

High efficiency & high success-rate PCR Master Mix

KOD FLEX™ PCR Master Mix

A PCR master mix developed for crude samples and difficult templates
High-efficiency and low-bias amplification of hard-to-amplify targets



Minimal extension speed:
15 s/kb

Long targets can be amplified
in a short time.

Modified
KOD

Uses a modified KOD
polymerase (UKOD) with
high amplification efficiency.

Compatible with primers and
templates containing inosine
and uracil.

Buffer
technology

Uniquely engineered buffer
for high performance.

Enables amplification of
hard-to-amplify targets and
crude samples while maintaining
high specificity.



Amplification of hard-to-amplify targets

- High GC- or AT-rich templates
- Long targets
- Targets prone to non-specific amplification
- Multiplex



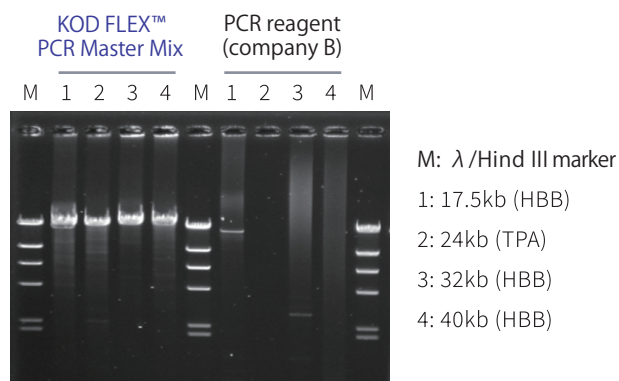
Amplification of crude samples

- Blood
- Mouse tail
- Yeast
- Culture cells
- FFPE
- Plant
- Fungus

Example 1 | Amplification of long targets

Long targets were amplified using human genomic DNA as template.

Even extremely long targets of up to 40 kb were successfully amplified with KOD FLEX™ PCR Master Mix.

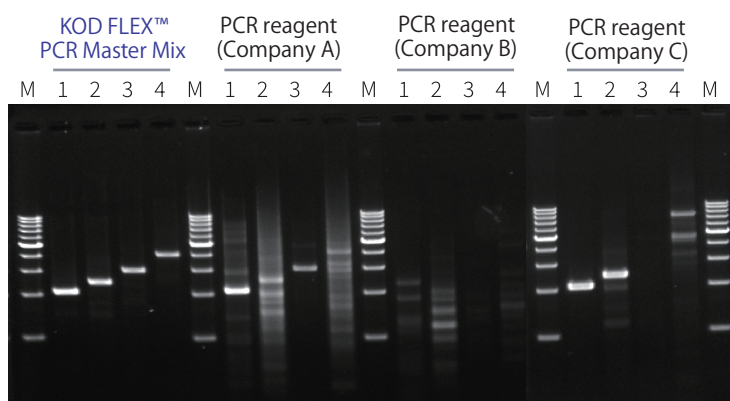


Example 2 | Amplification of GC/AT-rich targets

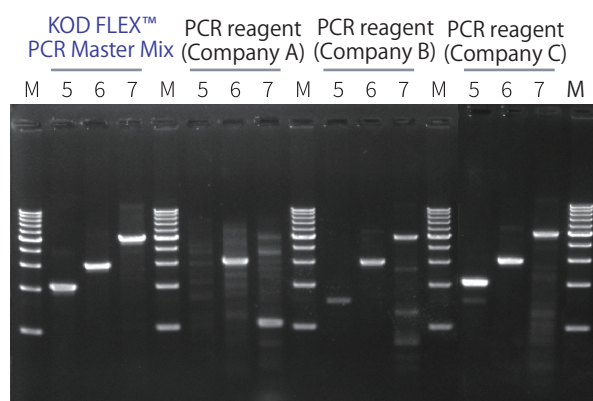
Using human genomic DNA as template, GC-rich (approximately 70% GC content) and AT-rich (approximately 30% GC content) regions were amplified.

KOD FLEX™ PCR Master Mix demonstrated stable amplification of regions with high GC content as well as of regions with high AT content.

< Amplification of high-GC regions (approx. 70% GC content) >



< Amplification of high-AT regions (approx. 30% GC content) >

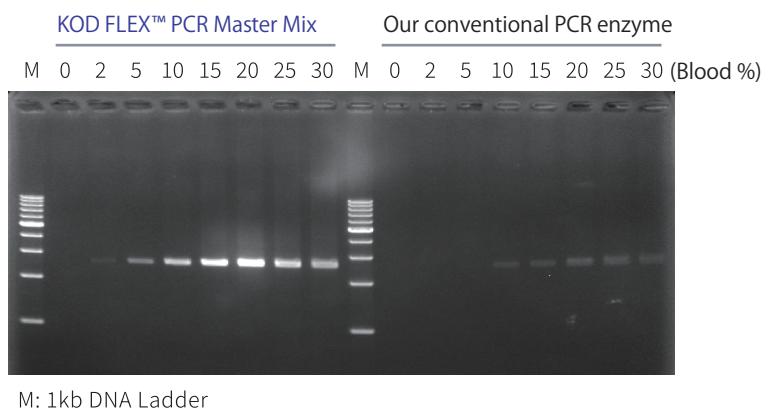


Example 3 | Amplification from crude samples (blood)

The WT-1 gene (2.5 kb) was amplified using blood as template.

Using KOD FLEX™ PCR Master Mix, amplification was achieved even when 30% blood was added to the reaction mixture, without any inhibitory effects from the blood.

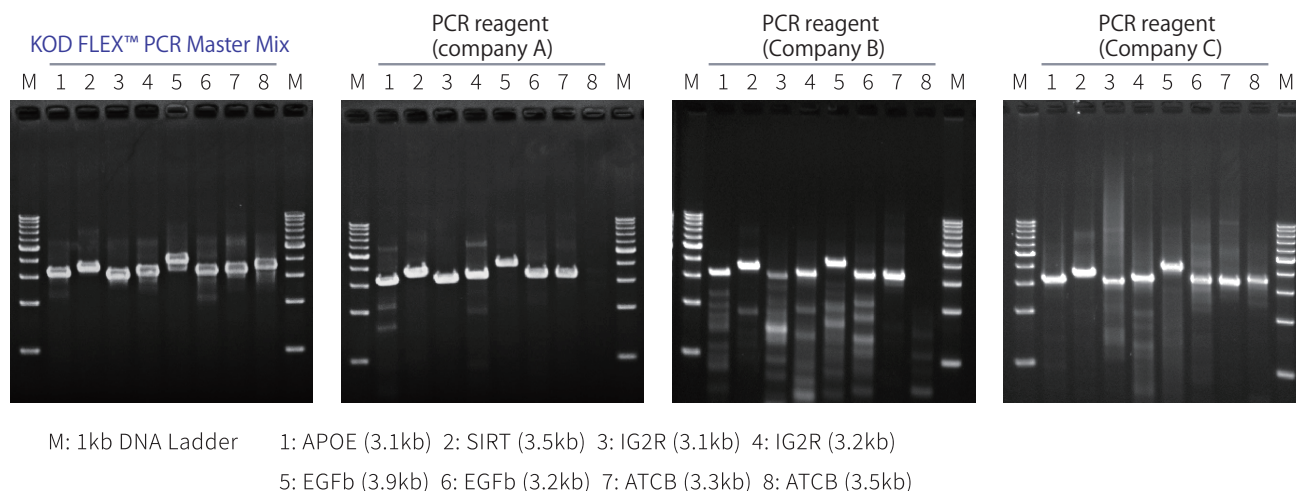
2.5 kb ►



Example 4

Amplification of various targets

Eight different targets were amplified using human genomic DNA as template. While no amplification or non-specific amplification was observed using other companies' reagents, good amplification was observed when using KOD FLEX™ PCR Master Mix.

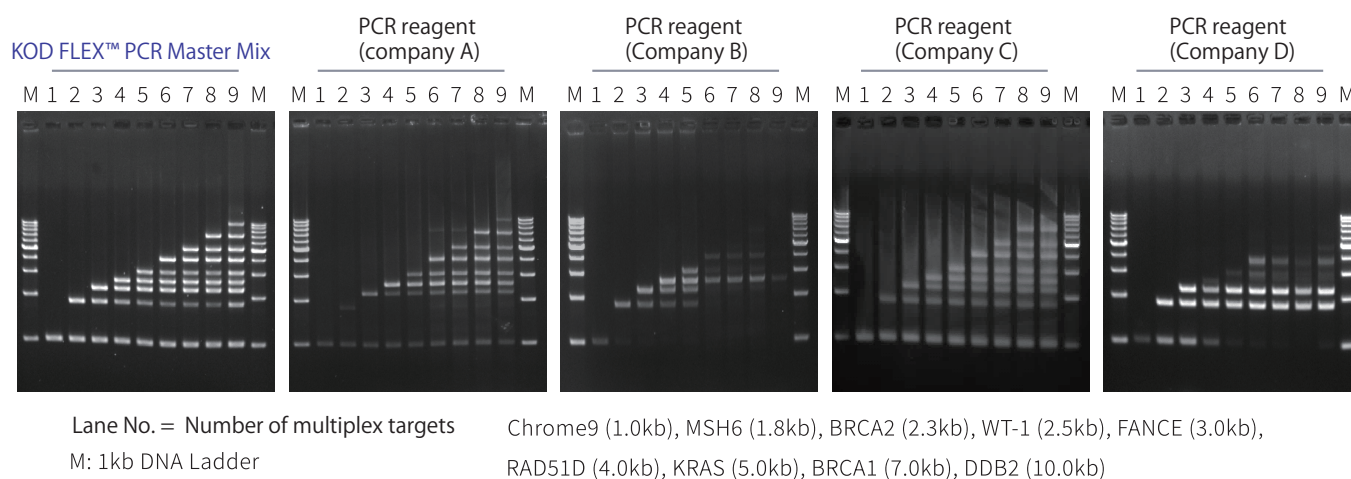


Example 5

Multiplex PCR

Multiplex PCR was performed using human genomic DNA as template. The number of multiplex targets was gradually increased, starting from short fragments, to evaluate both reaction efficiency and specificity.

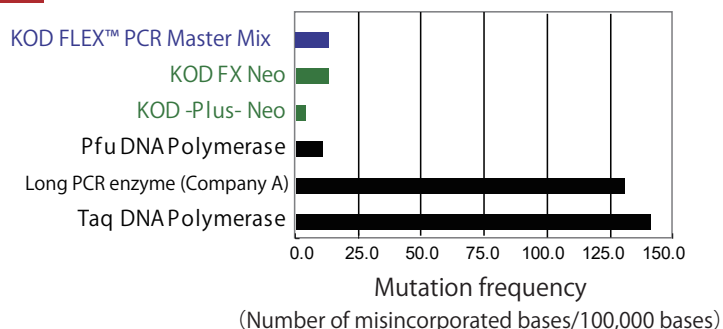
While some targets failed to amplify with other companies' reagents, KOD FLEX™ PCR Master Mix successfully produced bands corresponding to the intended number of multiplex targets.



Fidelity of PCR enzymes (PCR error rates)

The error ratios of various PCR enzymes were compared by determining the sequences of the corresponding human β -globin gene amplicons, which were cloned into a vector using Target clone™ -Plus- (Cope No. TAK-201) before sequencing.

KOD FLEX™ PCR Master Mix fidelity was approximately 11-fold higher than that of Taq DNA polymerase, and was equivalent to that of KOD FX Neo.

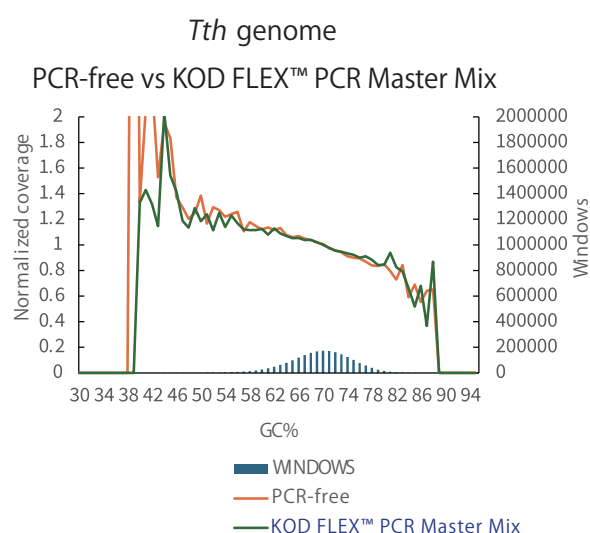
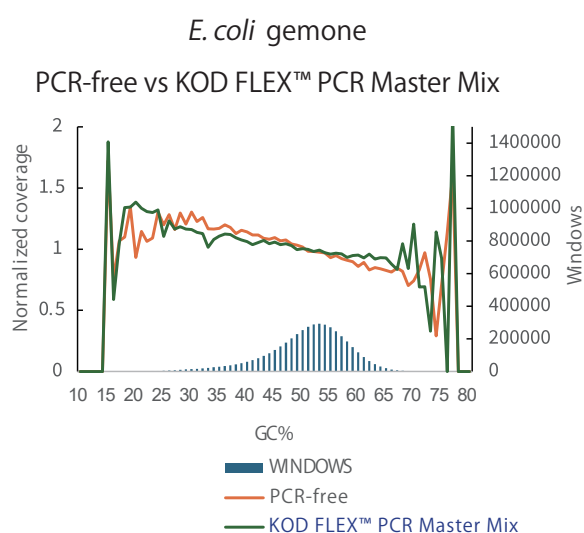


Example 6

NGS library amplification

Genomic NGS libraries of *E.coli* (approximate GC content: 51%) and *Thermus thermophilus* (*Tth*, approximate GC content: 70%) were prepared, and those amplified with KOD FLEX™ PCR Master Mix for 7 cycles were compared with PCR-free libraries. Sequencing was performed using an Illumina MiSeq™ System.

Coverage comparisons across a range of GC contents showed no significant differences between PCR-free and amplified libraries, indicating that the libraries were successfully amplified without any bias.



Product Name	Size	Storage	Code No.
KOD FLEX™ PCR Master Mix	1mL×5 *	-20℃	KMX-101

* 200 reactions (50 µL per reaction)

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