

# repliQa HiFi ToughMix

## Superior speed and inhibitor tolerance for DNA amplification requiring high fidelity

### FEATURES AND BENEFITS:

- Fidelity of >90x wild type Taq
- 2–3x faster PCR results with extension rates as fast as 1 kb/sec\*
- Tough Tested – tolerant to a wide range of PCR inhibitors
- Superior yield and sensitivity
- Amplification of +24 kb gDNA and +40 kb  $\lambda$  DNA

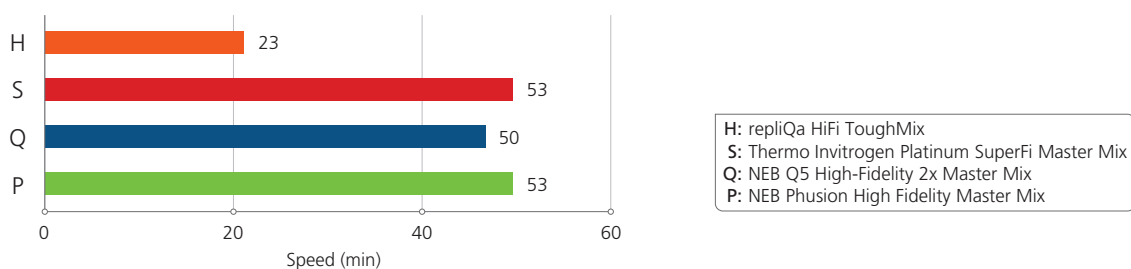
### DESCRIPTION:

The repliQa HiFi ToughMix is a 2x, ready-to-use solution that contains all the components for high fidelity PCR amplification, including a genetically modified DNA polymerase coupled with hot start antibodies.

This unique, next generation master mix provides >90x higher fidelity compared to Taq, while reducing time to PCR results by 2–3x. The extreme speed is enabled by extension times as fast as 1–10 kb/sec depending on target length. The enzyme is coupled with the industry leading ToughMix which is tolerant to a wide variety of inhibitors making it suitable for routine PCR, cloning, amplicon sequencing and site directed mutagenesis.

### Extreme Speed: 2–3x faster results

repliQa HiFi ToughMix has very fast extension times, ranging from 1–10 kb/sec depending on the fragment size, which can significantly shorten the time to result.

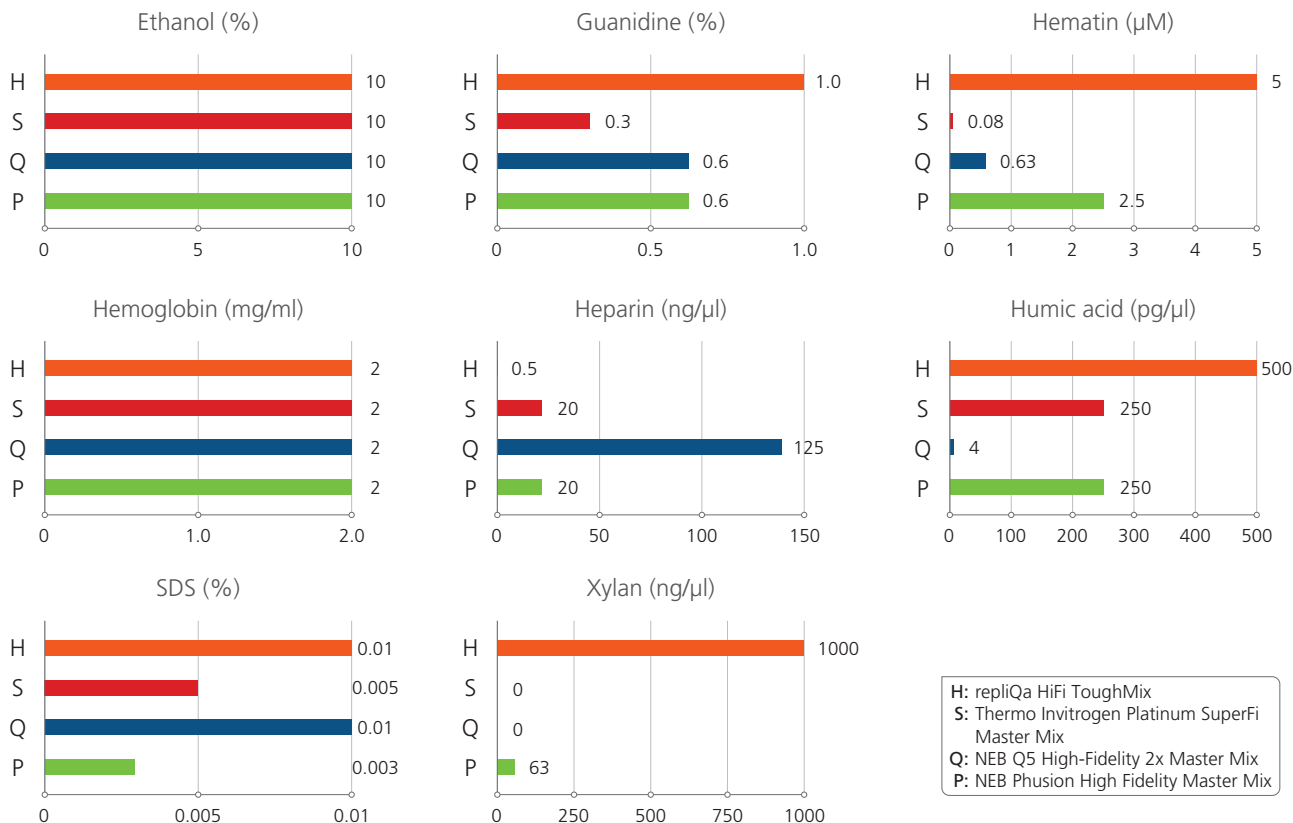


**Figure 1** Comparison of speed. A 2 kb fragment was amplified in 50  $\mu$ l reaction volumes according to the recommended protocol. Following a 30 s activation at 98°C; 30 cycles of PCR were performed: 98°C, 10 s; 60°C, 10 s; 68°C, 5–30 s. The thermal cycler had a ramp rate of 5°C/s.

\* For fragments less than 1 kb in size.

## Tough Tested: Tolerant to a wide range of PCR inhibitors

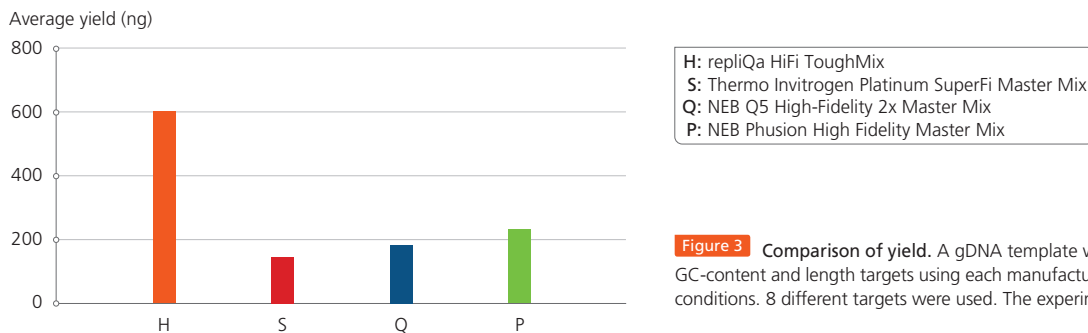
repliQa HiFi ToughMix is able to tolerate a wide range of common PCR inhibitors, allowing for amplification of crude or difficult PCR sample types.



**Figure 2** Strong Inhibitor Resistance. A 2 kb  $\lambda$  DNA template was amplified using each manufacturer's recommended cycling conditions with different amounts of inhibitors. The experiment was run in duplicate.

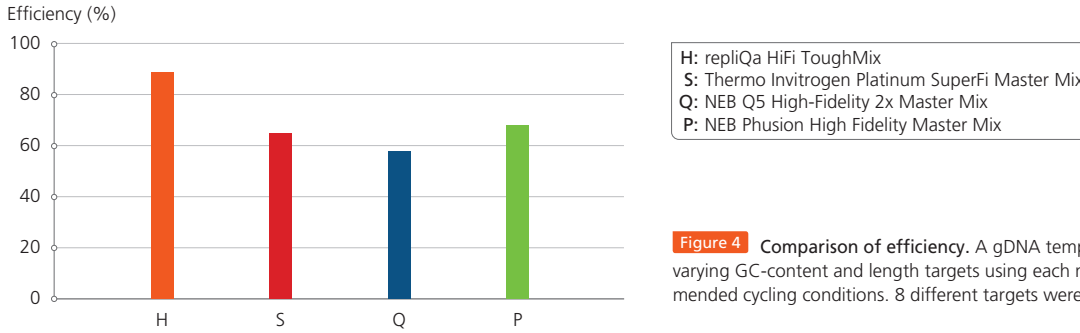
## Superior Yield and Sensitivity

repliQa HiFi ToughMix provides higher yield and sensitivity, highlighting the enzyme efficiency. Coupled with extreme amplification speed allows PCR products to be amplified earlier and detected at lower levels.



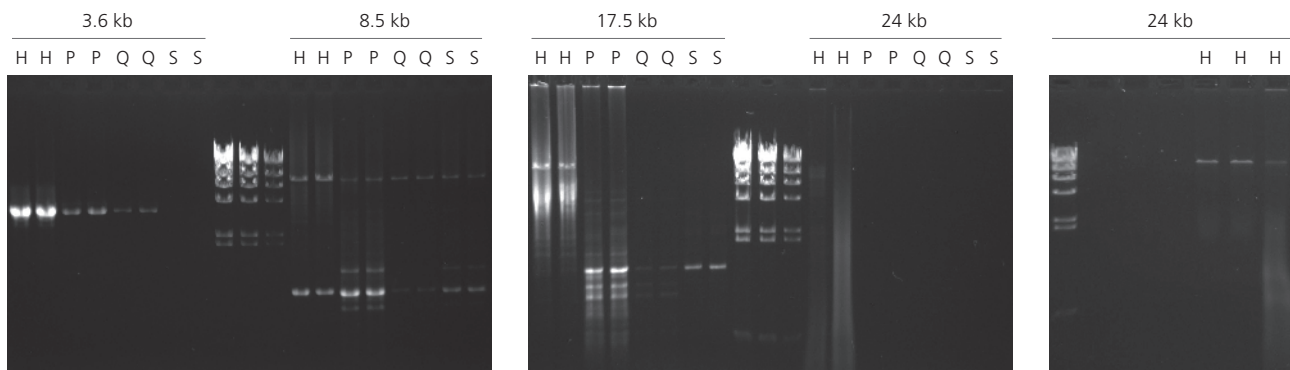
**Figure 3** Comparison of yield. A gDNA template was amplified with varying GC-content and length targets using each manufacturer's recommended cycling conditions. 8 different targets were used. The experiment was run in duplicate.

repliQa HiFi ToughMix demonstrates greater efficiency, at almost 90%, enabling higher yields and ultimately better sensitivity.



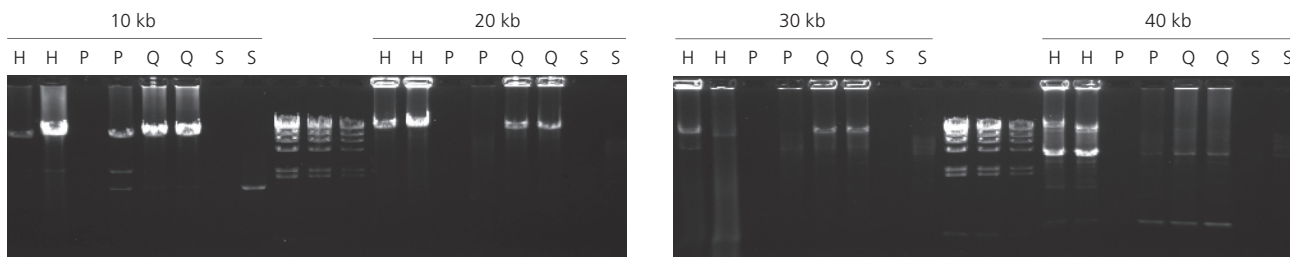
### Long Amplification

repliQa HiFi ToughMix has the ability to amplify long fragments +24 kb gDNA and +40 kb λ DNA, further proving the versatility of this enzyme.



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

**Figure 5 Long Range capabilities (gDNA).** A range of 3.6 kb, 8.5 kb, 17.5 kb, and 24 kb gDNA templates were amplified with varying GC-content and lengths using each manufacturers recommended cycling conditions. The experiment was run in duplicate.

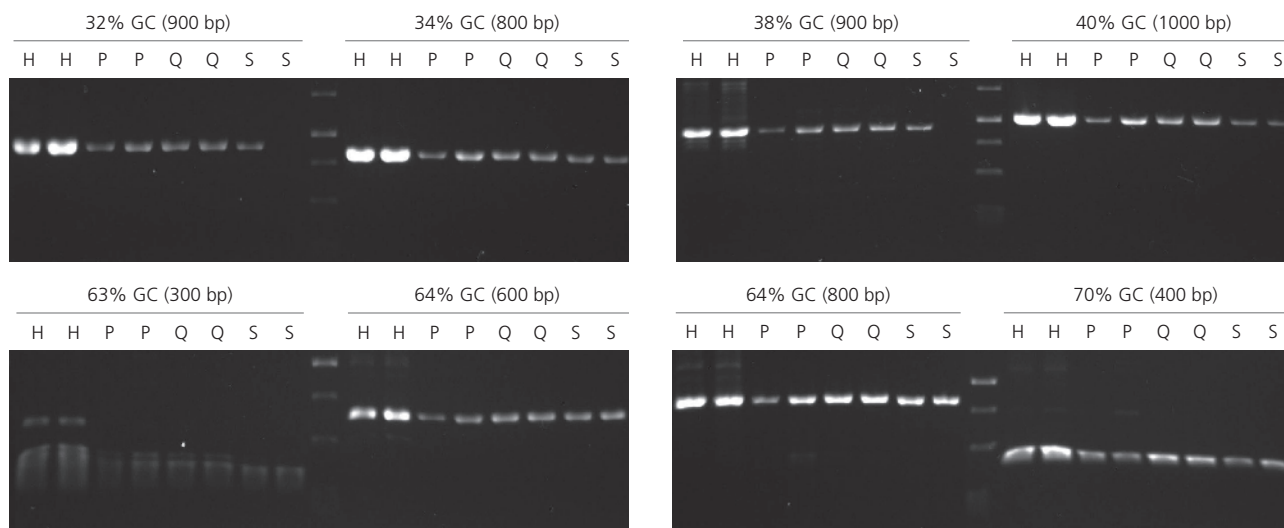


**Figure 6 Long Range capabilities (λ DNA).** A range of 10 kb, 20 kb, 30 kb, and 40 kb λ DNA templates were amplified with varying GC-content and lengths using each manufacturers recommended cycling conditions. The experiment was run in duplicate.

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

### Consistent GC Tolerance

repliQa HiFi ToughMix is able to amplify varying levels of GC-content targets (32%–70% GC-rich), further enabling superior PCR performance.



**Figure 7** Wide GC-content tolerance range. gDNA templates were amplified with varying GC-content and lengths using each manufacturer's recommended cycling conditions. 8 different targets were used. The GC-content varied with 32%/900 base pairs (bp), 34%/800 bp, 38%/900 bp, 40%/1000 bp, 63%/300 bp, 64%/600 bp, 64%/800 bp and 70%/400 bp. The experiment was run in duplicate.

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

### ORDER INFO

Product Name	Quantabio Catalog Number	Size
repliQa HiFi ToughMix - 25	95200-025	25 rxns
repliQa HiFi ToughMix - 100	95200-100	100 rxns
repliQa HiFi ToughMix - 500	95200-500	500 rxns

Quantabio products are intended for molecular biology applications. The products are not intended for the diagnosis, prevention or treatment of a disease.  
 MK-SF-0034 REV 01 repliQa HiFi TM 0220