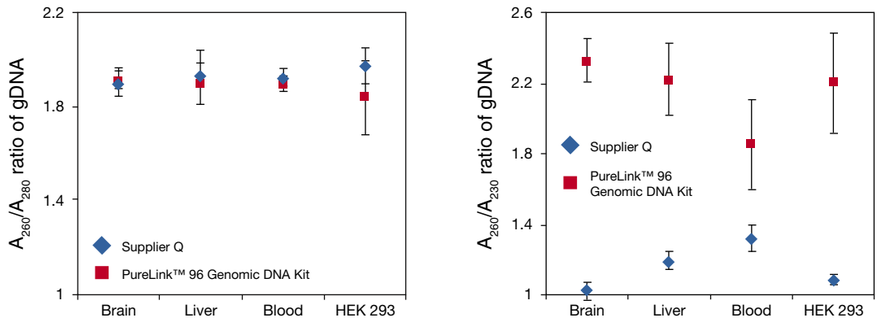

Figure 10—Higher purity with PureLink™ 96 Genomic DNA Kit. Genomic DNA was extracted from various samples (10 mg brain, 10 mg liver, 200 µl blood, and 1×10^6 HEK 293 cells) with either the PureLink™ 96 Genomic DNA Kit or the supplier Q kit. The A_{260}/A_{280} ratio and A_{260}/A_{230} ratio were determined spectrophotometrically. Pure DNA has an A_{260}/A_{280} ratio of 1.7–1.9 while an A_{260}/A_{230} ratio for pure DNA should be above 1.8.

Ordering information

Yield. Purity. Integrity. Now you can get it all, with all your sample types and sizes, in the spin column– and 96-well silica plate–based PureLink™ Genomic DNA Kits. Order today.

Product	Quantity	Cat. no.
PureLink™ Genomic DNA Mini Kit	10 preps	K1820-00
	50 preps	K1820-01
	250 preps	K1820-02
PureLink™ 96 Genomic DNA Kit	4 × 96 preps	K1821-04

Related products		
PureLink™ Genomic Digestion Buffer	70 ml	K1823-01
PureLink™ Genomic Lysis/Binding Buffer	80 ml	K1823-02
PureLink™ Genomic Wash Buffer I	100 ml	K1823-03
PureLink™ Genomic Wash Buffer 2	75 ml	K1823-04
PureLink™ Genomic Elution Buffer	160 ml	K1823-05
PureLink™ Vacuum Manifold	1	K2110-01
PureLink™ Vacuum Regulator	1	K2110-02

For current prices, please visit www.invitrogen.com/plgenomic.

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Higher genomic DNA yields and purity using your favorite format

PureLink™ Genomic DNA Kits

invitrogen™

Greater yields of higher-purity gDNA with the familiar spin column format

PureLink™ Genomic DNA Kits

→ Obtain higher gDNA yields and purity—optimized spin column technology and buffer formulations

→ Save time and money—use with a large range of sample sizes (i.e., 100 µl to 1 ml blood); 96-well version does not require special equipment

→ Increase flexibility—one kit works with a variety of sample types

Purifying genomic DNA is a starting point for many processes, so it's critical that you get the quantity and purity you need. Current silica-based kits can only handle minimal sample amounts, forcing you to perform purification procedures multiple times, using up expensive reagents, wasting time, and increasing the risk of sample loss. Now you can get the familiarity of silica methods and the results you need with the improved PureLink™ Genomic DNA Kits. Specially designed columns, buffers, and protocols enable you to purify larger sample quantities in a single pass, saving you time and reagents. In addition, you'll find that the yield and purity level of PureLink™ kit–purified gDNA are higher than those of any other method.

Figure 1—Optimized design of the PureLink™ spin columns.

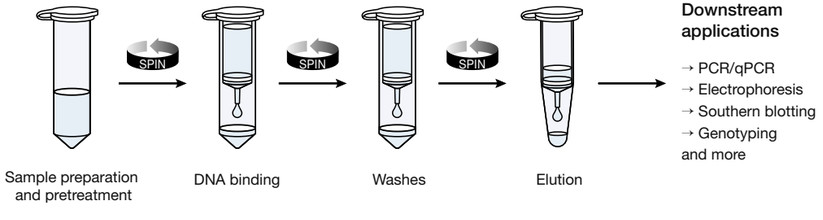


Figure 2—Easy-to-follow PureLink™ spin column–based purification method.

The spin column method you know, only better

The PureLink™ protocol improves upon the easy, familiar spin column method currently in use (Figures 1 and 2). Columns are newly reconfigured for more efficient handling. Improved membrane construction increases the binding and release of DNA. Samples are lysed in an optimized buffer formulated to enhance proteinase K activity and eliminate protein contamination. The chaotropic salt binding buffer allows for the highest DNA binding of any column method. Powerful wash buffers remove all traces of protein and salt. DNA is eluted in a low-salt buffer to allow for pH stabilization of the DNA in storage.

The quantity and level of purity you need

A method is only as good as the results it yields. With the PureLink™ Genomic DNA Kits, you'll get higher yields of higher-purity gDNA (determined by A_{260}/A_{280} measurements) with all of your sample types—from bacteria to tissues to blood to cells (Figures 3–5). Protocols are available for using the PureLink™ kits with blood (up to 1 ml), tissues, cells, bacteria, swabs, blood spots, FFPE tissues, and Oragene™-preserved samples. In fact, the PureLink™ kits show greater versatility and recovery with blood samples than kits designed specifically for blood (Table 1). You'll save time, money, and effort by using one method for all your sample sizes and types, and find it easier to standardize laboratory procedures.

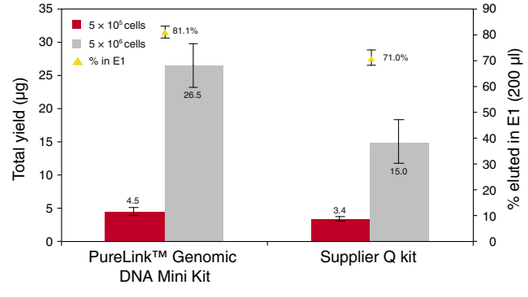
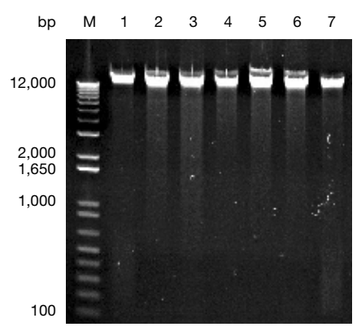


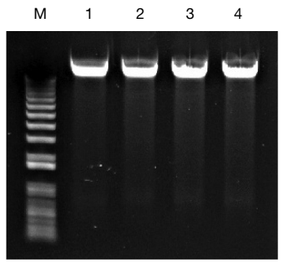
Figure 3—Significantly higher yields of higher-purity gDNA are obtained using the PureLink™ Genomic DNA Kits. DNA was extracted from the indicated amount of HEK 293 cells using the PureLink™ Genomic DNA Mini Kit and Supplier Q's kit. DNA concentration was measured using spectrophotometry (A_{260}) after two 200 µl elutions. Significantly higher yields of DNA were obtained using the PureLink™ Genomic DNA Mini Kit compared to the competition (p-value = 0.014). In addition, a greater percentage of the total yield was recovered in the first elution (E1) using the PureLink™ kit than with the Supplier Q kit (80% vs. 70%, yellow triangles).



M: 1 Kb Plus DNA Ladder
Lane 1: Gram-positive bacteria
Lane 2: Gram-negative bacteria
Lane 3: HEK 293 cells
Lane 4: human whole blood
Lane 5: rat brain
Lane 6: rat liver
Lane 7: human saliva (Oragene™ sample)

Figure 4—High quality and integrity of gDNA purified using the PureLink™ Genomic DNA Mini Kit. Genomic DNA from various samples was purified using the PureLink™ Genomic DNA Mini Kit, and 200 ng from each sample was analyzed on a 1% E-Gel® agarose gel. Tight, sharp DNA bands high in the gel without smearing are indicative of high-quality DNA with minimal shearing or degradation.

A. Purified DNA shows minimal shearing or degradation.



M: 1 Kb Plus DNA Ladder
Lane 1: 100 µl blood
Lane 2: 200 µl blood
Lane 3: 500 µl blood
Lane 4: 1 ml blood

B. High DNA yields and purity from up to 1 ml of blood.

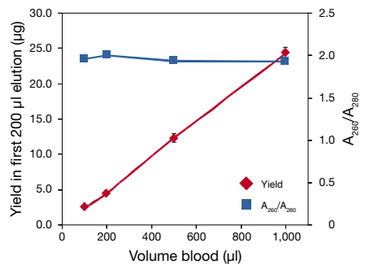


Figure 5—High yields of pure DNA from up to 1 ml of blood using the spin column–based PureLink™ Genomic DNA Mini Kit. DNA was extracted from the indicated blood volumes using the PureLink™ Genomic DNA Mini Kit. **A.** Purified gDNA (200 ng from each sample) was analyzed on a 1% E-Gel® agarose gel. **B.** DNA yields increased linearly with volume. In addition, the A_{260}/A_{280} ratios were consistently 1.9 for all samples and replicates tested, indicating that all inhibitors are completely removed.

Table 1—The PureLink™ Genomic DNA Kits demonstrate greater versatility than competing spin colum–based kits.

Kit	PureLink™ Genomic Kit	DNeasy® Kit	QIAamp® DNA Blood Kit	Wizard SV® Genomic Purification System	VersaGene™ Blood Kit
Blood (max. starting volume)	1 ml	100 µl	200 µl	Not suitable for blood	Up to 400 µl blood
Tissue (max. starting amount)	25 mg	25 mg	25 mg	20 mg	Not for tissue or cells
Works with other samples*	Yes	Yes	Yes	No	No
Average yield from max. blood volume	25 µg	2–3 µg	4–6 µg	Not applicable	10 µg
RNase A included	Yes	No	No	Yes	No
RT-stable proteinase K included	Yes	Yes	No	No	No

* Protocols for bacteria, FFPE tissue, swabs, dried blood spots, and more are available for the PureLink™ Genomic DNA Kits.

HLA genotyping success

HLA analysis is a complex process that requires the use of a large number of multiplex PCR reactions to obtain a full genotype on a patient. This means that DNA for use in HLA analysis needs to be extremely pure and of sufficient quantity. In a series of test experiments using DNA purified using the PureLink™ Genomic DNA Mini Kit or a competitor's kit and the Dynal® Ambisolv SSP HLA assay, the PureLink™ kit showed higher yields, and the purified DNA provided excellent multiplex PCR results (Figure 6). In addition, a full 96-well plate of different PCR primers for different alleles was used to successfully genotype DNA extracted from a single patient liver sample using a PureLink™ kit (Figure 7).

A

Higher gDNA yield and purity obtained with the PureLink™ Genomic DNA Mini Kit.

Kit	Sample ID	ng/µl	A_{260}/A_{280}	A_{260}/A_{230}
PureLink™ Genomic	A	81.5	1.88	2.18
	B	114.8	1.86	2.26
	C	83.4	1.86	2.25
	D	73.5	1.87	2.31
	E	89.3	1.87	2.23
Competitor Q	A	64.0	1.84	1.91
	B	93.9	1.80	1.87
	C	61.7	1.79	1.45
	D	76.4	1.86	2.08
	E	53.7	1.82	1.95

B

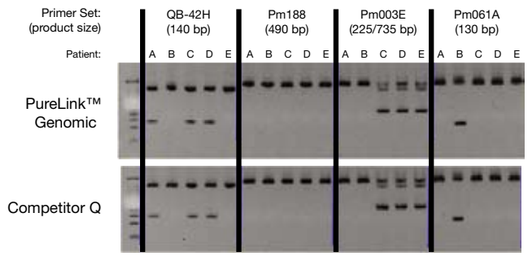


Figure 6—Successful HLA analysis with DNA purified using the PureLink™ Genomic DNA Mini Kit. Genomic DNA was prepared from 350 µl of blood from each of five patients using either the PureLink™ Genomic DNA Mini Kit or competitor Q's kit. **A.** UV spectrometry was used to determine concentration and purity. **B.** 1% of the eluted DNA (~50–120 ng) was used in multiplex Dynal® Ambisolv SSP HLA typing PCR amplification reactions, which utilize different allele-specific primers. Each reaction contains a positive control primer set, which produces the upper band of 800–1,200 bp, and a diagnostic primer set, which amplifies only in the presence of the specific allele. The diagnostic product sizes are indicated above the gel.

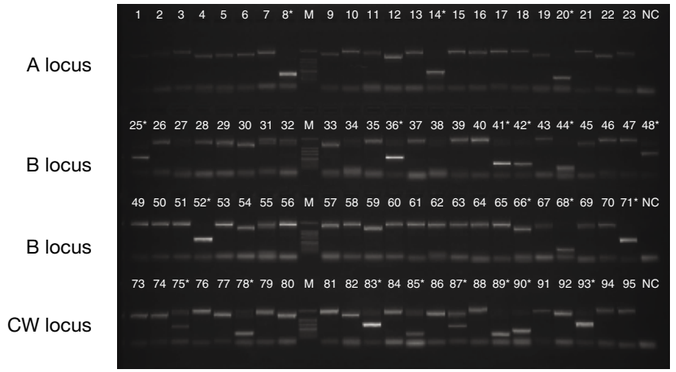


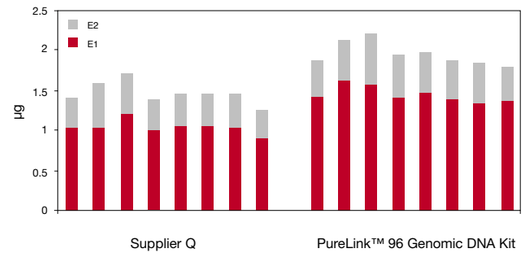
Figure 7—Genotyping of a single DNA sample extracted using the PureLink™ Genomic DNA Mini Kit. Genomic DNA was extracted using the PureLink™ Genomic DNA Mini Kit and 50 ng used for each PCR. Each well contains PCR primer pairs for the specific loci for type A, B, and CW. The upper bands are the internal positive controls. Negative controls are designated by "NC". A positive type for the allele is shown by the amplification of the lower band; positive alleles were correctly identified in lanes labeled with an asterisk. Genotyping was performed with the Olerup SSP HLA ABC Kit (Qiagen). The intensity of the bands allows for easy interpretation of the results. (Data kindly provided by Peter Masiakos, Rogosin Institute, NY.)

Process 96 samples at a time with greater flexibility and handling

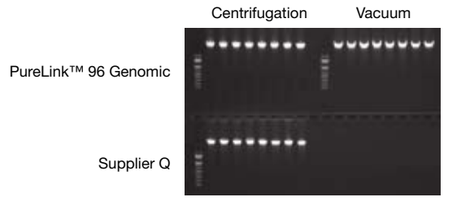
For higher throughput, the PureLink™ Genomic DNA Kit is available in a 96-well format that provides several advantages over existing 96-well silica plate systems, including ease of use, yield, and purity. Sample processing is performed using either a vacuum manifold or centrifugation. For centrifugation, only 2,250 × g is required, allowing you more flexibility in centrifuge choice. The semi-skirted plate design simplifies automation on most vacuum manifolds on robotic workstations (Figure 8). In a comparison of DNA yields and purity with a competitor product, the PureLink™ 96 Genomic DNA Kit outperforms for multiple sample types, including blood (Figure 9). And A_{260}/A_{280} and A_{260}/A_{230} ratios of PureLink™ 96 gDNA are higher than other kits, indicating less contamination from protein or guanidine present in the lysis and wash buffers (Figure 10).

Figure 8—Simple, high-throughput sample processing with the PureLink™ 96 Genomic DNA Kit.

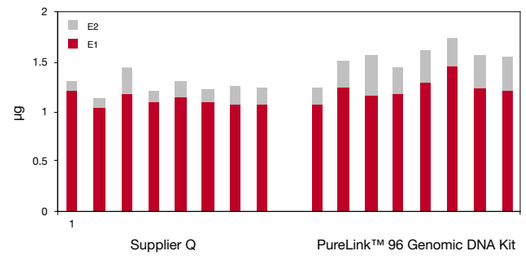
A. Higher gDNA yields from rat brain.



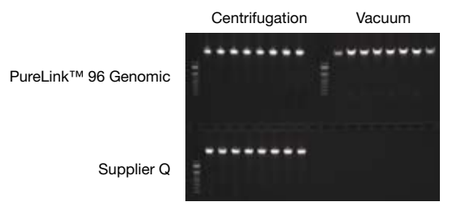
B. Higher gDNA yields from rat brain using different protocols.



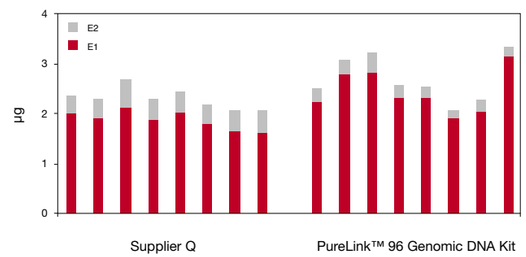
C. Higher gDNA yields from blood.



D. Higher gDNA yields from blood using different protocols.



E. Higher gDNA yields from HEK 293 cells.



F. Higher gDNA yields from HEK 293 cells using different protocols.

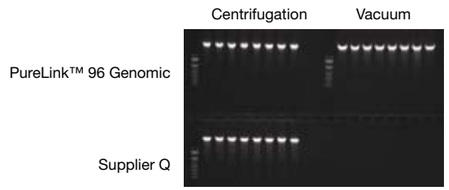


Figure 9—Higher gDNA yields purified using the PureLink™ 96 Genomic DNA Kit in different sample types. DNA was extracted from 10 mg of brain tissue **(A and B)**, 100 µl of blood **(C and D)**, and 1 × 10^6 HEK 293 cells **(E and F)** with the PureLink™ 96 Genomic DNA Kit or Supplier Q kit using centrifugation according to the manufacturer's instructions, and for the PureLink™ kit only, vacuum processing was also performed. **A, C, and E**: Comparison of DNA yields after Elution 1 (E1) and Elution 2 (E2). Higher yields of genomic DNA were recovered from both the first and second elutions with the PureLink™ 96 Genomic DNA Kit. **B, D, and F**: DNA from the first elution (5%) was loaded onto a 1% E-Gel® agarose gel. Yields were higher from the PureLink™ 96 Genomic DNA Kit. In addition, protocols for vacuum processing on the silica plate are not available for supplier Q.