



ZYMO RESEARCH

DNA
Purification
Made Simple

OneStep™ PCR Inhibitor Removal Kit

Remove Inhibitors of PCR and NGS from DNA & RNA samples in just one step.

Highlights

- Fast, one step procedure for cleaning impure samples prior to PCR, sequencing, NGS, reverse transcription (RT), etc.
- Efficiently eliminate polyphenolics from extracted DNA & RNA samples for PCR and short or long read sequencing.
- ≥80% recovery of PCR inhibitor free DNA & RNA

Catalog Numbers:
D6031



Scan with your smart-phone camera to view the online protocol.



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Product Contents

OneStep™ PCR Inhibitor Removal Kit	D6031 (50 Prep)	Storage Temperature
Zymo-Spin™ IV-IR HRC Filters	50	Room Temp.
Collection Tubes	50	Room Temp.
Instruction Manual	1 pc	-

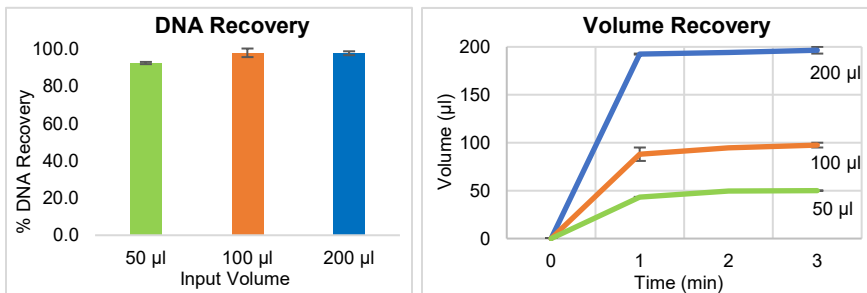
Specifications

- **Sample Input** – Extracted DNA and/or RNA
- **Sample Input Volume** – 50 μ l – 200 μ l
- **Processing Time** – \leq 5 min
- **Required Equipment** – Microcentrifuge

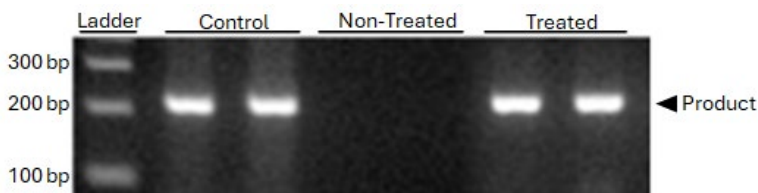
Product Description

The *OneStep*[™] PCR Inhibitor Removal Kit contains all the components needed to efficiently remove contaminants from DNA and/or RNA preparations that can inhibit downstream enzymatic reactions such as PCR and reverse transcription. The filter matrix has been specifically designed for efficient removal of polyphenolic compounds, Humic/fulvic acids, tannins, melanin, etc. from most impure DNA and RNA preparations. Sample cleanup is as simple as: spinning the sample through the proprietary filter.

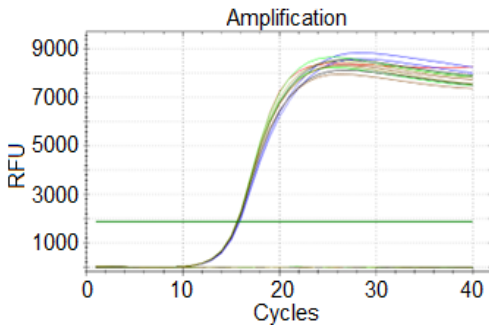
Zymo-Spin[™] IV-IR HRC Performance Highlights



Performance characteristics of the Zymo-Spin[™] IV-IR HRC filter. Various input volumes (50, 100, and 200 µl) were passed through the HRC filter to measure volume and nucleic acid retention. Greater than 80 % of the DNA was recovered for all volumes tested, and complete recovery of the sample occurred after a 2-minute centrifugation regardless of sample volume. In all cases, Salmon Sperm DNA (Invitrogen) was used, and data was plotted as the mean from experiments performed in duplicate.



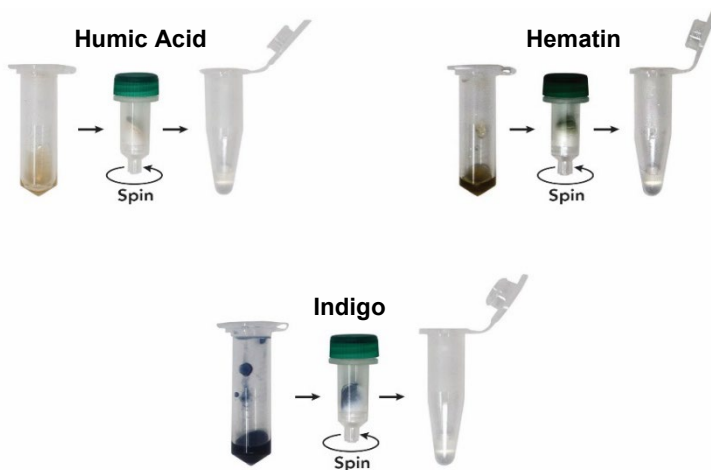
DNA sample containing Humic Acid is efficiently amplified by PCR following Humic Acid removal with the *OneStep*[™] PCR Inhibitor Removal Kit. The figure shows successful PCR amplification of a 200 bp product from DNA containing Humic Acid that was "treated" with the kit. Alternatively, PCR amplification was completely inhibited for the "non-treated" sample. In each case, equal amounts of DNA were used for PCR and equivalent volumes of the reaction were then analyzed in a 2.0% (w/v) agarose/TAE/EtBr gel. The ladder is a ZR 100 bp DNA Marker (Zymo Research). Hot start PCR was performed using ZymoTaq[™] PreMix (Zymo Research).



Inhibitor in sample	Cq Untreated	Cq Treated
Indigo	N/A	15.85
Hematin	N/A	15.61
Humic Acid	N/A	15.66
Bile Salts	N/A	15.61
Melanin	N/A	15.66
POS CTRL	15.5	
NEG CTRL	N/A	

qPCR analysis of inhibitor rich samples before and after Zymo-Spin™ IV-IR HRC treatment. Samples containing either Indigo (Blue, 78.7 µg/µl), Hematin (Olive Green, 133 ng/µl), Bile Salts (Light Green, 17.5 ng/µl), Humic Acid (Black, 1700 ng/µl), or Melanin (Brown, 300 ng/µl) were treated with Zymo-Spin IV-IR HRC and then spiked with HeLa DNA prior to qPCR. Samples without Zymo-Spin IV-IR HRC treatment were completely inhibited. Amplification was fully restored for all samples after processing with the Zymo-Spin™ IV-IR HRC filter. Positive control is in red, NTC showed no amplification, and each condition was run in duplicate.

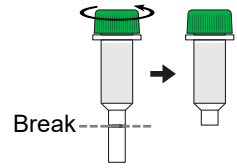
Procedure Overview



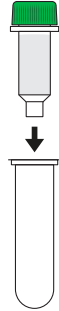
Inhibitor rich samples are simply loaded into the prepared Zymo-Spin™ IV-IR HRC filter and then centrifuged for 2-3 min to remove inhibitors and recover the sample. The samples presented above contained either concentrated amounts of Humic Acid, Hematin, or Indigo. Flowthrough after treatment is clear and free of inhibitors.

Protocol

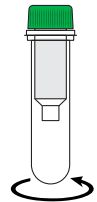
1. Loosen filter screw cap and break bottom tip off filter.



2. Insert filter into a collection tube.



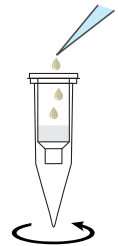
3. Centrifuge at 8,000 x g for 3 minutes.



Inhibitor Removal:

4. Transfer the prepared filter to a clean 1.5 ml microcentrifuge tube. Add 50 - 200 μ l DNA or RNA (in water, TE, or similar) to the Zymo-Spin IV-IR HRC filter and centrifuge at 8,000 x g for 2 - 3 minutes¹.

Filtered DNA and/or RNA is now suitable for PCR, RT, NGS and any other downstream applications².



¹ Use 3 minute centrifugation for volumes <100 μ l

² HRC matrix chemistry may skew the A260/230 purity value. This will **not** affect any downstream processes.

Ordering Information

Product Description	Catalog No.	Size
OneStep PCR Inhibitor Removal Kit	D6031	50 Preps.
	D6035	2x 96 Preps.

Individual Kit Components	Catalog No.	Amount
Zymo-Spin™ IV-IR HRC Filters	C1010-50	50
Collection Tubes	C1001-50	50
	C1001-500	500
	C1001-1000	1000

Complete Your PCR and NGS Workflows

✓ Robust Technology for PCR Amplification

ZymoTaq Polymerase	Size	Catalog No.
ZymoTaq™ PreMix	50 Rxns. 200 Rxns.	E2003 E2004
ZymoTaq™ qPCR Premix	50 Rxns. 200 Rxns.	E2054 E2055
ZymoTaq™ DNA Polymerase	50 Rxns. 200 Rxns.	E2001 E2002
ZymoScript RT PreMix Kit	100 Rxns.	R3012
ZymoScript One-Step RT-qPCR Kit	100 Rxns.	R3014

✓ Innovative Solutions for Next Generation Sequencing

Library Prep Kits	Size	Catalog No.
<i>Quick-16S Plus NGS Library Prep Kit (V1-V3)</i>	96 Rxns.	D6440-PS1
<i>Quick-16S Plus NGS Library Prep Kit (V1-V2)</i>	96 Rxns.	D6434-PS1
<i>Quick-16S Plus NGS Library Prep Kit (V3-V4, UDI)</i>	96 Rxns	D6421-PS1
<i>Quick-16S Plus NGS Library Prep Kit (V4)</i>	96 Rxns	D6430-PS1
<i>Quick-ITS Plus NGS Library Prep Kit (UDI)</i>	96 Rxns	D6425-PS1
Zymo-Seq SwitchFree 3' mRNA Library Kit	12 Preps 96 Preps	R3008 R3009
Zymo-Seq RiboFree Total RNA Library Kit	12 Preps 96 Preps	R3000 R3003
Zymo-Seq RiboFree Universal cDNA Kit	12 Preps	R3001



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