



ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

ZR Tissue & Insect DNA MiniPrep™

Catalog No. **D6016**

Highlights

- Simple method for the isolation of DNA (up to 25 µg) from fresh, frozen or stored insect and arthropod specimens in as little as 15 minutes.
- The organic denaturant/proteinase K-free procedure is ideal for processing small organisms including mosquitoes, bees, lice, ticks, and *D. melanogaster*.
- State-of-the-art, ultra-high density **BashingBeads™** are fracture resistant, chemically inert and can be used with any bead mill, disrupter, or vortex that can accommodate standard 2 ml tubes.
- Also, compatible with mammalian tissues, cultured cells, and whole blood.

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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 Tissue & Insect DNA MiniPrep™ (Kit Size) | D6016 (50 preps.) | Storage Temperature |
|---|-------------------|---------------------|
| ZR BashingBead™ Lysis Tubes | 50 | Room Temp. |
| Lysis Solution | 40 ml | Room Temp. |
| Genomic Lysis Buffer* | 100 ml | Room Temp. |
| DNA Pre-Wash Buffer** | 15 ml | Room Temp. |
| g-DNA Wash Buffer | 50 ml | Room Temp. |
| DNA Elution Buffer | 10 ml | Room Temp. |
| Zymo-Spin™ IV Spin Filters (Orange Tops) | 50 | Room Temp. |
| Zymo-Spin™ IIC Columns | 50 | Room Temp. |
| Collection Tubes | 150 | Room Temp. |
| Instruction Manual | 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 maximal performance and reliability.

* For optimal performance, 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 °C for 30 minutes and mix by inversion. DO NOT MICROWAVE.

Specifications

- **Format** – Bead Beating, Spin Column.
- **Sample Sources** – Samples ($n \geq 1$ and ≤ 50 mg) of fresh, frozen, or stored insects including: mosquitoes, bees, lice, ticks, *D. melanogaster*, etc. Also, compatible with fresh or frozen mammalian tissues as well as cultured cells, and whole blood.
- **DNA Yield** – Expected yields can range from 1 - 5 µg DNA per mg specimen sampled. For mammalian tissues, yields are 1 - 3 µg DNA per mg of skeletal, heart and brain tissues and 3 - 5 µg DNA per mg of liver, kidney, and lung tissues. Whole blood will yield from 3 - 7 µg DNA per 100 µl.
- **DNA Purity** – High quality DNA is eluted with **DNA Elution Buffer** that is well suited for PCR amplification, endonuclease digestion, etc. $A_{260}/A_{280} > 1.8$
- **DNA 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** – Typically, up to 25 µg total DNA is eluted into ≥ 25 µl **DNA Elution Buffer** per sample.
- **Equipment** – Microcentrifuge, vortex, cell disrupter/pulverizer (recommended)

Note - ™ Trademarks of Zymo Research Corporation. This product is for research use only and should only be used by trained professionals. It is not intended for use in diagnostic procedures. 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. Disruptor Genie™ is a trademark of Scientific Industries, Inc. and FastPrep® is a registered trademark of Qbiogene, Inc.

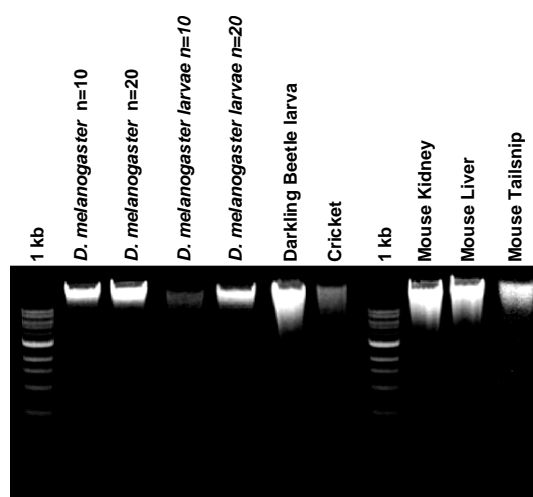
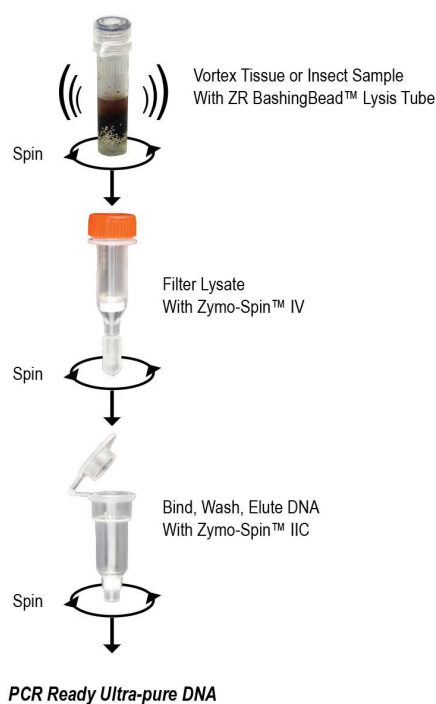
Use the ZR Tissue & Insect DNA MicroPrep™ (D6015) for DNA recoveries up to 5 µg.

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Phone: (949) 679-1190 ▪ Toll Free: (888) 882-9682 ▪ Fax: (949) 266-9452 ▪ info@zymoresearch.com ▪ www.zymoresearch.com

Product Description

The **ZR Tissue & Insect DNA MiniPrep™** is designed for the simple, rapid isolation of up to 25 µg total DNA (e.g., genomic, viral, mitochondrial) from small amounts of fresh, frozen or stored insect specimens including mosquitoes, bees, lice, ticks, and *D. melanogaster*. The procedure is easy and can be completed in as little as 15 minutes: samples are added directly to a **ZR BashingBead™ Lysis Tube** and rapidly and efficiently lysed by bead beating (e.g., *Xpedition™* Sample Processor, page 5) without using organic denaturants or proteinases. The DNA is isolated and purified using our *Fast-Spin* column technology and is ideal for downstream molecular-based applications including PCR, endonuclease digestion, array, genotyping, etc. PCR inhibitors are effectively removed during the purification process. Also, the procedure is compatible with mammalian tissues, whole blood, and cultured cells. A schematic of the **ZR Tissue & Insect DNA MiniPrep™** procedure is shown below.



Comparison of DNA yields from various insect and mouse samples using the **ZR Tissue & Insect DNA MiniPrep™**. Various amounts of sample were processed with equal volumes of eluted DNA analyzed in a 0.8% (w/v) agarose/ethidium bromide gel. The 1 kb DNA size marker is from Zymo Research.

For Technical Assistance,
please contact **Zymo
Research's Technical
Department** at 1-888-882-
9682 or E-mail to
tech@zymoresearch.com.

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Protocol

For optimal performance, 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.

Cap tube tightly to prevent leakage.

1. Add specimen(s) to a **ZR BashingBead™ Lysis Tube**. Add 750 µl **Lysis Solution** to the tube.

Generally, no more than 50 mg tissue should be sampled, for larger samples will exceed the DNA binding capacity of the spin column (See **Specifications** on page 1). Up to 400 µl of whole blood or up to 8.5 x10⁶ cells suspended in 200 µl PBS can also be sampled.

Alternatively, a standard bench top vortex can be used although the overall yield of DNA may be lower.

2. Secure in a bead beater fitted with a 2 ml tube holder assembly (e.g., Disruptor Genie™) and process at maximum speed for 10 minutes.

Processing times may be as little as 40 seconds when using high-speed cell disrupters (e.g., the portable **Xpedition™ Sample Processor**, page 5, FastPrep®-24, or similar). See manufacturer's literature for operating information.

Snap off the base of the **Zymo-Spin™ IV Spin Filter** prior to use.

3. Centrifuge the **ZR BashingBead™ Lysis Tube** in a microcentrifuge at ≥10,000 x g for 1 minute.

4. Transfer up to 400 µl supernatant to a **Zymo-Spin™ IV Spin Filter** (orange top) in a **Collection Tube** and centrifuge at 7,000 rpm (~ 7,000 x g) for 1 minute.

5. Add 1,200 µl of **Genomic Lysis Buffer** to the filtrate in the **Collection Tube** from Step 4 and mix.

The **Zymo-Spin™ IIC Column** has a maximum capacity of about 800 µl.

6. Transfer 800 µl of the mixture from Step 5 to a **Zymo-Spin™ IIC Column** in a **Collection Tube** and centrifuge at 10,000 x g for 1 minute.

7. Discard the flow through from the **Collection Tube** and repeat Step 6.

8. Add 200 µl **DNA Pre-Wash Buffer** to the **Zymo-Spin™ IIC Column** in a new **Collection Tube** and centrifuge at 10,000 x g for 1 minute.

9. Add 500 µl **g-DNA Wash Buffer** to the **Zymo-Spin™ IIC Column** and centrifuge at 10,000 x g for 1 minute.

Elute w/ 25 µl for highly concentrated DNA.

10. Transfer the **Zymo-Spin™ IIC Column** to a clean 1.5 ml microcentrifuge tube and add 50 µl (25 µl minimum) **DNA Elution Buffer** directly to the column matrix. Centrifuge at 10,000 x g for 30 seconds to elute the DNA.

To obtain maximal yields of DNA it will be necessary to elute with 100-150 µl DNA Elution Buffer.

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Ordering Information

| Product Description | Catalog No. | Kit Size |
|-----------------------------------|-------------|-------------|
| ZR Tissue & Insect DNA MicroPrep™ | D6015 | 50 preps. |
| ZR Tissue & Insect DNA MiniPrep™ | D6016 | 50 preps. |
| ZR Tissue & Insect DNA MidiPrep™ | D6115 | 20 preps. |
| ZR-96 Tissue & Insect DNA Kit™ | D6017 | 2x96 preps. |

| For Individual Sale | Catalog No. | Amount |
|--|-------------|--------|
| ZR BashingBead™ Lysis Tubes | S6003-50 | 50 |
| Lysis Solution | D6001-3-40 | 40 ml |
| Genomic Lysis Buffer | D3004-1-100 | 100 ml |
| DNA Pre-Wash Buffer | D3004-5-15 | 15 ml |
| gDNA Wash Buffer | D3004-2-50 | 50 ml |
| DNA Elution Buffer | D3004-4-10 | 10 ml |
| Zymo-Spin™ IV Spin Filters (Orange Tops) | C1007-50 | 50 |
| Zymo-Spin™ IIC Columns | C1011-50 | 50 |
| | C1011-250 | 250 |
| Collection Tubes | C1001-50 | 50 |
| | C1001-500 | 500 |
| | C1001-1000 | 1,000 |

Lysis Instruments



| Description | Cat. No. | Amount |
|---|-------------|--------|
| Disruptor Genie™, 120V w/ 2 ml tube holder assembly. | S6001-2-120 | 1 unit |
| Disruptor Genie™, 240V w/ 2 ml tube holder assembly. | S6001-2-240 | 1 unit |
| TurboMix Attachment, 2 ml Permanently mounts to most existing Vortex Genie™ mixers converting them to a Disruptor Genie™. | S6004-2 | 1 unit |

The **Disruptor Genie™** with 2 ml tube holder from Scientific Industries, Inc. (Cat. No. S6001-2 from Zymo Research Corp.)

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Xpedition™ Sample Prep & Preservation Technologies: The Complete Solution to “TAKE THE LAB TO THE FIELD”

Workflow (e.g., DNA Purification)



Lyse/stabilize samples during your expedition using Xpedition™ Sample Processor & Lysis/Stabilization Solution

Store/transport lysates without refrigeration

Process *later* using Xpedition™ DNA Prep Kits

Intact, inhibitor-free DNA ready for analysis!

For Portable Sample Lysis...



Xpedition™ Sample Processor

| | | |
|-------------------|--|------------------|
| S6020 | Xpedition™ Sample Processor | 1 unit |
| D6202 | Xpedition™ Soil/Fecal DNA MiniPrep | 50 preps. |
| D6206 | Xpedition™ Fungal/Bacterial DNA MiniPrep | 50 preps. |
| D6216 | Xpedition™ Tissue & Insect DNA MiniPrep | 50 preps. |
| D6221 | Xpedition™ Plant/Seed DNA MiniPrep | 50 preps. |
| D6202-1-40 | Xpedition™ Lysis/Stabilization Solution | 40 ml |

All Xpedition™ DNA MiniPrep Kits feature a unique lysis/stabilization solution. This allows high quality DNA to be isolated immediately or when convenient for the researcher following storage/transport of sample lysates.

Other Popular Environmental DNA/RNA Purification Products

ENVIRONMENTAL DNA

| | | | |
|--|-------|------------------------------------|---------------|
| | D6003 | ZR Soil Microbe DNA MicroPrep™ | 50 preps. |
| | D6001 | ZR Soil Microbe DNA MiniPrep™ | 50 preps. |
| | D6101 | ZR Soil Microbe DNA MidiPrep™ | 25 preps. |
| | D6002 | ZR-96 Soil Microbe DNA Kit™ | 2 x 96 preps. |
| | D6007 | ZR Fungal/Bacterial DNA MicroPrep™ | 50 preps. |
| | D6005 | ZR Fungal/Bacterial DNA MiniPrep™ | 50 preps. |
| | D6105 | ZR Fungal/Bacterial DNA MidiPrep™ | 25 preps. |
| | D6006 | ZR-96 Fungal/Bacterial DNA Kit™ | 2 x 96 preps. |
| | D6012 | ZR Fecal DNA MicroPrep™ | 50 preps. |
| | D6010 | ZR Fecal DNA MiniPrep™ | 50 preps. |
| | D6110 | ZR Fecal DNA MidiPrep™ | 25 preps. |
| | D6011 | ZR-96 Fecal DNA Kit™ | 2 x 96 preps. |
| | D6015 | ZR Tissue & Insect DNA MicroPrep™ | 50 preps. |
| | D6016 | ZR Tissue & Insect DNA MiniPrep™ | 50 preps. |
| | D6115 | ZR Tissue & Insect DNA MidiPrep™ | 25 preps. |
| | D6017 | ZR-96 Tissue & Insect DNA Kit™ | 2 x 96 preps. |
| | D6022 | ZR Plant/Seed DNA MicroPrep™ | 50 preps. |
| | D6020 | ZR Plant/Seed DNA MiniPrep™ | 50 preps. |
| | D6120 | ZR Plant/Seed DNA MidiPrep™ | 25 preps. |
| | D6021 | ZR-96 Plant/Seed DNA Kit™ | 2 x 96 preps. |

ENVIRONMENTAL RNA

| | | | |
|--|-------|------------------------------------|-----------|
| | R2040 | ZR Soil/Fecal RNA MicroPrep™ | 50 preps. |
| | | | |
| | R2010 | ZR Fungal/Bacterial RNA MicroPrep™ | 50 preps. |
| | R2014 | ZR Fungal/Bacterial RNA MiniPrep™ | 50 preps. |
| | | | |
| | R2030 | ZR Tissue & Insect RNA MicroPrep™ | 50 preps. |
| | | | |
| | R2024 | ZR Plant RNA MiniPrep™ | 50 preps. |
| | | | |

ALSO AVAILABLE

| | | |
|------------|--|---------------|
| D6030 | OneStep™ PCR Inhibitor Removal Kit | 50 preps. |
| D6035 | OneStep-96™ PCR Inhibitor Removal Kit | 2 x 96 preps. |
| S6002-50 | ZR BashingBead™ Lysis Tubes (0.5 mm) | 50 tubes |
| S6003-50 | ZR BashingBead™ Lysis Tubes (2.0 mm) | 50 tubes |
| S6002-96-1 | ZR-96 BashingBead™ Lysis Rack (0.5 mm) | 1 rack |
| S6002-96-2 | ZR-96 BashingBead™ Lysis Rack (2.0 mm) | 1 rack |



www.zymoresearch.com/xpedition
See the Xpedition™ Sample Processor in action!

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