

SpeedSTAR™ HS DNA Polymerase

Comparison of Detection Sensitivity and Reaction Speed

A comparison of detection sensitivity and reaction speed between Takara's SpeedSTAR™ HS DNA Polymerase and a standard high efficiency hot start DNA Polymerase was performed using various template sizes of *E. coli* genomic DNA. SpeedSTAR™ amplified the varying fragments at the same sensitivity level as the high efficiency hot start enzyme, but required reaction times that were only one-third of those required for the standard enzyme. All experiments were performed on the Takara DICE thermal cycler.

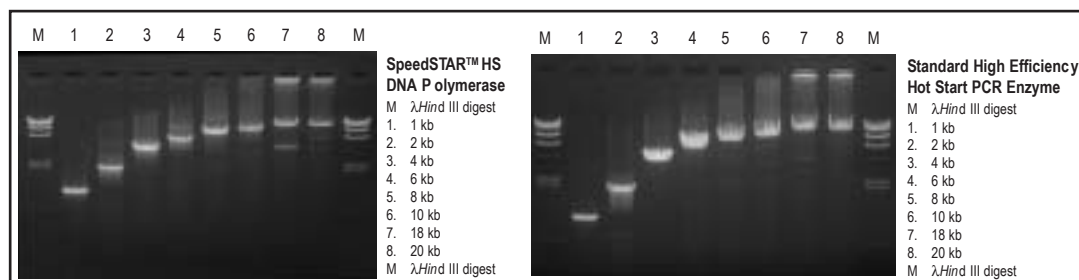


Figure 1: Amplification Efficiency of SpeedSTAR™ and a Standard High Efficiency PCR Enzyme on *E. coli* Genomic Targets of Varying Sizes.

Fragment size	Target genome	Standard PCR	SpeedSTAR™ HS Polymerase
1 kb-2 kb	<i>E. coli</i>	96 min (2-step)	33 min
4 kb- 6 kb	<i>E. coli</i>	226 min (2-step)	53 min
8 kb- 10 kb	<i>E. coli</i>	346 min (2-step)	83 min
18 kb-20 kb	<i>E. coli</i>	8 hrs 16 min (2-step)	3 hrs 29 min

Table 1: Comparison of SpeedSTAR™ and Standard High Efficiency Enzyme Reaction Times on Fragments of Varying Sizes. (2-step refers to PCR cycle conditions)

High Speed Amplification with Larger Fragment Sizes

High speed amplification is especially valuable when amplifying large-size targets. The data below illustrate SpeedSTAR™ amplification of human genomic DNA targets from 0.3-17.5 kb in size with excellent specificity and yield (see Figure 2). The reaction times were three times shorter than those required for standard long PCR enzymes (see Table 2). SpeedSTAR™ possesses the specificity and robust performance required for long PCR of human genomic DNA targets.

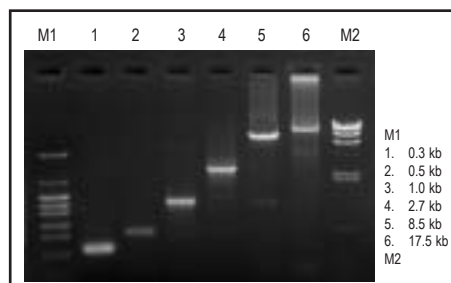


Figure 2: Amplification of Human Genomic DNA Targets of Varying Sizes using SpeedSTAR™.

Fragment size	Target genome	Standard PCR	SpeedSTAR™ HS Polymerase
8.5 kb	Human	4 hrs 59 min (2-step)	1 hr 40 min
17.5 kb	Human	8 hrs 16 min (2-step)	3 hr 29 min

Table 2: Comparison of SpeedSTAR™ and Standard High Efficiency Enzyme Reaction Times on Large Size Human Genomic Targets. (2-step refers to PCR cycle conditions)

Ordering Information

Product No.	Product Name	Quantity
RR070A	SpeedSTAR™ HS DNA Polymerase	200 reactions
RR070B	SpeedSTAR™ HS DNA Polymerase	400 reactions

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