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PrimeWay Plasmid DNA Extraction Kit (KIT-9040-10/50/250)

PrimeWay Plasmid DNA Extraction Kit is a rapid and reliable kit used to purify high quality plasmid DNA. It uses the alkaline lysis method to purify plasmid DNA from bacteria. This kit also comes with RNase A to remove RNA during extraction. It uses a silica-based spin column method and is suitable for extracting plasmid DNA up to 15 kb within 25 minutes. The purified plasmid is suitable for downstream application such as DNA sequencing, PCR, in vitro transcription, restriction mapping, cloning and DNA labelling applications.

Performance Review (Concentration, Yield, and Purity Measurement at A260/A280 and A260/A230.)

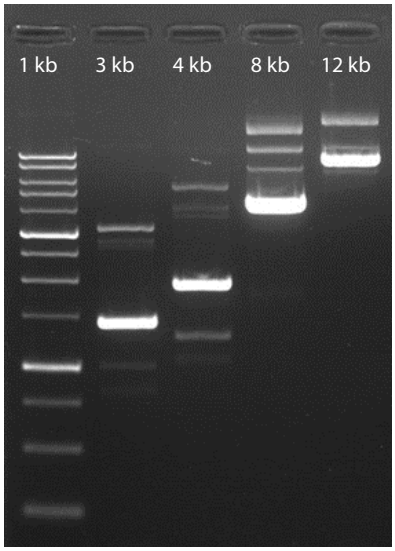


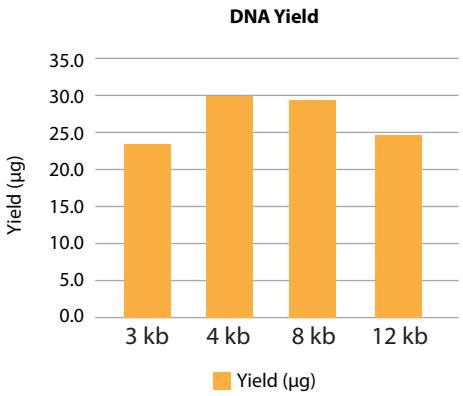
Figure 1

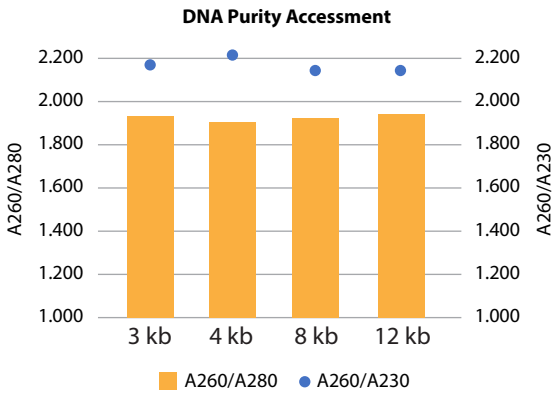
Figure 1: Based on spectrophotometer reading, the purified plasmid DNA is diluted to 50 ng/µL. 2 µL (which is ~100 ng) of purified plasmid DNA was then loaded on 1% agarose gel, stained with 1st BASE Floro+Red (BIO-5171-600ul) in 1x TAE buffer (BUF-3000-10X1L) at 100V for 60 mins.

The final yield of plasmid extraction varies depending on several factors: culture volume, plasmid copy number, type of culture medium and the bacterial strain used.

Elution Buffer: Consistent Yield & Purity

Plasmid Size (kb)	Conc (ng/µL)	A260/A280	Total Yield (µg)
3	235.5	1.921	23.55
4	299.1	1.899	29.91
8	292.9	1.918	29.29
12	247.5	1.926	24.75





The ratio of absorbance at 260 nm and 280 nm is used to assess the purity of DNA and RNA. A ratio of ~1.8 is generally accepted as "pure" for DNA; a ratio of ~2.0 is generally accepted as "pure" for RNA. This ratio is most used to determine the presence of protein and or phenol in the isolated nucleic acid sample.

This ratio of absorbance at 260 nm and 230 nm is used as a secondary measure of nucleic acid purity. The 260/230 values for "pure" nucleic acid are often higher than the respective 260/280 values. The 260/230 ratio is used to indicate the presence of unwanted organic compounds such as Trizol, phenol, Guanidine HCL and guanidine thiocyanate. Generally acceptable 260/230 ratios are in the range of 2.0 – 2.2. Values higher than this may indicate contamination with the mentioned compounds. The acceptable value for 260/230 is 1.5-2.6 for NGS applications.

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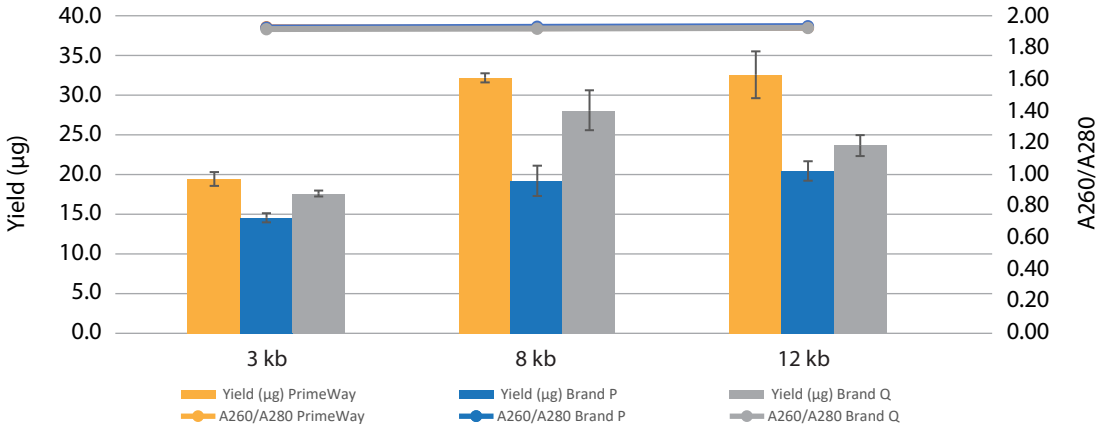
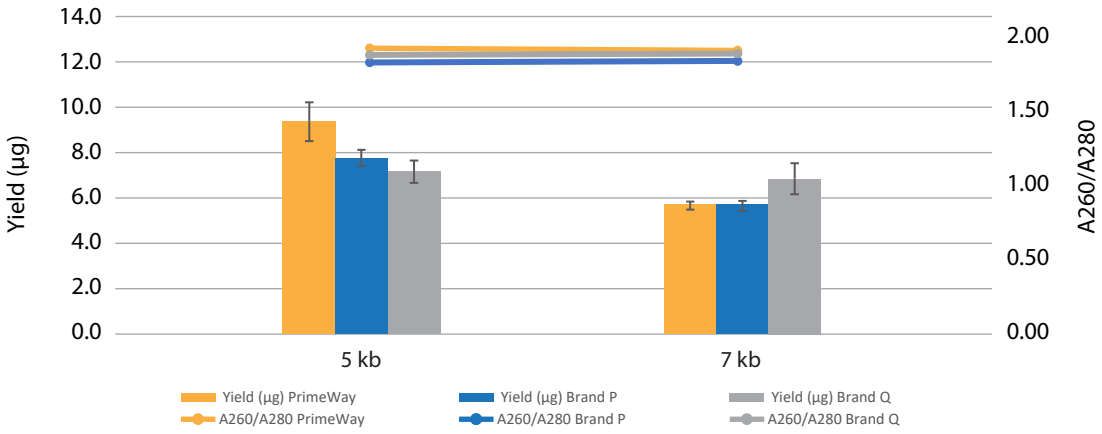
Comparison Data

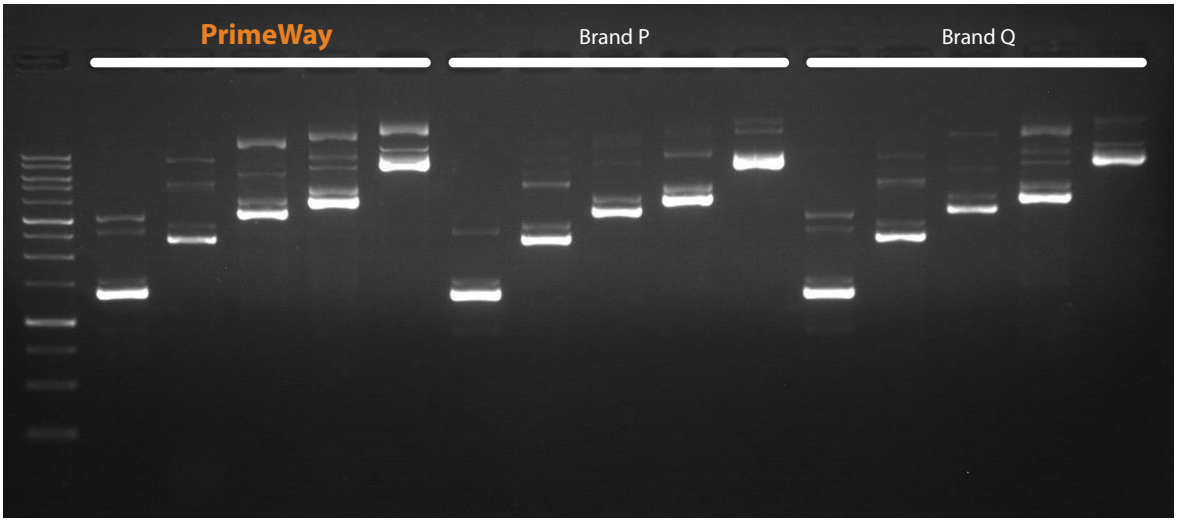
Overnight grown culture of various plasmid sizes with different copy number are extracted using different brands. Plasmid extraction is performed according to manufacturing protocol and eluted with 100 µL.

High Copy Plasmid Yield



Low & Medium Copy Plasmid Yield





100 ng of extracted plasmid from various brands is analyzed using 1% TAE gel stained with Floro⁺Red Nucleic Acid Stain (BIO-5171-600ul). ExactMark 1 kb DNA ladder (1st BASE, BIO-5140-50ug) is used as the size standard.

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