Data Sheet

Agilent
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Superior Agilent DNA polymerases: *Pfu*Ultra II and Herculase II deliver high specificity, accuracy, and long target lengths

Agilent specialists performed a study to see how the specificity claims from both Agilent and competing brand enzymes compared to the results generated after running the thermal cycling reactions according to the manufacturer protocols. Agilent and competitor polymerases were used to PCR amplify a 2.6 kb DNA target from genomic DNA. Amplicons were then analyzed directly on the TapeStation instrument with D5000 reagents and Screen tapes. The results indicate that the Agilent DNA Polymerases show higher specificity than competing brands.

Findings were compared in the following data.

Superior Specificity with *Pfu*Ultra II Fusion Polymerase than other HotStart DNA Polymerases

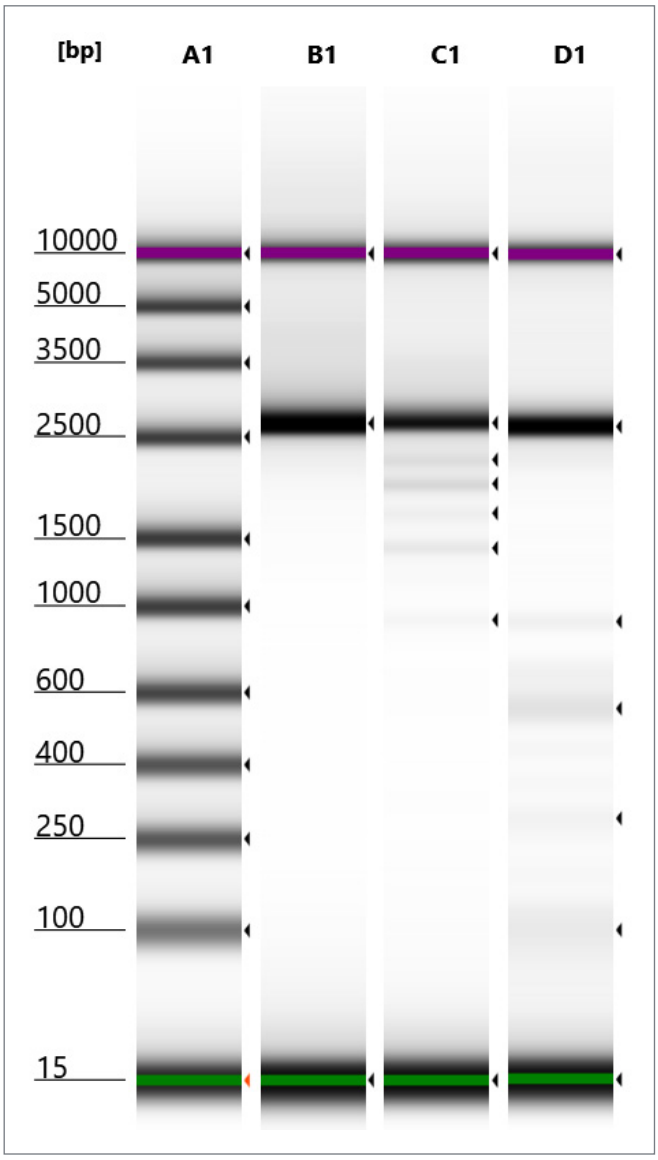

Figure 1. *PfuUltra* II Fusion exhibits increased specificity over comparative polymerases: A1AT gene, 2.6 kb target amplified according to respective enzyme conditions. Lane A1, Ladder 33.2 ng/ul. Lane B1, Agilent *PfuUltra* II Fusion, 9.85 ng/ul. Lane C1, Thermo Platinum II *Taq* Hot Start, 6.52 ng/ul. Lane D1, Thermo Phire Hot Start II, 9.18 ng/ul. Samples run on Agilent TapeStation 4200 instrument in D5000 Assay.
Note: Multiple arrowheads highlighting nonspecific amplification in competitor samples, lanes C1 and D1.

Superior Specificity with Herculase II Fusion Polymerase than other non-HotStart DNA Polymerases

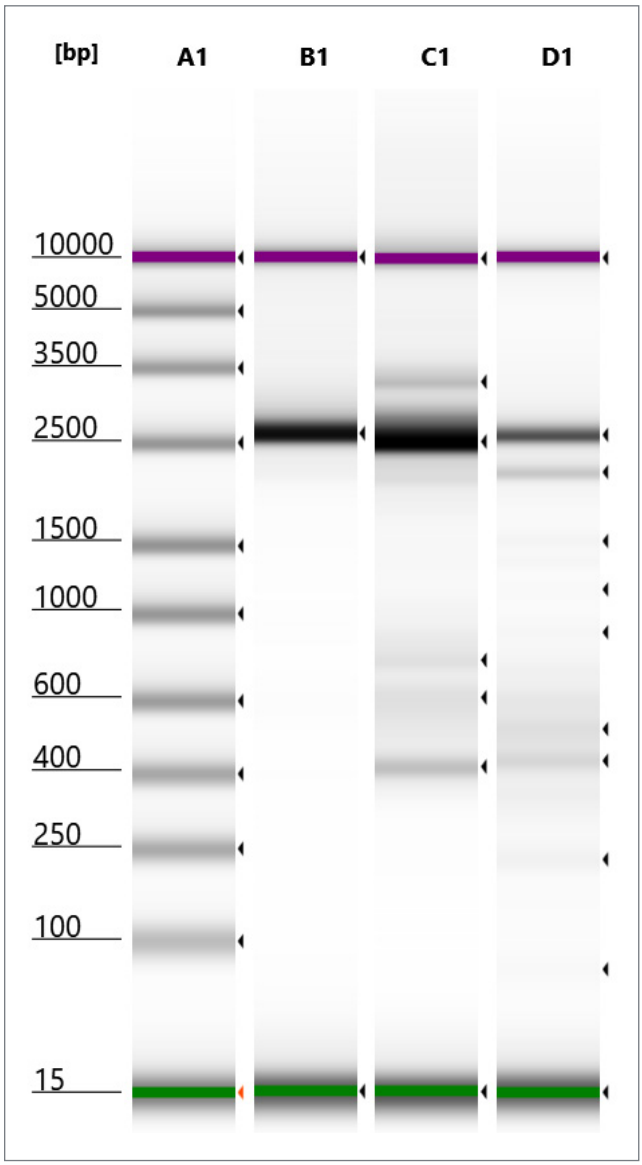

Figure 2. Herculase II Fusion exhibits increased specificity over comparative polymerases: A1AT gene, 2.6 kb target amplified according to respective enzyme conditions. Lane A1, Ladder 33.2 ng/ul. Lane B1, Agilent Herculase II Fusion, 14.2 ng/ul. Lane C1, NEB Phusion HF w/GC Buffer, 33.4 ng/ul. Lane D1, BioRad iProof, 14.4 ng/ul. Samples run on Agilent TapeStation 4200 instrument in D5000 Assay.
Note: Multiple arrowheads highlighting nonspecific amplification in competitor samples, lanes C1 and D1.

Agilent enzymes exhibit superior fidelity and greater target lengths versus competitors

Company Label	Enzyme - DNA Polymerase	Accuracy (*Error rate -1 in bases, calculated back from NX *Taq* factor as provided by company)	Recommended Target Length (in kb)
Agilent	*PfuUltra* II Fusion HS	2,500,000	19
Agilent	Herculase II Fusion	770,000	23
Company B	iproof*	770,000	37
Company K	HiFi*	3,500,000	11
Company N	UltraIIQ5*	1,820,000	2
Company N	HF Phusion*	325,000	20
Company Q	AccustartII*	39,000	4
Company T	Platinum SuperFi*	650,000	10
Company T	Phusion HotStart	770,000	8
Company T	Phire HotStartII*	13,000	8
Company T	PlatinumII *Taq* HotStart	6,500	5

Figure 4. *PfuUltra* II Fusion and Herculase II Fusion enzymes exhibits high accuracy and long target range over comparative polymerases: Error rates for Agilent enzymes generated using a PCR-based *lac*I Phenotypic Mutation Assay. Competitor enzyme error rates taken from respective website report, as factor of *Taq* polymerase error rate. This number was converted to error rate at -1 in base pairs indicated. Green indicates lowest error rates, with increasing error rates indicated by a deeper red. *PfuUltra* II Fusion and Herculase II Fusion enzymes exhibit longer amplicon lengths compared to other polymerases: Target lengths for each polymerase reported on respective company website. Green indicates largest targets, with decreasing size indicated by a deeper red.

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