resistance to a wide range of inhibitors.** A 2 kb λ DNA template was amplified using each manufacturers recommended cycling conditions with different amounts of inhibitors. The experiment was run in duplicate.

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Find the right ToughMix

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