TriplePrep Kit

DNA/RNA/PROTEIN MINI

The TriplePrep Kit is designed for rapid, simultaneous extraction and isolation of high quality genomic DNA (gDNA), total RNA, and total denatured proteins from animal tissues and mammalian cells. High yields of high quality DNA, RNA, and proteins can be extracted in less than 1 h using a flexible, easy-to-follow workflow allowing researchers to directly correlate data generated from the same sample.

The isolated gDNA, total RNA, and total denatured proteins are suitable for genomic and proteomic applications such as PCR, restriction enzyme digestion, sequencing, array CGH, RT-PCR, gene expression microarray, SDS-PAGE, Western blotting, 2-D DIGE, and LCMS.

Fig 1. TriplePrep Kit

TriplePrep Kit

Fast and simple

- From sample to DNA/RNA/protein in less than 1 h — streamlined workflow reduces the overall number of steps, resulting in up to 70% time saving compared to preparing each analyte individually

High yield

- High DNA, RNA, and protein yields from small samples — optimized buffer, columns, and protocol ensure high recovery of gDNA, total RNA, and total denatured proteins

High quality

- High purity — DNA-free RNA, with DNase provided in the kit
- Suitable for downstream applications — gDNA, RNA, and proteins validated by numerous downstream applications

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Easy to use

- Flexible workflow — can isolate any two or all three analytes with multiple stop points in the protocol
- User friendly — minimal change of centrifugation speed, time, and pipetting volume
- Easy to follow — color-coded caps and bottles with matching protocol steps minimize the chance for error. A quick-reference protocol card provides instructions at a glance for experienced users

Key facts

Typical yields and purities of gDNA, total RNA, and total denatured proteins from different tissues and cells are shown in the tables below.

Table 1. Typical yields and purities from different cells

	Cell	HeLa	NIH-3T3	CHO-K1	HEK-293
	Cell input amount (million)	1	1	1	1
DNA	Yield (µg)	8.5	9.5	4.4	9.1
	Purity (A_{260}/A_{280})	1.9	1.9	1.9	1.9
RNA	Yield (µg)	13.7	7.9	6.6	10.1
	Purity (A_{260}/A_{280})	2.1	2.1	2.0	2.0
Protein	Yield (µg)	139	127	77	139

Table 2. Typical yields and purities from different tissues

	Tissue	Liver	Brain	Heart	Kidney	Lung	Spleen
	Tissue input amount (mg)	10	10	10	10	10	5
	Disruption difficulty	Easy	Easy	Hard	Medium	Medium	Medium
	Need extra spin	No	No	No	No	Yes	No
DNA	Yield (µg)	14.6	6.8	7.4	22.4	15.5	18.8
	Purity (A_{260}/A_{280})	1.9	1.8	1.9	1.9	1.8	1.8
RNA	Yield (µg)	44	5.5	4.0	8.1	8.8	18.9
	Purity (A_{260}/A_{280})	2.1	2.0	2.0	2.1	2.0	2.1
	Need DNase	Yes	No	No	Yes	Yes	Yes
Protein	Yield (µg)	1460	746	923	897	592	510

Note: *Yields and purities of gDNA, total RNA, and total denatured proteins can vary with user and depend on the nature and condition of the input sample.*

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Faster

The TriplePrep workflow is faster compared to three single preparations.

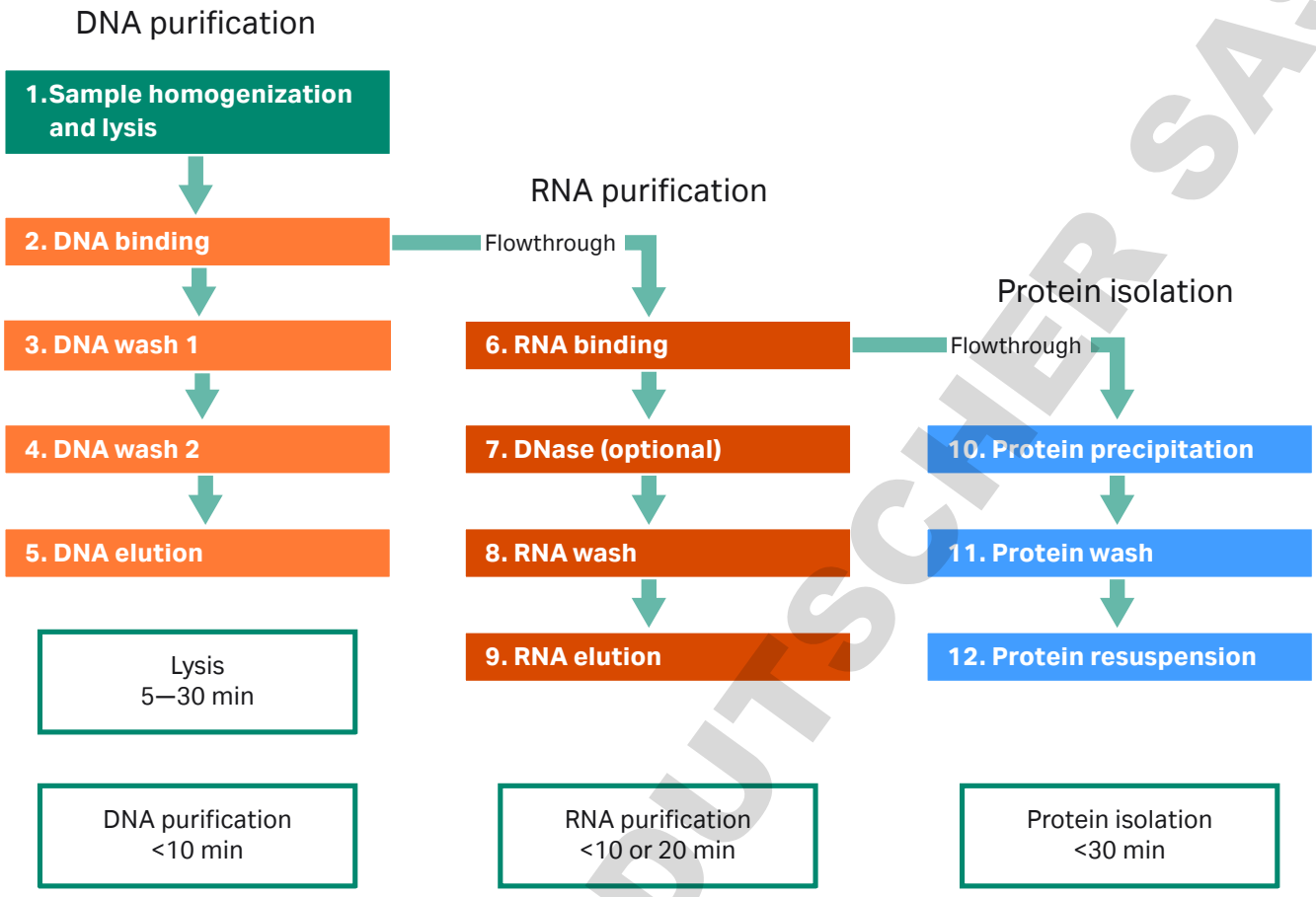

Fig 2. Procedure without lysis step: 45 to 55 min, procedure with lysis step: 50 to 85 min.

Higher yield*

DNA yield: TriplePrep vs Qiagen DNeasy™

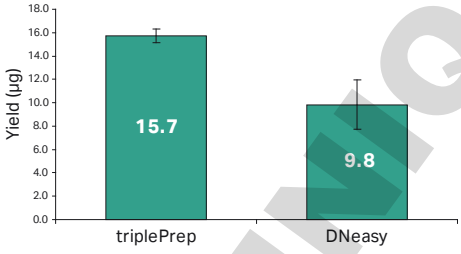

Fig 3. 60% more DNA was isolated using the TriplePrep Kit than with the Qiagen DNeasy kit per 10 mg rat liver input. (n = 4).

RNA yield: TriplePrep vs Qiagen RNeasy™

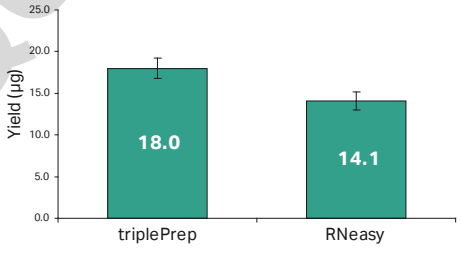

Fig 4. 30% more RNA was isolated using the TriplePrep Kit than with the Qiagen RNeasy kit per 1×10^6 HeLa cells input. (n = 6).

Protein yield: TriplePrep vs 2-D DIGE reference method

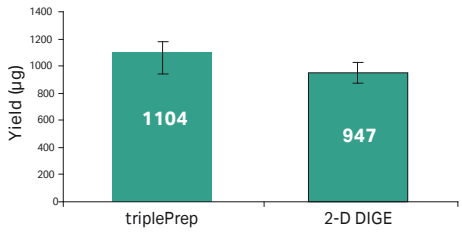

Fig 5. More than 1 mg of protein was isolated from 10 mg of rat liver using the TriplePrep Kit. (n = 6).

** Comparative analysis based on following manufacturers' recommended protocols.*

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High quality

Array CGH Cy™5 signal intensity scatter plot:
TriplePrep vs DNeasy kit

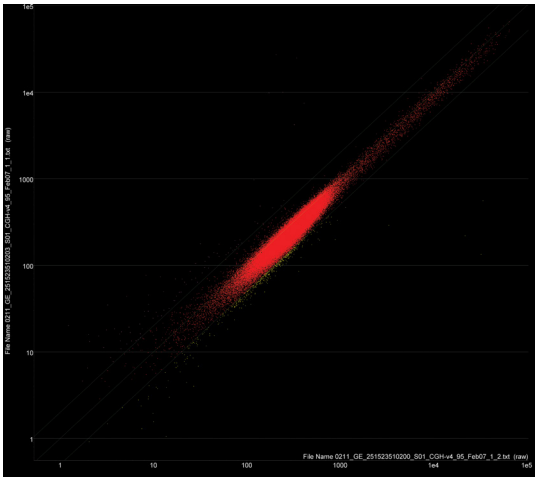

Fig 5. Scatter plot of aCGH data generated using the TriplePrep Kit (x axis) and Qiagen DNeasy kit (y axis). All 101080 aCGH probes contained on the Agilent™ rat whole genome aCGH array have been plotted. 99.4% of all probes are within the two-fold range and are displayed in red.

Gene expression microarray scatter plot:
TriplePrep vs RNeasy kit

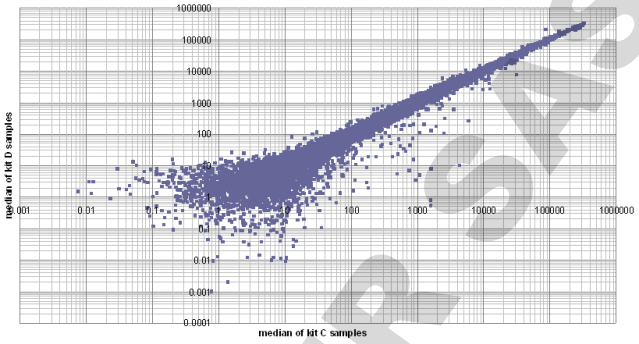

Fig 6. Scatter plot in log scale of the median signal intensities obtained using the TriplePrep Kit (y axis) and RNeasy kit (x axis). Pearson correlation coefficients between the two kits are 0.97 on average. Results are based on commercially available Agilent catalog 44 k rat whole genome gene expression arrays processed following the Agilent single-color protocol.

2-D DIGE Image:
TriplePrep vs 2-D DIGE reference method

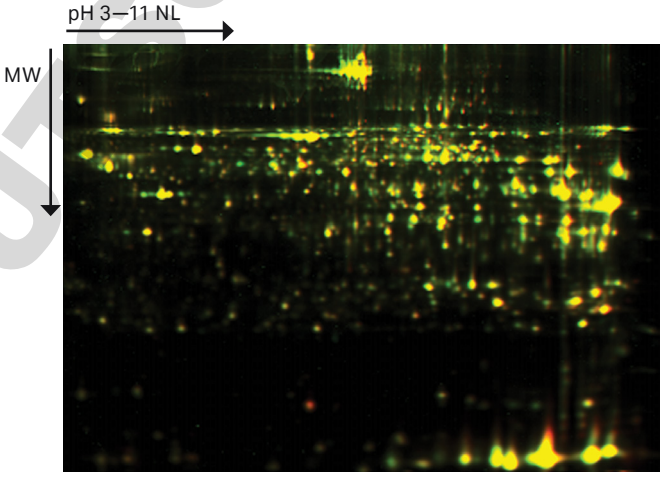

Fig 7. Overlaid gel image (yellow) from 2-D DIGE study of TriplePrep (green) and reference sample (red). As seen, more spots are detected by the TriplePrep method.

Ordering information

Product	Quantity	Code
TriplePrep Kit	50 preps	28-9425-44

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