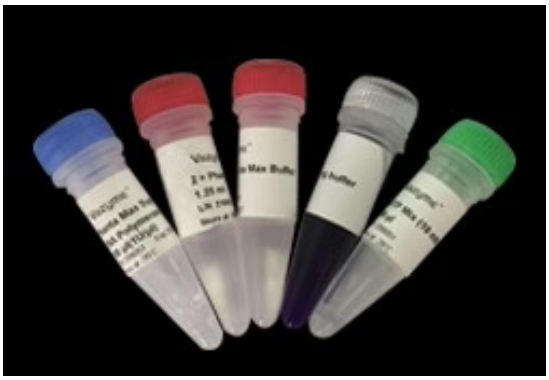
PaCeR™ HP™ DNA Polymerase and Master Mix

About PaCeR™

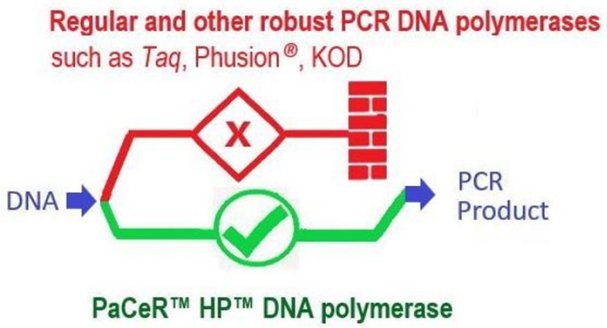
PaCeR™ High Performance (HP)™ DNA Polymerase is a new generation engineered enzyme derived from *Pfu DNA Polymerase* for robust PCR with extremely high fidelity.

If you want to increase your success rate with PCR, we recommend PaCeR™ :

- ✓ In vitro amplification of long fragments up to 40 kb λ DNA, 20 kb genomic DNA and 10 kb cDNA
- ✓ Ability to amplify DNA with GC-content as high as 85%
- ✓ High fidelity: 53-fold lower error rate compared to *Taq* and 6-fold lower compared to *Pfu*
- ✓ Fast extension rate: 1 sec / kb **extension rates vary based on sequence**
- ✓ Resistant to PCR inhibitors
- ✓ Can be used for direct PCR using bacteria, fungi, plants, animal tissues, and whole-blood samples



- ✓ Protein engineering led to a unique enzyme with an extension factor, a specificity-promoting factor and a plateau-inhibiting factor
- ✓ Validated hot start technology, with two monoclonal antibodies
- ✓ *Inherent 5´→ 3´polymerase activity, 3´→ 5´exonuclease activity,* resulting in blunt- ended products (compatible with all blunt-end cloning kits)



ORDERING INFORMATION

CAT.#	PRODUCT	QUANTITY	PRICE ($)
PCR-002-01	PaCeR™ HP™ DNA polymerase	1 mL	**110.00**
PCR-002-02	PaCeR™ HP™ DNA polymerase	5 mL	**445.00**
PCR-001-01	2x PaCeR™ HP™ Master Mix	100 U	**105.00**
PCR-001-02	2x PaCeR™ HP™ Master Mix	500 U	**462.00**
PCR-001-03	2x PaCeR™ HP™ Master Mix	1000 U	**892.00**

CONTACT US

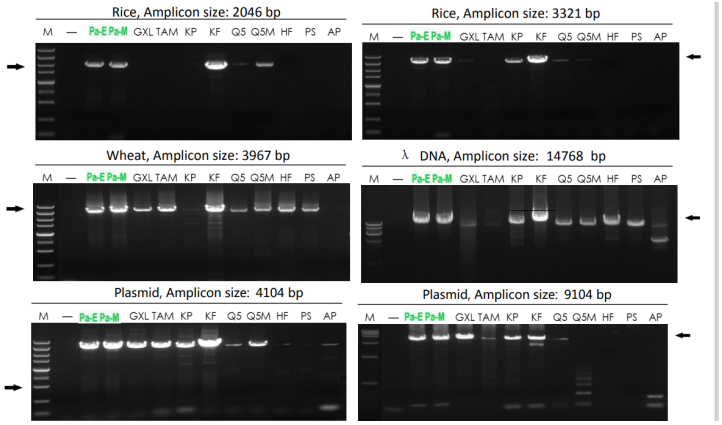
Order: order@genebiosystems.com

Support: TechSupport@genebiosystems.com

Toll Free: 1-833-LabShop www.genebiosystems.com

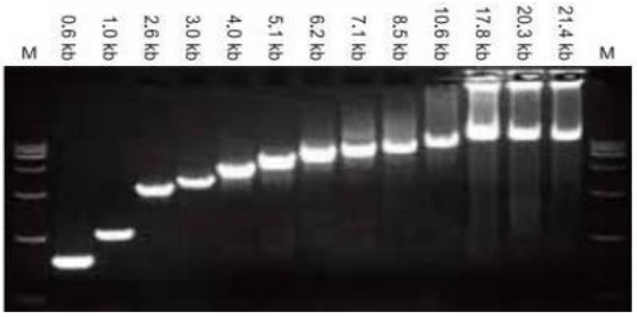
PaCeR™ HP™ DNA Polymerase and Master Mix

PaCeR™ Amplifies More Targets compared to other Robust Polymerases



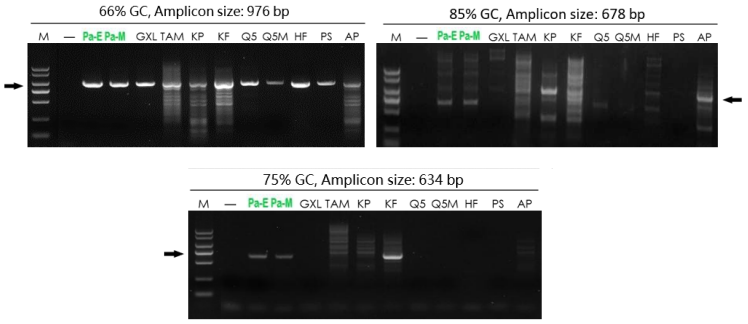
Rice gDNA, wheat DNA, λ DNA and plasmid DNA were amplified by pairs of primers, generating products of 2046, 3321, 3967 and 14768 bp in size. Reactions were prepared according to manufacture instructions of the products tested. Template concentrations used were 100ng gDNA/50µL, 5ng λ DNA/50µL or 1ng plasmid DNA/50µL.

PaCeR™ Enables Consistent Long PCR Amplification



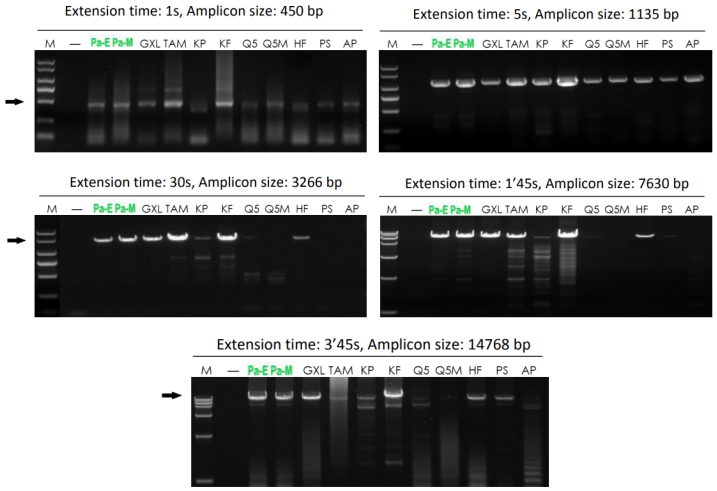
PCR products of sizes ranging from 0.6 kb to 21.4 kb were successfully amplified from human genomic DNA (200ng/50µL).

PaCeR™ Can Amplify Targets with Up To 85% GC-Content



50ng human genomic DNA regions of 976, 634, and 678bp in size, with 66, 75 and 85% GC-content, respectively, were amplified. Instructions provided by each manufacturer were followed. Enhancers were added, when recommended by manufacturers, including GeneBio Systems' Cat. # PCR-001 and PCR-002.

PaCeR™ is a fast DNA polymerase



100ng genomic DNA or 5ng λ DNA/50µL were used to amplify products in sizes, as indicated. Extension times were as indicated.

GUIDE TO POLYMERASES COMPARED ABOVE

Abbreviation	Polymerase
Pa-E	PaCeR™ HP™ DNA Polymerase (GeneBio # PCR-001)
Pa-M	2X PaCeR™ HP™ Master Mix (GeneBio # PCR-002) GXL
GXL	PrimerSTAR® GXL DNA Polymerase (Takara # R050A)
TAM	PrimerSTAR® Max DNA Polymerase (Takara # R045A)
KP	KOD-Plus-Neo (TOYOBO # KOD-401)
KF	KOD-FX-Neo (TOYOBO # KFX-201)

Abbreviation	Polymerase
Q5	Q5® Hot Start High-Fidelity DNA Polymerase (NEB # M0493S)
Q5M	Q5® Hot Start High-Fidelity 2X Master Mix (NEB # M0494S)
HF	Phusion Green Hot Start II High-Fidelity DNA Polymerase (Thermo # F537S)
PS	Platinum™ SuperFi™ DNA Polymerase (Invitrogen # 12351010)
AP	AccuPrime™ Pfx DNA Polymerase (Invitrogen # 12344024)

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GeneBio Systems, Inc.™

PaCeR™ HP™ DNA Polymerase and Master Mix

SELECTED CUSTOMER TESTIMONIALS

"Until we tried PaCeR, we were unable to amplify a large, highly repetitive CRISPR array in one of our bacterial genomes using a variety of enzymes, primers, and approaches. Remarkably, PaCeR amplified this problematic array accurately and robustly with very minimal optimization - in other words, the enzyme was the dfference"

Professor Alex Ensminger, University of Toronto, Ontario, Canada

"After continued difficulty amplifying a 4 kb viral genome fragment using a variety of well- known high fidelity polymerases, the only solution I found was using PaCeR. It not only amplified what other products were unable to but amplified it to a great degree. Additionally, being a high-fidelity polymerase, the error rates were very low. This has become my polymerase of choice for molecular cloning. The price is very affordable and the representatives are incredibly helpful."

Ms. Olivia Roscow, Professor Baozhong Meng Lab, University of Guelph, Ontario, Canada

"The bacterial Bst DNA polymerase gene construct we wanted to amplify was 3.5 kb and we could not amplify it using commercial Taq and Pfu DNA polymerases. After trying the 2x PaCeR master mix, we could see the band after the first experiment and by the way the yield was high-a bright band on gel"

Professor Frank Merante, Seneca College, Toronto, Ontario, Canada

"We were amplifying a 9 kb gene using Phusion without success and were presented with the PaCeR enzyme. We were able to amplify this construct in one piece right away, using the same primers."

Professor Georgina Cox, University of Guelph, Ontario, Canada.

Publications Cited The Use of PaCeR™ HP™ DNA Polymerase

Deecker, S. R. and Ensminger, A. W (2020) Type I-F CRISPR-Cas distribution and array dynamics in Legionella pneumophila. G3 (Bethesda). 2020 Jan 14. pii: g3.400813.2019. doi: 10.1534/g3.119.400813.

Roscow, O.M.A. (December, 2019) Olivia M. A. Roscow, Development of a Full-Length Infectious Clone of Grapevine rupestris stem pitting-associated virus strain Syrah and GFP-Tagged and VIGS Vectors for Vitis vinifera. Master of Science Thesis, University of Guelph, 2019.

WE HAVE CONCLUDED...

PaCeR™ HP™ DNA Polymerase and the 2X Master Mix have:

- ✓ Demonstrated advantages over other products from various companies in all key performance tests
- ✓ Suitable as the one-for-all applications PCR enzyme in demanding PCR experiments
- ✓ Excelled in a) direct PCR with crude sample lysates, and b) assay development where low template concentrations are required (data not shown)

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