1st BASE
YOUR RESEARCH, OUR BUSINESS

PrimeWay Plasmid DNA Extraction Kit II (KIT-9041)

PrimeWay Plasmid DNA Extraction Kit II is designed for quick and efficient purification of high-quality plasmid DNA. Using the alkaline lysis method, it extracts plasmid DNA from bacteria with ease. The purified plasmid is suitable for downstream application such as DNA sequencing, PCR, restriction mapping, cloning and DNA labelling applications.

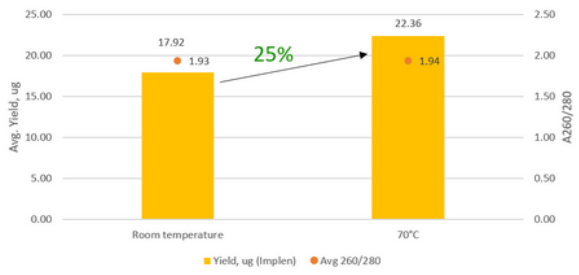
Increase Sample Volume

Copy Number	Cell Culture Volume Yield (OD600 = 4.0)		
	1 mL	5 mL	7 mL
High Copy Plasmid (pJET-BRCA)	7 – 8 µg	29 – 30 µg	**30 – 36 µg**
Low Copy Plasmid* (pBAD-HisA)	1 – 2 µg	4 – 5 µg	**7 – 8 µg**

Table 1. Yield of purified plasmid DNA (100 µl eluate) from 1, 5 and 7 ml of cultured bacterial cells E. coli 10β including high-copy number plasmid pJET-BRCA and low-copy number plasmid pBAD-HisA

Heated Elution for Higher Yield

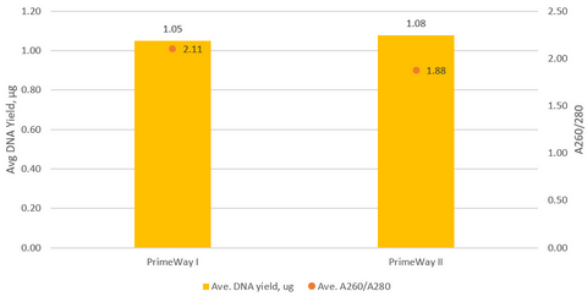
Average DNA yield (µg) and $A_{260/280}$ purity of 12kb pCAMBIA plasmid eluted in 100 µl at room temperature VS preheated elution at 70 °C



Graph 1: Eluting 12 kb pCAMBIA plasmid with preheated buffer at 70 °C significantly improves DNA recovery compared to room temperature elution. Preheated buffer enhances total DNA yield by up to 25%.

RNase A working concentration increased

Average DNA yield (µg) and $A_{260/280}$ purity of PrimeWay I vs. PrimeWay II from 1 mL cultures of pUC19 plasmid in E. coli 10β cells



Graph 2: Increasing the RNase A concentration from 0.13 mg/mL (PrimeWay I) to 0.17 mg/mL (PrimeWay II) improved both DNA yield and purity. The $A_{260/280}$ ratio improved from 2.11 to 1.88, demonstrating elimination of RNA contamination and purer plasmid DNA.

Enhanced RNase A Format – More Volume, Less Evaporation

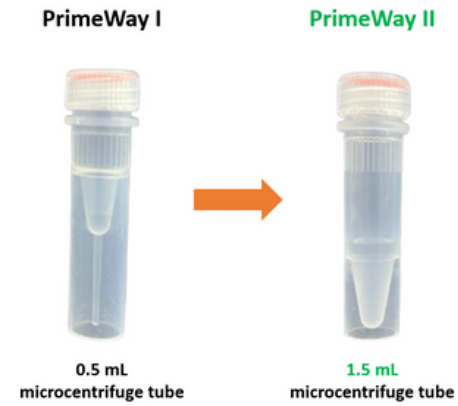


Figure 1: RNase A is provided with higher volume and packed in a 1.5 mL microcentrifuge tube.

Our RNase A now comes in larger tubes and higher volumes to keep your supply steady and cut down on evaporation.

No. of Preps	PrimeWay I	PrimeWay II
10	**5 µL** (100 mg/mL)	**55 µL (10 mg/mL)**
50	**20 µL** (100 mg/mL)	**260 µL (10 mg/mL)**
250	**80 µL** (100 mg/mL)	**120 µL** (100 mg/mL)

Table 2: Comparison of RNase A volumes between PrimeWay I and PrimeWay II

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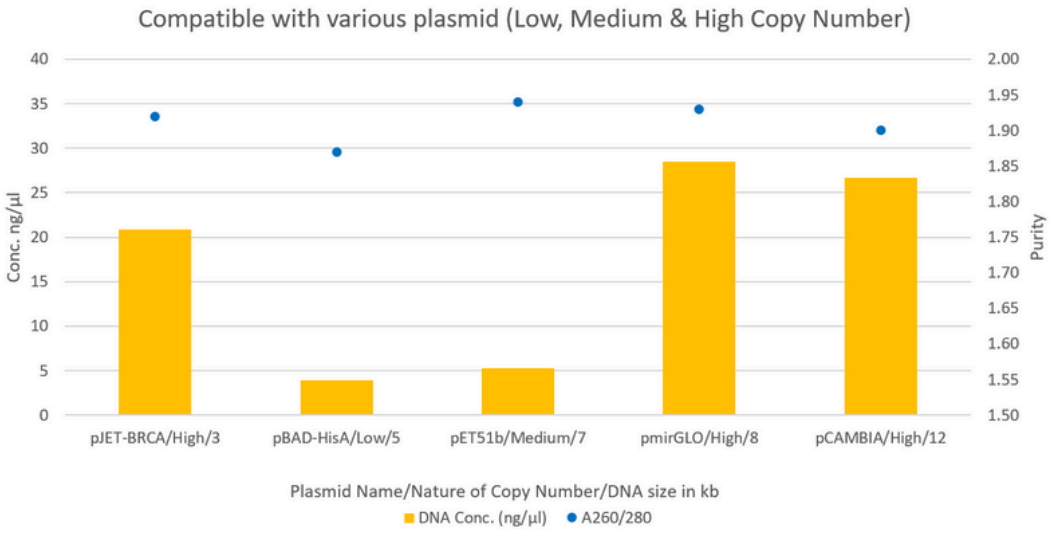
Low, Medium & High Copy Plasmid



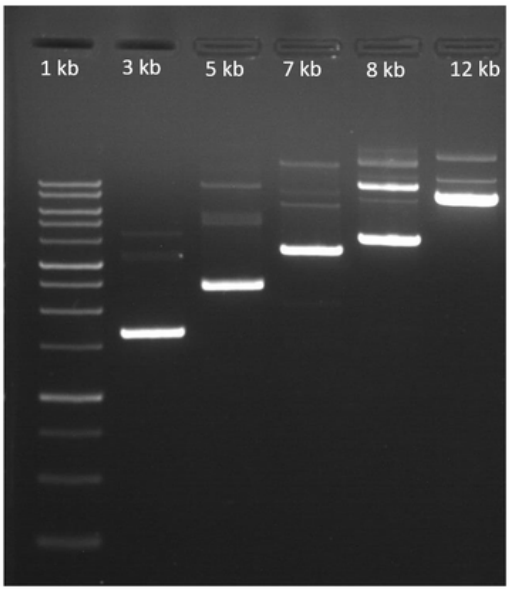


Figure 2: 50 ng of plasmids of varying sizes were loaded onto a 1% TAE agarose gel and electrophoresed at 100 V for 60 minutes. The plasmids were extracted using the PrimeWay Plasmid II DNA Extraction Kit.

Consistency of Purity Performance

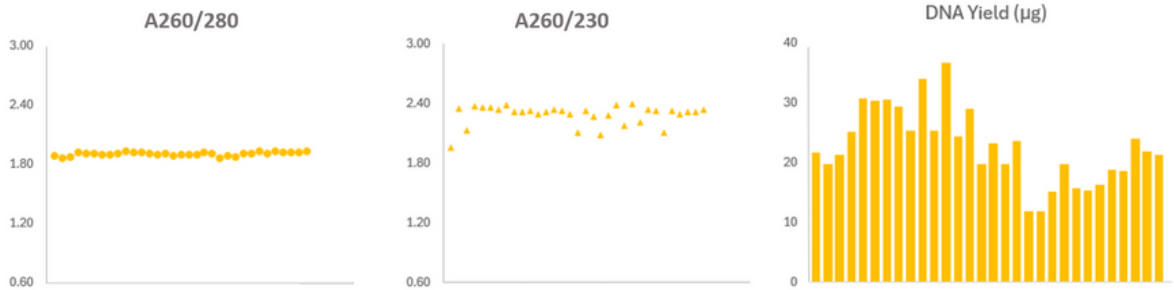


Figure 3: The data shown from 3 graphs above indicate the PrimeWay Plasmid II Kit efficiently extracts high-quality plasmid DNA across different sample types. The consistent A260/280 and A260/230 values indicate that the protocol minimizes contamination and preserves DNA integrity, making it suitable for sensitive downstream applications such as restriction digestion, cloning, or qPCR.

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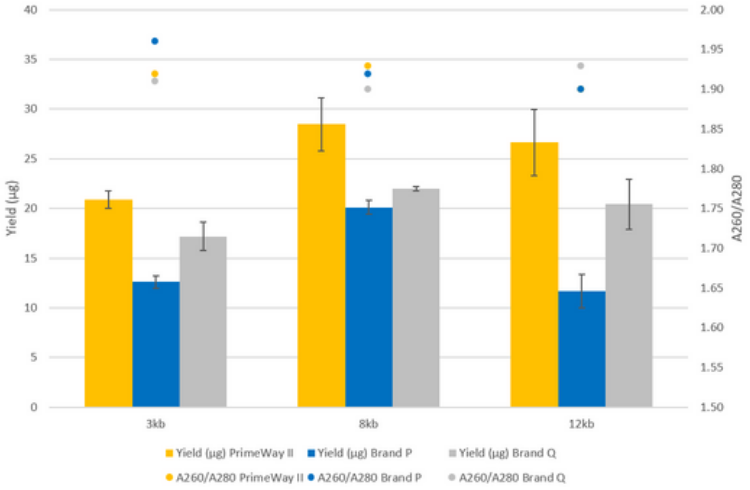
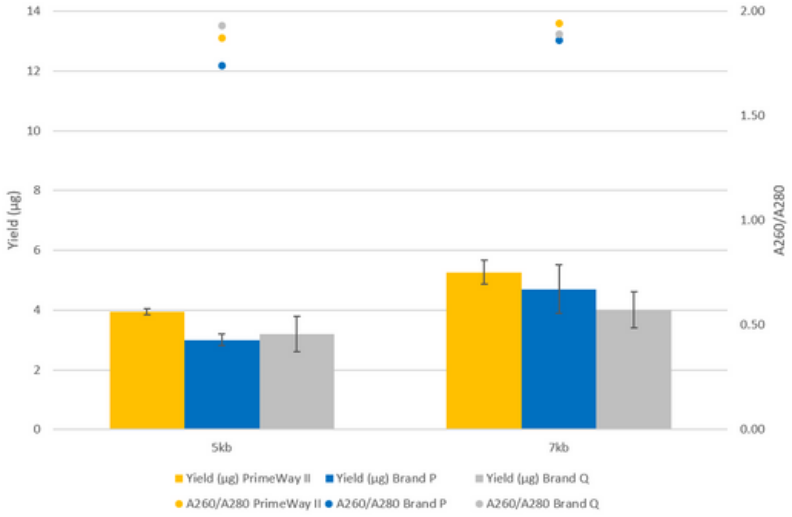
Competitor Study – Yield & Purity Comparison

High Copy Plasmid Yield



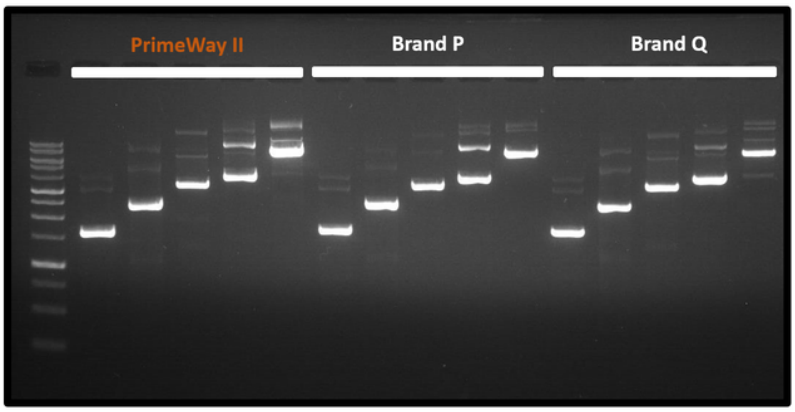
Graph 3: 5 mL overnight grown culture of various plasmid sizes with different high copy number are extracted using different brands. Plasmid extraction is performed according to manufacturing protocol and eluted with 100 µL elution buffer.

Low & Medium Copy Plasmid Yield



Graph 4: 5 mL overnight grown culture of various plasmid sizes with different low and medium copy number are extracted using different brands. Plasmid extraction is performed according to manufacturing protocol and eluted with 100 µL elution buffer.

Agarose Gel Electrophoresis – DNA Profile



Graph 4: 5 mL overnight grown culture of various plasmid sizes with different low and medium copy number are extracted using different brands. Plasmid extraction is performed according to manufacturing protocol and eluted with 100 µL elution buffer.

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Downstream processing: Restriction enzyme digestion

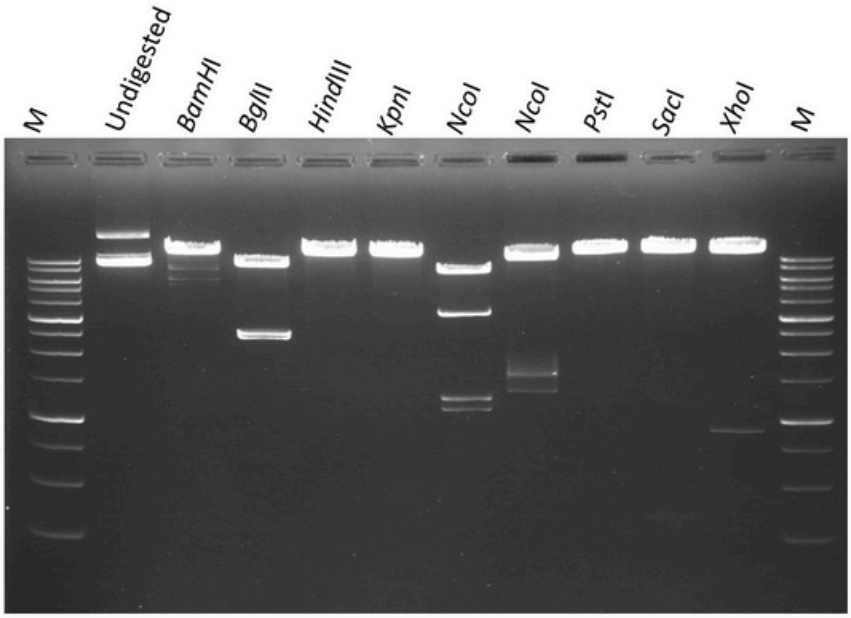

Figure 5: The pCAMBIA plasmid (12 kb), extracted with the PrimeWay II Plasmid Kit, was successfully digested using common restriction enzymes. Clear bands and expected fragment patterns confirm the DNA high purity and suitability for subcloning and mapping.

Ready-to-use Plasmid for High-Quality Sanger Sequencing

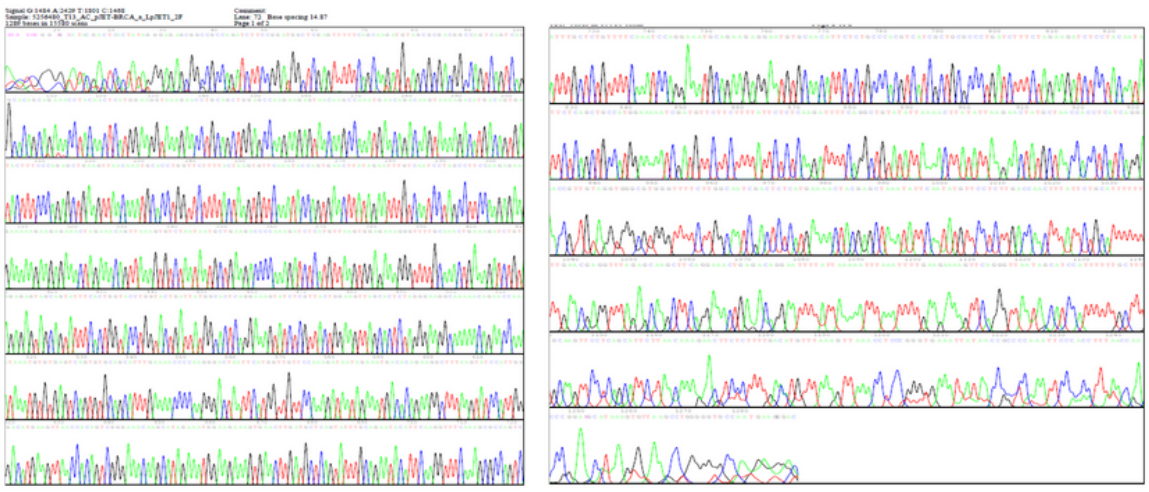

Figure 6: The pJET-BRCA plasmid, extracted using the PrimeWay II Plasmid DNA Extraction Kit from E. coli 10β cells, was prepared for direct use in Sanger sequencing. Sequencing was performed using BigDye™ Terminator v3.1 chemistry, yielding a typical long, high-quality read consistent with automated capillary sequencing standards. This demonstrates the effectiveness of PrimeWay II in producing plasmid DNA of sufficient purity and integrity for precise downstream applications.