



KAPA3G Plant PCR Kits

Evolved to solve.

Direct PCR from plant tissue.

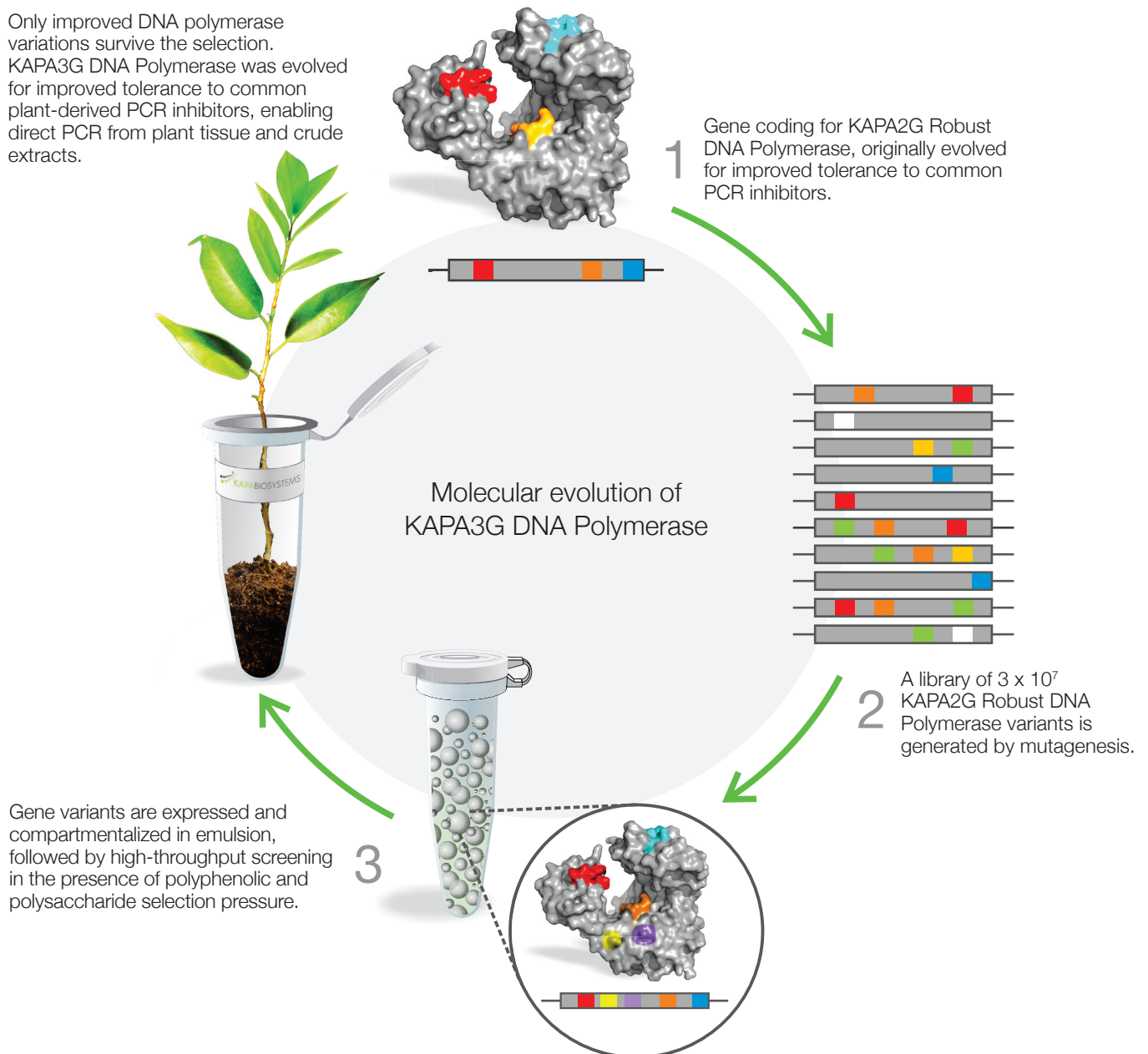
KAPA3G Plant PCR Kits

The KAPA3G Plant PCR Kit is based on a novel, third-generation (3G) DNA polymerase, engineered via molecular evolution for improved tolerance to common plant-derived PCR inhibitors such as polyphenolics and polysaccharides. Kits are optimized for fast and efficient amplification of plant DNA from crude samples, DNA containing carry-over inhibitors from crude extraction methods, and purified DNA.

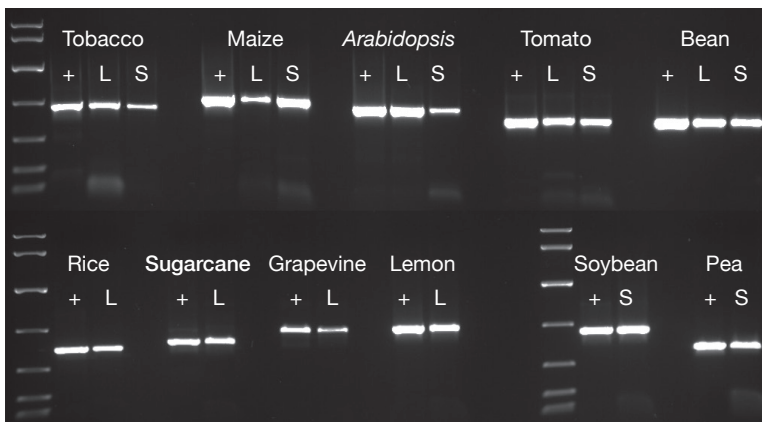
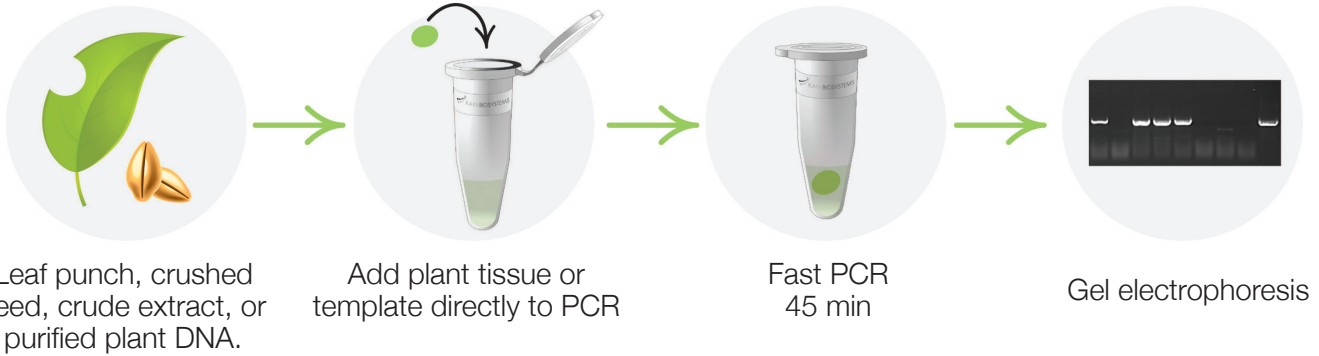
Key features of the KAPA3G Plant PCR Kit include:

- Fast PCR direct from plant tissues such as leaf discs, seeds and crude plant extracts.
- Streamlined workflows for transgenic screening.
- Improved PCR success rates and reproducibility.
- Efficient amplification of long and difficult targets from all sample types.

Only improved DNA polymerase variations survive the selection. KAPA3G DNA Polymerase was evolved for improved tolerance to common plant-derived PCR inhibitors, enabling direct PCR from plant tissue and crude extracts.



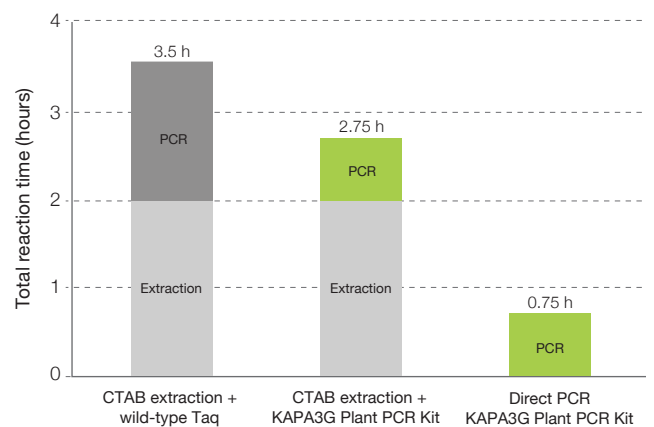
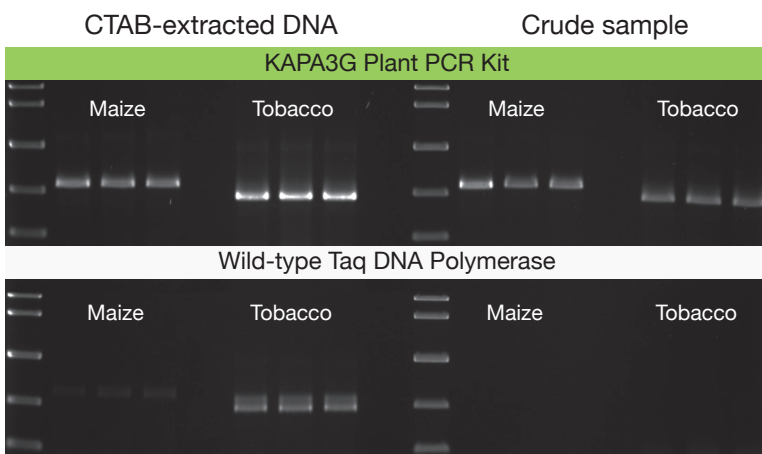
Direct PCR from a variety of plant species and tissue types



The KAPA3G Plant PCR Kit is capable of amplifying DNA fragments from a variety of templates, including purified DNA (+), leaf discs (L) or seeds (S).

Plant genomic DNA was purified from all species using a commercial DNA purification kit. A Harris Uni-Core™ sampling tool (0.5 mm diameter) was used to sample leaves (all species) or seeds (all species except tobacco and *Arabidopsis*; for these one crushed seed was used per reaction). PCRs (50 µL) contained the crude sample or 1-10 ng purified DNA (depending on the species), and 40 cycles were performed in all cases. Targets ranged between 500 and 900 bp, and reaction products were analyzed in a 1% agarose gel. KAPA Express DNA Ladder (100, 200, 400, 800, 1600, 4000, 8000 bp) was used as a MW marker.

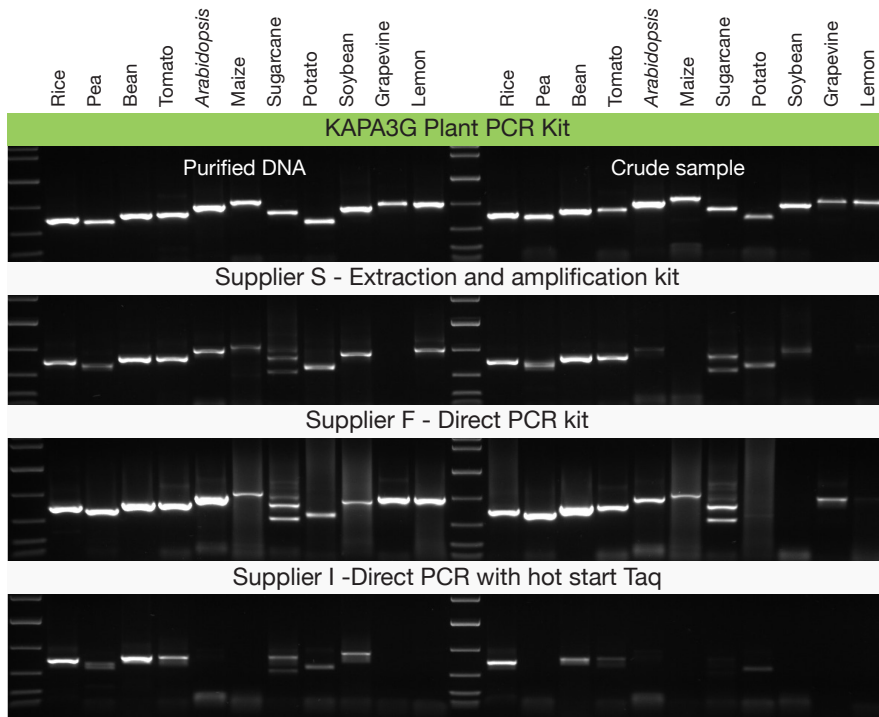
Streamline workflows and improve the reproducibility of results



Direct PCR using the KAPA3G Plant PCR Kit outperforms CTAB extraction and standard PCR using wild-type Taq, in significantly shorter turnaround times.

CTAB-extracted DNA or leaf discs were used as templates for the amplification of targets from maize (860 bp) and tobacco (735 bp), using the KAPA3G Plant PCR Kit (top panel) or wild-type Taq (bottom panel). For each species, genomic DNA was purified in triplicate using a common CTAB extraction method. Crude material was sampled in triplicate using a 0.5 mm diameter Harris Uni-Core™ sampling tool. CTAB-extracted DNA and crude samples were used as templates in 50 µL PCRs, with 40 cycles of amplification. Direct PCR with the KAPA3G Plant PCR Kit was completed in 45 min. In contrast, the CTAB extraction protocol required ~2 h, and the amplification with wild-type Taq 1.5 h to complete. The KAPA3G Plant PCR Kit outperformed wild-type Taq when using both CTAB-extracted DNA and crude sample. Reaction products were analyzed in a 1% agarose gel. KAPA Express Ladder (100, 200, 400, 800, 1600, 4000, 8000 bp) was used as a MW marker.

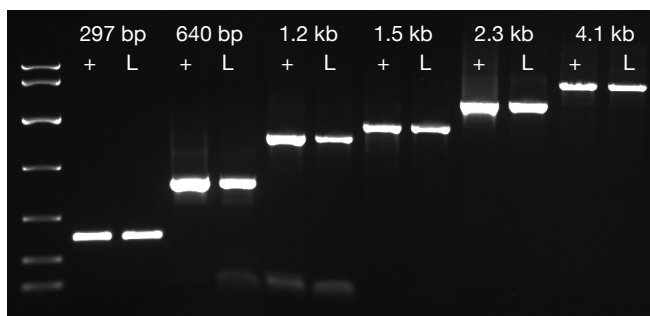
Evolved DNA polymerase enables higher performance PCR direct from plant tissue



The KAPA3G Plant PCR Kit outperforms competitor kits across a broad range of plant species, with both crude samples and purified DNA.

For each species, genomic DNA was purified using a commercial DNA purification kit. Crude leaf material was sampled using a 0.5 mm diameter Harris Uni-Core™ sampling tool. Purified DNA (1-10 ng per reaction, depending on species) and crude samples were used as templates in 50 µL PCRs, with 40 cycles of amplification. Reaction setup and cycling were performed according to each manufacturers' recommended protocol. Targets ranged between 500 bp and 900 bp and reaction products were analyzed in a 1% agarose gel. KAPA Express DNA Ladder (100, 200, 400, 800, 1600, 4000, 8000 bp) was used as a MW marker.

Successful amplification of long targets from crude samples



The KAPA3G Plant PCR Kit is capable of amplifying long targets from crude samples and purified DNA with equal efficiency.

Targets of different lengths (297 bp and 4100 bp from tobacco, 640 bp from tomato, 1221 bp from grapevine, and 1448 and 2249 from potato) were amplified from purified DNA (+) or leaf discs (L) using the KAPA3G Plant PCR Kit. For each species, genomic DNA was purified using a commercial DNA purification kit. Crude material was sampled using a 0.5 mm diameter Harris Uni-Core™ sampling tool. Purified DNA (1-10 ng per reaction, depending on species) and crude samples were used as templates in 50 µL PCRs, with 40 cycles of amplification. Reaction products were analyzed on a 1% agarose gel. KAPA Express DNA Ladder (100, 200, 400, 800, 1600, 4000, 8000 bp) was used as a MW marker.

For further information, please email sales@kapabiosystems or contact your local representative.

ORDERING INFORMATION

Description	Code	Kit contents
KAPA3G Plant PCR Kit	KK7251	250 x 50 µL rxn
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