



ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

DNA Clean & Concentrator™-5

Catalog Nos. **D4003, D4004, D4013 & D4014**

Highlights

- Quick (2 minute) recovery of ultra-pure DNA from PCR, endonuclease digestions, cell lysates, *etc.* Perfect for post-RT cDNA clean-up and purification of sequencing-ready DNA from M13 phage.
- Column design permits DNA elution at high concentrations into minimal volumes ($\geq 6 \mu\text{l}$).
- Eluted DNA is well suited for use in DNA ligation, sequencing, labeling, PCR, *etc.*

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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

DNA Clean & Concentrator™-5 (Kit Size)	D4003, D4013 (50 preps)	D4004, D4014 (200 preps)	Storage Temperature
DNA Binding Buffer	50 ml	2x100 ml	Room Temp.
DNA Wash Buffer¹	6 ml	24 ml	Room Temp.
Zymo-Spin™ Columns	50	200	Room Temp.
Collection Tubes	50	200	Room Temp.
Instruction Manual	1	1	-

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.

¹ Ethanol must be added prior to use as indicated on **DNA Wash Buffer** label.

Specifications

- **DNA Purity** – High-quality, purified DNA is eluted with water and is especially well suited for sequencing, ligation reactions, and restriction endonuclease digestions.
- **DNA Size Limits** – From ~75 bp to 23 kb.
- **DNA Recovery** – Typically, up to 5 µg total DNA per column can be eluted into as little as 6 µl water. For DNA 75 bp to 10 kb the recovery is 70-90%. For DNA 11 kb to 23 kb the recovery is 50-70%.
- **Sample Sources** – DNA from PCR, restriction endonuclease digestions, plasmid preparations, *etc.*
- **Product Detergent Tolerance** – ≤5% Triton X-100, ≤5% Tween-20, ≤5% Sarkosyl, ≤0.1% SDS.

Note - ™ Trademarks of Zymo Research Corporation. This product is for research use only and should only be used by trained professionals. Some reagents included with this kit are irritants. Wear protective gloves and eye protection. Follow the safety guidelines and rules enacted by your research institution or facility.

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Product Description

The **DNA Clean & Concentrator™-5** provides a hassle-free method for the rapid purification and concentration of high-quality DNA from PCR, endonuclease digestions, or DNA from cell lysates. It can also be used for post-RT cDNA clean-up and purification of sequencing-ready DNA from M13 phage. Simply add the specially formulated **DNA Binding Buffer** to your sample and then transfer the mixture to the supplied **Zymo-Spin™ Column**. There is no need for organic denaturants or chloroform. Instead, the product features *Fast-Spin* column technology to yield high-quality, purified DNA in just minutes. DNA purified using the **DNA Clean & Concentrator™-5** is suitable for nucleotide sequencing, microarray analysis, PCR, nucleotide blotting, and restriction endonuclease digestion procedures.

The **DNA Clean & Concentrator™-5** employs a single-buffer system that allows for efficient DNA adsorption to the matrix of the supplied **Zymo-Spin™ Column**. The DNA is washed twice then eluted with a small volume of water. The entire DNA purification/concentration procedure typically takes about 2 minutes (see figures below).

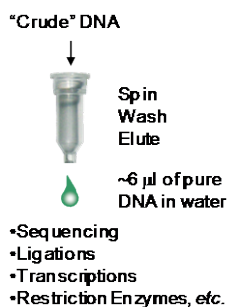


Figure 1: Two minute **DNA Clean & Concentrator™-5** procedure.

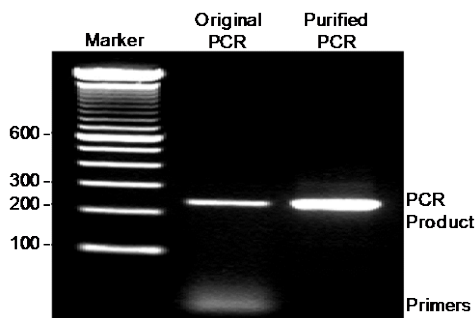


Figure 2: DNA samples, such as the PCR products shown here, can be efficiently purified and concentrated using the **DNA Clean & Concentrator™-5**.

Typical DCC™ Applications

Post-PCR DNA Clean-up	Efficient desalting of DNA with the removal of DNA polymerases, primers and free dNTPs.
DNA Clean-up From Enzymatic Reactions	Efficient desalting of DNA with the removal of DNA polymerases, modifying enzymes, RNA polymerases, ligases, kinases, nucleases, phosphatases, endonucleases, etc.
Post-Reverse Transcription (RT) & cDNA Clean-up	Efficiently purifies DNA following RT, either as a DNA/RNA complex or as single stranded cDNA following chemical hydrolysis of the RNA template.
Plasmid DNA Clean-up	Efficiently purifies plasmid DNA from cell-free lysates from “home-made” preparations or from commercial kits. Plasmid DNA purified and concentrated using the DCC™ has proven an excellent substrate for high quality DNA sequencing.
Isotope and Dye Removal	Efficiently removes unincorporated fluorescent (<i>i.e.</i> , AMCA, FITC, BIO, DIG, Cy3, Cy5, FAM, etc.) and radiolabeled dNTP derivatives from DNA following <i>in vitro</i> labeling reactions.
Purification of M13 ssDNA	The DCC™ can be used for the rapid isolation of single stranded M13 phage DNA directly from phage-infected <i>E. coli</i> culture supernatant.

For **Assistance**, please contact Zymo Research Technical Support at 1-888-882-9682 or e-mail tech@zymoresearch.com.

Buffer Preparation

Before starting, add 24 ml 100% ethanol to the 6 ml **DNA Wash Buffer** concentrate (96 ml 100% ethanol to the 24 ml **DNA Wash Buffer** concentrate) to obtain the final **DNA Wash Buffer** solution. Alternatively, add 26 ml and 104 ml of 95% ethanol to the 6 ml and 24 ml sizes of the **DNA Wash Buffer** concentrate, respectively.

Protocol

1. In a 1.5 ml microcentrifuge tube, add 2-7 volumes of **DNA Binding Buffer** to each volume of DNA sample (see table below). Mix briefly by vortexing.

Application	DNA Binding Buffer : Sample	Example
Plasmid, genomic DNA (>2 kb)	2 : 1	200 μ l : 100 μ l
PCR, cDNA, DNA fragment	5 : 1	500 μ l : 100 μ l
ssDNA (<i>e.g.</i> , M13 phage)	7 : 1	700 μ l : 100 μ l

For phage DNA purification, centrifuge phage-infected bacterial culture at 8,000 x *g* for 1 minute prior to mixing an aliquot of the phage-containing supernatant with the **DNA Binding Buffer**.

2. Transfer mixture to a provided **Zymo-Spin™ Column**¹ in a **Collection Tube**.
3. Centrifuge at $\geq 10,000$ x *g* for 30 seconds. Discard the flow-through.
4. Add 200 μ l **Wash Buffer** to the column. Centrifuge at $\geq 10,000$ x *g* for 30 seconds. Repeat wash step.
5. Add ≥ 6 μ l water^{2,3} directly to the column matrix. Transfer the column to a 1.5 ml microcentrifuge tube and centrifuge at $\geq 10,000$ x *g* for 30 seconds to elute the DNA.

Ultra-pure DNA in water is now ready for use.

Notes:

¹ The sample capacity of the column is 800 μ l. Therefore, it may be necessary to load and spin a column multiple times if a sample has a volume larger than 800 μ l.

² Elution of DNA from the column is dependent on pH and temperature. If water is used, make sure the pH is >5.0. Waiting 1 minute after adding water to the column may improve the yield of larger (> 6 kb) DNA. For even larger DNA (> 10 kb) the total yield may be improved by eluting the DNA with 60-70 °C water.

³ TE buffer (10 mM Tris-HCl, 1 mM EDTA, pH 8.0) or modified TE (10 mM Tris, 0.1 mM EDTA, pH 8.5) can also be used for elution if required by your experiment.

Ordering Information

Product Description	Catalog No.	Kit Size (preps)
DNA Clean & Concentrator™-5 (for purification of up to 5 µg DNA per prep.) supplied w/ uncapped columns	D4003	50
	D4004	200
DNA Clean & Concentrator™-5 (for purification of up to 5 µg DNA per prep.) supplied w/ capped columns	D4013	50
	D4014	200
ZR-96 DNA Clean & Concentrator™-5 (for 96-well purification of up to 5 µg DNA per well.)	D4023	2x96
	D4024	4x96
DNA Clean & Concentrator™-25 Kit (for purification of up to 25 µg DNA per prep.) supplied w/ uncapped columns	D4005	50
	D4006	200
DNA Clean & Concentrator™-25 Kit (for purification of up to 25 µg DNA per prep.) supplied w/ capped columns	D4033	50
	D4034	200
DNA Clean & Concentrator™-100 Kit (for purification of up to 100 µg DNA per prep.)	D4029	25
	D4030	50
DNA Clean & Concentrator™-500 Kit (for purification of up to 500 µg DNA per prep.)	D4031	10
	D4032	20

For Individual Sale	Catalog No.	Amount
DNA Binding Buffer	D4003-1-L	50 ml
	D4004-1-L	100 ml
DNA Wash Buffer (concentrate)	D4003-2-6	6 ml
	D4003-2-24	24 ml
Zymo-Spin™ I Columns (uncapped)	C1003-50	50
	C1003-250	250
Zymo-Spin™ IC Columns (capped)	C1004-50	50
	C1004-250	250
Collection Tubes	C1001-50	50
	C1001-500	500
	C1001-1000	1000



Zymo-Spin™ I Column
(uncapped)



Zymo-Spin™ IC Column
(capped)

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Popular DNA Purification & Analysis Products from Zymo

Product	Description	Kit Size (Preps)	Catalog No. (Column Format)
DNA Clean & Concentrator™-5	Clean & concentrate DNA from any reaction or “crude” preparation in 2 minutes. A 6 µl minimum elution volume allows for highly concentrated DNA. Designed for samples containing up to 5 µg of DNA.	50	D4003 (uncapped)
		200	D4004 (uncapped)
		50	D4013 (capped)
		200	D4014 (capped)
DNA Clean & Concentrator™-25	Clean & concentrate DNA in minutes. 25 µl minimum elution volume allows for highly concentrated DNA. Designed for purifying up to 25 µg of DNA.	50	D4005
		200	D4006
DNA Clean & Concentrator™-100	Clean & concentrate DNA in minutes. 100 µl minimum elution volume allows for highly concentrated DNA. Designed for purifying up to 100 µg of DNA.	25	D4029
		50	D4030
DNA Clean & Concentrator™-500	Clean & concentrate DNA in minutes. 1 ml minimum elution volume allows for highly concentrated DNA. Designed for samples containing up to 500 µg of DNA.	10	D4031
		20	D4032
ZR-96 DNA Clean & Concentrator™-5	Quick (15 minute), high-output recovery of pure DNA from PCR, endonuclease digestions, plasmid preparations, etc. 10-15 µl minimum elution volume allows for highly concentrated DNA. Designed for samples containing up to 5 µg of DNA.	2x96	D4023
		4x96	D4024
Zymoclean™ Gel DNA Recovery Kit	Purify DNA from high and low-melting agarose gels in minutes	50	D4001
		200	D4002
ZR-96 Zymoclean™ Gel DNA Recovery Kit	High-throughput DNA purification from high and low-melting agarose gels.	2x96	D4021
		4x96	D4022
Pinpoint™ Slide DNA Isolation System	Recover genomic DNA from paraffin-embedded or fresh tissue sections for PCR. Ideal for isolating DNA from clinical tissue samples.	50	D3001
Zyppy™ Plasmid Miniprep Kit	Pellet-Free™ plasmid DNA purification in minutes: (alkaline lysis/spin column format for low 30 µl elution volume).	50	D4036
		100	D4019
		400	D4020
Zyppy™ Plasmid Midiprep Kit	Pellet-Free™ plasmid DNA purification in minutes: (alkaline lysis/spin column format and 150 µl minimum elution volume).	25	D4025
		50	D4026
Zyppy™ Plasmid Maxiprep Kit	High-purity plasmid DNA purification in minutes: (alkaline lysis/spin column format and 2 ml minimum elution volume).	10	D4027
		20	D4028
ZR Genomic DNA I Kit™	Genomic DNA isolation from whole blood, tissue culture cells, solid tissue and liquid samples. (Silica bead format is scalable to fit your requirements).	100	D3004
		400	D3005
ZR Genomic DNA II Kit™	Genomic DNA purification from whole blood, tissue culture cells, solid tissue and liquid samples. No requirement for beads or phenol chloroform.	50	D3006 (uncapped)
		200	D3007 (uncapped)
		50	D3024 (capped)
		200	D3025 (capped)
ZR-96 Genomic DNA Kit™	High-output genomic DNA purification from whole blood, tissue culture cells, solid tissue and liquid samples. No requirement for beads or phenol chloroform.	2x96	D3010
		4x96	D3011
ZR Soil microbe DNA Kit™	Simple, rapid isolation of humic-free, PCR-quality genomic DNA from soil microbes.	50	D6001
ZR Fungal/Bacterial DNA Kit™	Simple, rapid isolation of PCR-quality genomic DNA from fungi.	50	D6005
ZR Fecal DNA Kit™	Simple, rapid isolation of PCR-quality genomic DNA from feces.	50	D6010
ZR Viral DNA Kit™	Isolation of viral DNA from cell-free body fluids or sample mixtures containing cells at concentrations less than 10 ⁵ cells per ml.	50	D3015
		200	D3016
ZR-96 Viral DNA Kit™	High-output (96-well) isolation of viral DNA from cell-free body fluids or sample mixtures containing cells at concentrations less than 10 ⁵ cells per ml.	2x96	D3017
		4x96	D3018
EZ DNA Methylation™ Kit	For the conversion of unmethylated cytosines in DNA to uracil via the <u>chemical-denaturation</u> of DNA and a specially designed CT Conversion Reagent. <i>Fast-Spin</i> technology ensures ultra-pure, converted DNA for subsequent DNA methylation analysis.	50	D5001
		200	D5002
		2x96	D5003 Shallow
		2x96	D5004 Deep Well
EZ DNA Methylation-Gold™ Kit	For the fast (3 hr.) conversion of unmethylated cytosines in DNA to uracil via <u>heat/chemical-denaturation</u> of DNA and a specially designed CT Conversion Reagent. <i>Fast-Spin</i> technology ensures ultra-pure, converted DNA for subsequent DNA methylation analysis.	50	D5005
		200	D5006
		2x96	D5007 Shallow
		2x96	D5008 Deep Well
EZ DNA Methylation-Direct™ Kit	Features simple and reliable DNA bisulfite conversion directly from blood, tissue (FFPE/LCM), and cells without the prerequisite for DNA purification in as little as 4-6 hrs. The increased sensitivity of this kit makes it possible to amplify bisulfite converted DNA from as few as 10 cells or 50 pg DNA.	50	D5020
		200	D5021
		2x96	D5022 Shallow
		2x96	D5023 Deep Well

*Bulk quantities are available upon request. Please contact: busdev@zymoresearch.com or call 1-888-882-9682 for assistance.

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