ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

ZR-96 *Quick-gDNA*™ Blood

Catalog Nos. **D3075, D3076,** & **D3077**

Highlights

- Quick, high throughput purification of high quality DNA from *whole blood*, *plasma*, and *serum* in less than 25 minutes using innovative *Fast-Spin* 96-well plate technology.
- Compatible with commonly used anticoagulants (i.e., EDTA, heparin, citrate).
- Unique extraction technology excludes the use of Proteinase K and organic denaturants.
- Isolated DNA is ideal for PCR, endonuclease digestion, bisulfite conversion/methylation detection, sequencing, genotyping, etc.

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ZYMO RESEARCH CORP.

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Satisfaction of all Zymo Research products is guaranteed. If you should be dissatisfied with this product please call 1-888-882-9682.

Product Contents

ZR-96 *Quick-gDNA*™ Blood (Kit Size)	**D3075** (2x 96)	**D3076** (4x 96)	**D3077** (10x 96)	**Storage Temperature**
Genomic Lysis Buffer*	100 ml	2x 100 ml	5x 100 ml	Room Temp.
DNA Pre-Wash Buffer**	50 ml	2x 50 ml	5x 50 ml	Room Temp.
g-DNA Wash Buffer	100 ml	2x 100 ml	5x 100 ml	Room Temp.
DNA Elution Buffer	10 ml	20 ml	50 ml	Room Temp.
Silicon-A™ Plate	2	4	10	Room Temp.
Collection Plate	2	4	10	Room Temp.
Elution Plate	2	4	10	Room Temp.
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Note - Integrity of kit components is guaranteed for up to one year from date of purchase. Reagents are routinely tested on a lot-to-lot basis to ensure they provide the highest performance and reliability.

* *Recommended*: Add beta-mercaptoethanol to 0.5%(v/v) i.e., 500 µl per 100 ml.

** A precipitate may have formed in the DNA Pre-Wash Buffer during shipping. To completely resuspend the buffer, incubate the bottle at 30-37 ºC for 30 minutes and mix by inversion. DO NOT MICROWAVE.

Specifications

- **Sample Sources** – Whole blood, plasma, or serum from humans, mice, rats, etc.
- **DNA Purity** – High-quality DNA is eluted with **DNA Elution Buffer** or water. DNA is especially well suited for PCR and other downstream applications. A_{260}/A_{280}>1.8
- **Size Limits** – Capable of recovering genomic DNA up to and above 40 kb. In most instances, mitochondrial DNA and viral DNA (if present) will also be recovered.
- **DNA Recovery** – Up to 5 µg/well total DNA is eluted into ≥30 µl **DNA Elution Buffer** or water. Human whole blood will typically yield 3-7 µg DNA per 100 µl blood sampled.
- **Product Detergent Tolerance** – ≤5% Triton X-100, ≤5% Tween-20, ≤5% Sarkosyl, ≤0.1% SDS.
- **Equipment Needed** – microcentrifuge, vortex, centrifuge w/ microplate carriers

Product Description

The **ZR-96 *Quick-gDNA*™ Blood** is a simple procedure for the rapid isolation of total DNA (e.g., genomic, mitochondrial, viral) from a variety of biological sample sources. This product has been optimized for maximal recovery of ultra-pure DNA without RNA contamination and is compatible with whole blood (fresh or stored), serum, and plasma.

For processing, simply add the specially formulated **Genomic Lysis Buffer** to a sample, vortex, and transfer the mixture to the supplied **Silicon-A™ Plate**. There is no need for organic denaturants or Proteinase K digestion because of the unique chemistries featured in the kit. Instead, the product features *Fast-Spin* technology to yield high-quality, purified DNA in just minutes (see below). PCR inhibitors are effectively removed during the purification process. DNA purified using the **ZR-96 *Quick-gDNA*™ Blood** is suitable for PCR, nucleotide blotting, DNA sequencing, restriction endonuclease digestion, bisulfite conversion/methylation analysis, and other downstream applications.

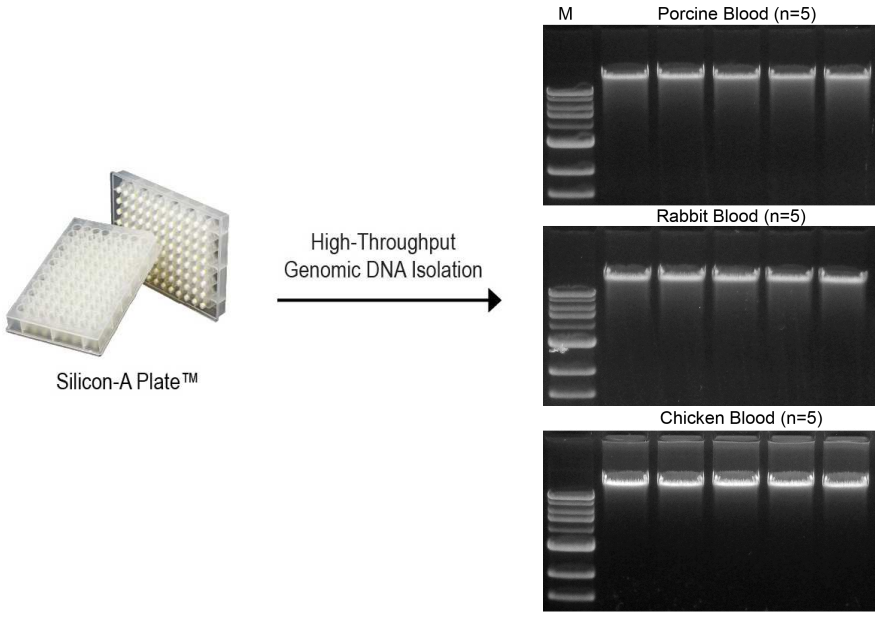
The ***Quick-gDNA*™ Blood MicroPrep** (D3070, D3071) and ***Quick-gDNA*™ Blood MiniPrep** (D3072, D3073) provide spin column alternatives for isolation of up to 5 µg and 25 µg DNA/column, respectively.

Zymo Research offers the following for rapid, precise DNA methylation detection…

1.) **EZ DNA Methylation™ Kit** (D5001, D5002, D5003, D5004)

2.) **EZ DNA Methylation-Gold™ Kit** (D5005, D5006, D5007, D5008)

3.) **EZ DNA Methylation-Direct™ Kit** (D5020, D5021, D5022, D5023)



High-throughput DNA isolation from porcine, rabbit, and chicken blood using the **ZR-96 *Quick-gDNA*™ Blood** kit. DNAs from different blood samples were isolated from select wells of a Silicon-A™ Plate. Equivalent amounts of DNA were then separated by electrophoresis and visualized in a 0.8% agarose/TAE/EtBr gel (shown above). **M** is a 1 kb molecular weight DNA marker (Zymo Research).

For **Technical Assistance**, please contact 1-888-882-9682 or E-mail tech@zymoresearch.com.

Buffer Preparation

✓ *Recommended*: Add beta-mercaptoethanol (user supplied) to the **Genomic Lysis Buffer** to a final dilution of 0.5%(v/v) i.e., 500 µl per 100 ml.

Protocol

The following is for the purification of DNA from 50 µl whole blood, serum or plasma (the volumes can be adjusted up to 100 µl (max.) depending on your requirements). Fresh, frozen, or preserved blood (in EDTA, citrate, or heparin) can be used. If material cannot be processed immediately, the sample can be "stabilized" for later processing (as noted below) although the immediate processing of blood samples is recommended.

1. Add 200 µl of **Genomic Lysis Buffer** to 50 µl of blood, serum, or plasma (4:1). Mix completely by vortexing 4-6 seconds, then let stand 5-10 minutes at room temperature.[1]

   Note: Add 200 µl Genomic Lysis Buffer to all samples <50 µl. For samples larger than 50 µl, add a proportional amount (4:1) of Genomic Lysis Buffer (e.g., Add 800 µl Genomic Lysis Buffer to 200 µl blood).

2. Transfer the mixtures to the wells of a **Silicon-A™ Plate**[2] on a **Collection Plate**. Centrifuge at ≥ 2,500 x *g* (5,000 x *g* max.) for 5 minutes.

3. Add 200 µl **DNA Pre-Wash Buffer** to each well and centrifuge at ≥ 2,500 x *g* for 5 minutes. Discard the flow through.

4. Add 300 µl of **g-DNA Wash Buffer** to each well and centrifuge at ≥ 2,500 x *g* for 5 minutes.

5. Transfer the **Silicon-A™ Plate** onto an **Elution Plate**. Add ≥30 µl **DNA Elution Buffer** or water to each well. Incubate 2-5 minutes at room temperature, then centrifuge at ≥ 2,500 x *g* for 5 minutes to elute the DNA. The eluted DNA can be used immediately for molecular based applications or stored ≤-20ºC for future use.

Delayed Processing (*Stabilization*) of Blood Samples: The immediate processing of blood with this kit is recommended. However, if blood cannot be processed immediately, samples can be "stabilized" in **Genomic Lysis Buffer** for processing at a later time. To do this, add *four* volumes of **Genomic Lysis Buffer** to *each* volume of whole blood (4:1), then vortex. Blood samples mixed with **Genomic Lysis Buffer** can be stored at room temperature for 1-2 weeks, 0-4ºC for 1-2 months, -20ºC for 6 months to a year, or <-70ºC for many years. Samples stored at ≤4ºC should reach room temperature prior to processing. Begin at Step 2 in the standard protocol (above) when purifying DNA from blood samples stabilized in **Genomic Lysis Buffer**.

Notes:

[1] For the inclusion of small DNAs from serum, add 0.3 volumes isopropanol to each sample mixture. (*For example, to a 400 µl mixture of serum and Genomic Lysis Buffer add 120 µl isopropanol.*)

[2] The capacity of each well of the Silicon-A™ Plate is ~600 µl.

[3] Elution of DNA from the column is dependent on pH and temperature. If water is used, ensure the pH is >6.0. Also, the total yield may be improved by eluting the DNA with Elution Buffer or water pre-equilibrated to 60-70°C.

Troubleshooting:

1. DNA degradation: Check for DNase contamination. All reagents and components supplied with the **ZR-96 *Quick-gDNA*™ Blood** are DNase-free. However, DNase contamination could result during the processing of some samples. Check pipets, pipet tips, microcentrifuge tubes, etc., and exercise the appropriate precautions during the DNA purification procedure.

2. DNA is not performing well in subsequent experiments: Ensure the correct volume of **Genomic Lysis Buffer** has been added to the sample. Also, make sure all centrifugation steps are completed for the indicated times and speeds (rcfs). Failure to do so may result in incomplete washing, which may cause salts to be eluted with the DNA affecting quantitation and subsequent experiments including enzymatic processes like PCR.

3. RNA contamination: The buffers in this kit are designed to efficiently hydrolyze and remove RNA during the DNA purification procedure.

4. Avian Blood: Reduce input to 2-5 µl/well when working with avian blood. Add 200 µl of **Genomic Lysis Buffer** to the samples, and then thoroughly mix the samples by vortexing intermittently for 5 minutes. Transfer to the wells of a **Silicon-A™ Plate** and proceed with step 2 of the protocol.

Ordering Information

Product Description	Cat. No.	Kit Size
***Quick-gDNA*™ Blood MicroPrep**	D3070 D3071	50 preps. 200 preps.
***Quick-gDNA*™ Blood MiniPrep**	D3072 D3073	50 preps. 200 preps.
***Quick-gDNA*™ Blood MidiPrep**	D3074	25 preps.
ZR-96 *Quick-gDNA*™ Blood	D3075 D3076 D3077	2x 96 well 4x 96 well 10x 96 well

For Individual Sale	Cat. No.	Amount
Genomic Lysis Buffer	D3004-1-50 D3004-1-100	50 ml 100 ml
DNA Pre-Wash Buffer	D3004-5-15 D3004-5-30 D3004-5-50	15 ml 30 ml 50 ml
g-DNA Wash Buffer	D3004-2-50 D3004-2-100	50 ml 100 ml
DNA Elution Buffer	D3004-4-4 D3004-4-10 D3004-4-50	4 ml 10 ml 50 ml
Silicon-A™ Plate	C2001	2 plates
Collection Plate	C2002	2 plates
Elution Plate	C2003	2 plates

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Popular Products From Zymo Research

Product	Description	Kit Size (Preps)	Catalog No. (Format)
	Fragment DNA Purification		
DNA Clean & Concentrator™-5	Clean and concentrate up to 5µg DNA into ≥6 µl elution volume in as little as 2 minutes with no wash residue carryover.	50 200 50 200	**D4003** (uncapped) **D4004** (uncapped) **D4013** (capped) **D4014** (capped)
DNA Clean & Concentrator™-25	Clean & concentrate 25 µg of DNA into ≥25 µl elution volume in as little as 2 minutes with no wash residue carryover.	50 200 50 200	**D4005** (uncapped) **D4006** (uncapped) **D4033** (capped) **D4034** (capped)
ZR-96 DNA Clean & Concentrator™-5	Quick (15 minute), high-output recovery of up to 5 µg pure DNA into 10-15 µl minimum elution volume allows for highly concentrated DNA.	2x96 4x96	**D4023** **D4024**
Genomic DNA Clean & Concentrator™	Quick (5 minute) clean-up of up to 10 µg high molecular weight DNA (≤200 kb) from any enzymatic reaction or impure preparation without precipitations.	25 100	**D4010** (capped) **D4011** (capped)
Zymoclean™ Gel DNA Recovery Kit	Purify DNA from high and low-melting agarose gels in minutes	50 200 50 200	**D4001** (uncapped) **D4002** (uncapped) **D4007** (capped) **D4008** (capped)
ZR-96 Zymoclean™ Gel DNA Recovery Kit	High-throughput DNA purification from high and low-melting agarose gels.	2x96 4x96	**D4021** **D4022**
Zymoclean™ Large Fragment DNA Recovery Kit	Purify high molecular weight DNA (≤200 kb) from high and low-melting agarose gels in minutes	25 100	**D4045** (capped) **D4046** (capped)
***OneStep*™ PCR Inhibitor Removal Kit**	Fast, one step procedure for removal of PCR inhibitors such as polyphenolics, humic/fulvic acids, melanin, etc. for successful PCR and other downstream applications.	50 2x96	**D6030** **D6035**
	Plasmid DNA Purification		
Zyppy™ Plasmid Miniprep Kit	Pellet-Free™ plasmid DNA purification in less than 10 minutes. Recover up to 25 µg DNA in as low as 30 µl.	50 100 400	**D4036** **D4019** **D4020**
Zyppy™-96 Plasmid Miniprep	The fastest and simplest high-throughput method for plasmid purification.	2x96 4x96 8x96	**D4041** **D4042** **D4043**
Zyppy™ Plasmid Midiprep Kit	Pellet-Free™ plasmid DNA purification in 15 minutes in a 150 µl minimum elution volume).	25 50	**D4025** **D4026**
ZR Plasmid MiniPrep™ Classic	Plasmid DNA purification in minutes: (alkaline lysis/spin column format for low 30 µl elution volume).	50 100 400	**D4036** **D4019** **D4020**
	Genomic DNA Purification		
***Quick-gDNA*™ MiniPrep**	Easy purification of genomic DNA from whole blood, plasma, serum, body fluids, buffy coat, lymphocytes, tissue, swabs or cultured cells in as little as 15 minutes without the use of Proteinase K or organic denaturants.	50 200 50 200	**D3006** (uncapped) **D3007** (uncapped) **D3024** (capped) **D3025** (capped)
ZR-96 *Quick-gDNA*™	Simple, high throughput (96-well) purification of DNA from whole blood, plasma, serum, body fluids, buffy coat, lymphocytes, tissue, swabs, or cultured cells in about 30 minutes.	2x96 4x96 10x96.	**D3010** **D3011** **D3012**
ZR-Genomic DNA™-Tissue MiniPrep	For high quality DNA purification from solid tissues (e.g., tail snips, ear punches, adipose tissue, etc.), body fluids, cultured cells, buccal cells, FFPE tissues, hair, and other biological sources using Proteinase K and Fast.	50 200	**D3050** **D3051**
Environmental DNA Purification Kits	Unique BashingBead™ technology allows isolation of DNA from samples refractory to conventional lysis procedures including tough-to-lyse tissues, soil samples, feces, plants, seeds, insects, bacteria, yeast, filamentous fungi, unicellular and filamentous algae, and protozoa		**Visit website for a comprehensive list**

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