PowerMax® Soil DNA Isolation Kit

Catalog No.	Quantity
12988-10	10 Preps

Instruction Manual

New protocol instruction: *Shake Solution C4 to mix before using to ensure consistent results.*

Please recycle

Version: 10272009

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Introduction

The PowerMax® Soil DNA Isolation Kit provides researchers with a novel and proprietary method for isolating genomic DNA from environmental samples utilizing our patented Inhibitor Removal Technology® (IRT). With this kit, it is possible to process samples that have in the past proven difficult due to high levels of humic like substances. The isolated DNA has a high level of purity allowing for successful PCR amplification from the sample. Total DNA isolated from various soil types has been successfully amplified in PCR with primers specific for bacteria (*Bacillus subtilis, Bacillus anthracis*), fungi (yeast, mold), and Actinomycetes (*Streptomyces*).

The PowerMax® Soil DNA Isolation Kit distinguishes itself from MO BIO Laboratories UltraClean® Mega Soil DNA Isolation Kit with a humic substance/brown color removal procedure. This procedure is effective at removing PCR inhibitors from even the most difficult soil types, including compost, sediment and manure.

Protocol Overview

Using this kit, environmental samples are added to a bead beating tube with a kit supplied proprietary buffer for rapid and thorough homogenization. Cell lysis and DNA exposure occurs by mechanical and chemical methods. Extracted genomic DNA is captured on a silica membrane in a spin column format. DNA is washed and eluted from the membrane and DNA is ready for PCR and other downstream applications.

This kit is for research purposes only. Not for diagnostic use.

Other Related Products	Catalog No.	Quantity
PowerSoil® DNA Isolation Kit	12888-50 12888-100	50 Preps 100 Preps
UltraClean® PCR Clean-Up Kit	12500-50 12500-100 12500-250	50 preps 100 preps 250 preps
Vortex Adapters, holds 24 (1.5-2.0 ml) tubes	13000-V1-24	1 unit

Equipment Required

Centrifuge capable of spinning 50 ml tubes (2500 x *g*)
Pipettes (1 ml and 10 ml)
Vortex-Genie® 2 Vortex (MO BIO Catalog# 13111-V or 13111-V-220)
Vortex Adapter (Catalog# 13000-V1-50 for a Vortex Genie 2 or 13000-LV2-50 for Labnet Vortex)

Kit Contents

	Kit Catalog# 12988-10	
Component	**Catalog #**	**Amount**
PowerMax® Soil PowerBead Tubes	12988-10-PBT	10
PowerMax® Soil PowerBead Solution	12988-10-BS	165 ml
PowerMax® Soil Solution C1	12988-10-1	14 ml
PowerMax® Soil Solution C2	12988-10-2	55 ml
PowerMax® Soil Solution C3	12988-10-3	44 ml
PowerMax® Soil Solution C4	12988-10-4	330 ml
PowerMax® Soil Solution C5	12988-10-5	4 x 30 ml
PowerMax® Soil Solution C6	12988-10-6	55 ml
PowerMax® Soil Spin Filters (units in 50 ml tubes)	12988-10-SF	10
PowerMax® Soil Collection Tubes (50 ml)	12988-10-T	40

Kit Storage

Kit reagents and components should be stored at room temperature (15-30°C).

Precautions

Please wear gloves when using this product. Avoid all skin contact with kit reagents. In case of contact, wash thoroughly with water. Do not ingest. See Material Safety Data Sheets for emergency procedures in case of accidental ingestion or contact. All MSDS information is available upon request (760-929-9911) or at www.mobio.com. Reagents labeled flammable should be kept away from open flames and sparks.

WARNING: Solution C5 contains ethanol. It is flammable.

IMPORTANT NOTE FOR USE: Shake to mix Solution C4 before use.

Experienced User Protocol
Please wear gloves at all times

1. Add 15 ml of **PowerBead Solution** to a **PowerBead Tube**. **These tubes will now be referred to as PowerMax® Bead Solution Tubes.**
2. Add up to 10 g of soil sample to **PowerMax® Bead Solution Tube**. Vortex vigorously for 1 minute. **Note**: Please refer to the Hints and Troubleshooting Guide before deciding on the amount of soil to process.
3. Check **Solution C1.** If **Solution C1** is precipitated, heat the solution at 60°C until the precipitate has dissolved. Add 1.2 ml of **Solution C1** to the **PowerMax® Bead Solution Tube** and vortex vigorously for 30 seconds.
4. Place **PowerMax® Bead Solution Tubes** on the MO BIO Laboratories, Inc. Vortex Adapter (MO BIO Catalog# 13000-V1) and vortex for 10 minutes at the highest speed. *Alternatively, you can place the tubes in a shaking water bath set at 65°C and shake at maximum speed for 30 minutes.*
5. Centrifuge tubes at 2500 x *g* for 3 minutes at room temperature.
6. Transfer supernatant to a clean **Collection Tube** (provided). The supernatant may still contain some soil particles and color.
7. Add 5 ml of **Solution C2** and invert twice to mix. Incubate at 4°C for 10 minutes.
8. Centrifuge tubes at 2500 x *g* for 4 minutes at room temperature.
9. Avoiding pellet, transfer supernatant to a clean **Collection Tube** (provided).
10. Add 4 ml of **Solution C3** and invert twice to mix. Incubate at 4°C for 10 minutes.
11. Centrifuge tubes at 2500 x *g* for 4 minutes at room temperature.
12. Avoiding pellet, transfer supernatant to a clean **Collection Tube** (provided).
13. Shake to mix Solution C4. Add 30 ml of **Solution C4** to supernatant and invert twice.
14. This step requires three centrifugations. First, fill **Spin Filter** with solution from Step 13. Centrifuge at 2500 x *g* for 2 minutes at room temperature. Discard flow through and add second volume of supernatant to same **Spin Filter** and centrifuge at 2500 x *g* for 2 minutes at room temperature. Discard flow through. Repeat until entire volume has been processed.
15. Add 10 ml of **Solution C5** to **Spin Filter** and centrifuge at 2500 x *g* for 3 minutes at room temperature. Discard flow through.
16. Centrifuge **Spin Filter** at 2500 x *g* for 5 minutes at room temperature.
17. Carefully place **Spin Filter** in a new **Collection Tube** (provided). Avoid splashing **Solution C5** onto **Spin Filter**.
18. Add 5 ml of sterile **Solution C6** to the center of **Spin Filter** membrane and centrifuge at 2500 x *g* for 3 minutes at room temperature.
19. Discard **Spin Filter**. The DNA in the tube is now ready for any downstream application. No further steps are required.

We recommend storing DNA frozen (-20°C). **Solution C6** does not contain EDTA. To concentrate DNA see the Hints and Troubleshooting Guide.

Thank you for choosing the PowerMax® Soil DNA Isolation Kit.

Detailed Protocol (Describes what is happening at each step)
Please wear gloves at all times

1. Add 15 ml of **PowerBead Solution** to a **PowerMax® Bead Tube**. **These tubes will now be referred to as PowerMax® Bead Solution Tubes.**

2. Add up to 10 g of soil sample to the **PowerMax® Bead Solution Tube**. Vortex vigorously for 1 minute to mix. **Note**: Please refer to Hints and Troubleshooting Guide before deciding on the amount of soil to process.

   What's happening: There are many types of soil. Be sure to get a clear idea of how much soil to process before beginning the DNA isolation procedure. After your sample has been loaded into the PowerMax™ Bead Solution Tube, the next step is homogenization and lysis. The PowerMax™ Bead Solution Tube contains a buffer that will (a) help disperse the soil particles, (b) begin to dissolve humic acids and (c) protect nucleic acids from degradation. Vortexing mixes the components in the PowerMax™ Bead Solution Tube and begins to disperse the sample in the Solution.

3. Check **Solution C1.** If **Solution C1** is precipitated, heat the solution to 60°C until the precipitate has dissolved before use. Add 1.2 ml of **Solution C1** to a **PowerMax® Bead Solution Tube** and vortex vigorously for 30 seconds.

   What's happening: Solution C1 contains SDS and other disruption agents required for complete cell lysis. In addition to aiding in cell lysis, SDS is an anionic detergent that breaks down fatty acids and lipids associated with the cell membrane of several organisms. If it gets cold, it will form a white precipitate in the bottle. Heating to 60°C will dissolve the SDS and will not harm the SDS or the other disruption agents. Solution C1 can be used while it is still warm.

4. Place the **PowerMax® Bead Solution Tubes** on the MO BIO Laboratories, Inc. Vortex Adapter (MO BIO Catalog# 13000-V1) and vortex for 10 minutes at highest speed.

   Note: *The vortexing step is critical for complete homogenization and cell lysis. Cells are lysed by a combination of chemical agents from steps 1-3 and mechanical shaking introduced at this step. By randomly shaking the beads in the presence of disruption agents, collision of the beads with microbial cells will cause the cells to break open.*

   What's happening: The MO BIO Laboratories, Inc. Vortex Adapter is designed to be a simple platform to facilitate keeping the tubes tightly attached to the vortex. It should be noted that although you can attach tubes to a vortex with tape, often the tape becomes loose and not all tubes will shake evenly or efficiently. This may lead to inconsistent results or lower DNA yield. Therefore, the use of the MO BIO Laboratories, Inc. Vortex Adapter is a highly recommended and cost effective way to obtain maximum DNA yields.

   Alternatively, you can place the tubes in a shaking water bath set at 65°C and shake at maximum speed for 30 minutes.

5. Centrifuge the tubes at 2500 x *g* for 3 minutes at room temperature.

6. Transfer the supernatant to a clean **Collection Tube** (provided). The supernatant may still contain some soil particles and color.

   Note: *The supernatant volume may vary with soil type and may also be dark in appearance due to soil particles and humic substance carry-over. The presence of carry-over soil or a dark color in the mixture is*

expected in many soil types at this step. Subsequent steps in the protocol will remove both carry-over soil and coloration.

7. Add 5 ml of **Solution C2** to the supernatant and invert twice to mix. Incubate at 4°C for 10 minutes.

   What's happening: Solution C2 is patented Inhibitor Removal Technology® (IRT). It contains a reagent to precipitate non-DNA organic and inorganic material, including humic substances, cell debris, and proteins. It is important to remove contaminating organic and inorganic matter that may reduce DNA purity and inhibit downstream DNA applications.

8. Centrifuge the tubes at 2500 x *g* for 4 minutes at room temperature.

9. Avoiding the pellet, transfer the supernatant to a clean **Collection Tube** (provided).

   What's happening: The pellet at this point contains non-DNA organic and inorganic material including humic acid, cell debris, and proteins. For the best DNA yield and quality, avoid transferring any of the pellet.

10. Add 4 ml of **Solution C3** to the supernatant and invert twice to mix. Incubate at 4°C for 10 minutes.

    What's happening: Solution C3 is patented Inhibitor Removal Technology® (IRT) and is a second reagent to precipitate additional non-DNA organic and inorganic material including humic acid, cell debris, and proteins. It is important to remove contaminating organic and inorganic matter that may reduce DNA purity and inhibit downstream DNA applications.

11. Centrifuge the tubes at 2500 x *g* for 4 minutes at room temperature.

12. Avoiding the pellet, transfer supernatant to a clean **Collection Tube** (provided).

    What's happening: The pellet contains additional non-DNA organic and inorganic material including humic acid, cell debris, and proteins. For the best DNA yield and quality, avoid transferring any of the pellet.

13. Shake to mix Solution C4. Add 30 ml of **Solution C4** to the supernatant and invert twice.

    What's happening: Solution C4 is a high concentration salt solution. Since DNA binds tightly to silica at high salt concentrations, this will adjust the DNA solution salt concentration to allow binding of DNA, but not non-DNA organic and inorganic material that may still be present at low levels, to the Spin Filters.

14. This step requires <u>three</u> centrifugations. First, fill the **Spin Filter** with solution from Step 13. Centrifuge at 2500 x *g* for 2 minutes at room temperature. Discard the flow through and add a second volume of supernatant to the same **Spin Filter** and centrifuge at 2500 x *g* for 2 minutes at room temperature. Discard the flow through. Repeat until the entire volume has been processed.

    What's happening: DNA is selectively bound to the silica membrane in the spin filter device in the high salt solution. Contaminants pass through the filter membrane, leaving only DNA bound to the membrane.

15. Add 10 ml of **Solution C5** to the **Spin Filter** and centrifuge at 2500 x *g* for 3 minutes. Discard the flow through.

    What's happening: Solution C5 is an ethanol based wash solution used to further clean the DNA that is bound to the silica filter membrane in the Spin Filter. This wash solution removes residual salt, humic acid, and other contaminants while allowing the DNA to stay bound to the silica membrane.

16. Centrifuge the **Spin Filter** at 2500 x *g* for 5 minutes at room temperature.

Note: *The second centrifugation removes residual Solution C5 (ethanol wash solution). It is critical to remove all traces of wash solution because the ethanol in Solution C5 can interfere with many downstream DNA applications such as PCR, restriction digests and gel electrophoresis.*

17. Carefully place the **Spin Filter** in a new **Collection Tube** (provided). Avoid splashing **Solution C5** onto the **Spin Filter**.

18. Add 5 ml of **Solution C6** to the center of the **Spin Filter** membrane. Centrifuge at 2500 x g for 3 minutes at room temperature.

    Note: *Placing Solution C6 (sterile elution buffer) in the center of the white membrane will ensure the entire membrane is wetted. This will result in a more efficient and complete release of the DNA from the silica Spin Filter membrane. As Solution C6 (elution buffer) passes through the silica membrane, DNA that was bound in the presence of high salt (Steps 13 and 14) is selectively released by Solution C6 (10mM Tris) which lacks salt.*

    Alternatively, sterile DNA-Free PCR Grade Water may be used for DNA elution from the silica Spin Filter membrane at this step (MO BIO Laboratories, Inc., Catalog No. 17000-10). Solution C6 contains no EDTA. If DNA degradation is a concern, sterile TE may also be used instead of Solution C6 for elution of DNA from the Spin Filter.

19. Discard the **Spin Filter**. The DNA in the tube is now ready for any downstream application. No further steps are required.

    We recommend storing DNA frozen (-20°C). **Solution C6** does not contain EDTA. To concentrate DNA see the Hints and Troubleshooting Guide.

Thank you for choosing the PowerMax® Soil DNA Isolation Kit.

Hints and Troubleshooting Guide

Concentrating the DNA

The final volume of eluted DNA will be 5 ml. The DNA may be concentrated by adding 0.2 ml of 5M NaCl and inverting 3-5 times to mix. Next, add 10.4 ml of 100% cold ethanol and invert 3-5 times to mix. Centrifuge at 2500 x *g* for 30 minutes at room temperature. Decant all liquid. (If sterile DNA is desired, wash the DNA pellet with 70% cold ethanol. Be sure not to disturb the pellet.) Remove residual ethanol in a speed vac, desiccator, or ambient air. Resuspend precipitated DNA in sterile water or sterile 10 mM Tris.

Amount of Soil to Process

The amount of soil to process will depend on the soil type. 5 g is typically recommended, although dry soils may require less starting material (*1 g*) and wet soils may require more (*up to 10 g*). For mulch and potting mixtures, we recommend up to 2.5 g and for composts up to 5.0 g. Up to 10 g of sandy soil may be processed.

If DNA Does Not PCR Amplify

- Check DNA yield by gel electrophoresis and spectrophotometer reading. Template is typically added to 10 ng per reaction, although more or less may be needed depending on the reaction conditions, enzyme activity, and copy number of the target sequence.
- If DNA does not amplify after altering the amount of template in the reaction, PCR optimization (i.e. changing reaction conditions, validating primers, or testing a different polymerase) may be needed.

DNA Floats Out of Well When Loaded on a Gel

This usually occurs because residual Solution C5 remains in the final sample. Prevent this by being careful in step 17 not to transfer liquid onto the bottom of the spin filter basket. Ethanol precipitation (described in “Concentrating the DNA”) is the best way to remove residual Solution C5.

Storing DNA

DNA is eluted in Solution C6 (10mM Tris). Store the DNA at -20°C to prevent degradation. DNA can be eluted in TE without DNA loss, but the EDTA may inhibit downstream reactions such as PCR and automated sequencing. DNA that has been eluted into sterile water should be stored at -70°C.

Contact Information

Technical Support:
Phone MO BIO Laboratories, Inc. Toll Free 800-606-6246, or 760-929-9911
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For the distributor nearest you, visit our web site at www.mobio.com/distributors

Other Quality Products Available from MO BIO Laboratories, Inc.

For more product and detailed information go to www.mobio.com/catalog-request to request a catalog.

DNA Purification and Gel Extraction	Catalog No.	Quantity
PowerClean® DNA Clean-Up Kit	12877-50	50 preps
UltraClean® 15 DNA Purification Kit	12100-300	300 preps
UltraClean® PCR Clean-Up Kit	12500-50 12500-100 12500-250	50 preps 100 preps 250 preps
UltraClean®-htp 96 Well PCR Clean-Up Kit	12596-4 12596-12	4 x 96 preps 12 x 96 preps
UltraClean® GelSpin® DNA Extraction Kit	12400-50 12400-100 12400-250	50 preps 100 preps 250 preps
Plasmid DNA Isolation	**Catalog No.**	**Quantity**
UltraClean® 6 Minute Mini Plasmid Prep Kit	12300-50 12300-100 12300-250	50 preps 100 preps 250 preps
UltraClean® Standard Mini Plasmid Prep Kit	12301-50 12301-100 12301-250	50 preps 100 preps 250 preps
UltraClean®-htp 96 Well Plasmid Prep Kit	12396-4 12396-12	4 x 96 preps 12 x 96 preps
UltraClean® Midi Plasmid Prep Kit	12700-20 12700-50	20 preps 50 preps
UltraClean® Maxi Plasmid Prep Kit	12600-10 12600-20	10 preps 20 preps
UltraClean® Endotoxin-Free Mini Plasmid Prep Kit	12311-100 12311-250	100 preps 250 preps
UltraClean® Endotoxin-Free Midi Plasmid Prep Kit	12711-10	10 preps
UltraClean® Endotoxin-Free Maxi Plasmid Prep Kit	12611-10	10 preps
UltraClean® Endotoxin Removal Kit	12615	1 kit
UltraClean® Endotoxin-Free Ethanol Precipitation Kit	12616	1 kit
UltraClean® Endotoxin Removal Reagent	12625-25	25 ml
Endotoxin-Free Sodium Chloride	12626-15	15 ml
Endotoxin-Free Centrifuge Tubes	12617-100 12618-50 12619-25	100 each/2 ml tubes 50 each/15 ml tubes 25 each/50 ml tubes
RNA Isolation	**Catalog No.**	**Quantity**
LifeGuard™ Soil Stabilization Solution	12868-10 12868-100 12868-1000 12868-7500	10 ml 100 ml 1 L 7.5 L
On-Spin Column DNase I Kit (RNase-Free)	15100-50	50 preps
BiOstic® Stabilized Blood RNA Isolation Kit	12231-20 12231-50 12231-100	20 preps 50 preps 100 preps
BiOstic® Blood Total RNA Isolation Kit	12230-20 12230-50	20 preps 50 preps
RNA PowerSoil® DNA Elution Accessory Kit	12867-25	25 preps
RNA PowerSoil® Total RNA Isolation Kit	12866-25	25 preps
UltraClean® Microbial RNA Isolation Kit	15800-50 15800-250	50 preps 250 preps
UltraClean® Tissue & Cells RNA Isolation Kit	15000-50 15000-250	50 preps 250 preps

RNA Isolation …*Continued*	Catalog No.	Quantity
UltraClean® Plant RNA Isolation Kit	13300-20 13300-50	20 preps 50 preps
Genomic DNA Isolation	**Catalog No.**	**Quantity**
PowerFood™ Microbial DNA Isolation Kit	21000-50 21000-100	50 preps 100 preps
BiOstic® Bacteremia DNA Isolation Kit	12240-50	50 preps
BiOstic® FFPE Tissue DNA Isolation Kit	12250-50	50 preps
BiOstic® Paraffin Removal Reagent	12251-50	2 x 25 ml
PowerMax® Soil DNA Isolation Kit	12988-10	10 preps
PowerSoil® DNA Isolation Kit	12888-50 12888-100	50 preps 100 preps
PowerSoil®-htp 96 Well Soil DNA Isolation Kit	12955-4 12955-12	4 x 96 preps 12 x 96 preps
UltraClean® Soil DNA Isolation Kit	12800-50 12800-100	50 preps 100 preps
UltraClean®-htp 96 Well Soil DNA Isolation Kit	12896-4 12896-12	4 x 96 preps 12 x 96 preps
UltraClean® Mega Soil DNA Isolation Kit	12900-10	10 preps
PowerClean® DNA Clean-Up Kit	12877-50	50 preps
UltraClean® Fecal DNA Isolation Kit	12811-50 12811-100	50 preps 100 preps
PowerMicrobial® Midi DNA Isolation Kit	12225-25	25 preps
PowerMicrobial® Maxi DNA Isolation Kit	12226-25	25 preps
UltraClean® Microbial DNA Isolation Kit	12224-50 12224-250	50 preps 250 preps
UltraClean®-htp 96 Well Microbial DNA Isolation Kit	10196-4 10196-12	4 x 96 preps 12 x 96 preps
PowerPlant® DNA Isolation Kit	13200-50 13200-100	50 preps 100 preps
UltraClean® Plant DNA Isolation Kit	13000-50 13000-250	50 preps 250 preps
UltraClean®-htp 96 Well Plant DNA Isolation Kit	13096-4 13096-12	4 x 96 preps 12 x 96 preps
UltraClean® Tissue & Cells DNA Isolation Kit	12334-50 12334-250	50 preps 250 preps
UltraClean®-htp 96 Well Tissue DNA Isolation Kit	12996-4 12996-12	4 x 96 preps 12 x 96 preps
UltraClean® Blood DNA Isolation Kit (Non-Spin)	12000-100	100 preps
UltraClean® Blood DNA Isolation Kit (Processes 1,000 ml of Blood)	12000-1000	1 kit
UltraClean® Blood DNA Isolation Kit Plus RNase (Processes 1,000 ml of Blood)	12002-1000	1 kit
UltraClean® BloodSpin® DNA Isolation Kit	12200-50 12200-250	50 preps 250 preps
UltraClean®-htp 96 Well BloodSpin® DNA Isolation Kit	12296-4 12296-12	4 x 96 preps 12 x 96 preps

Other Quality Products Available from MO BIO Laboratories, Inc.

For more product and detailed information go to www.mobio.com/catalog-request to request a catalog.

Genomic DNA Isolation *...Continued*	Catalog No.	Quantity
UltraClean® Forensic DNA Isolation Kit	14000-10 14000-20	10 isolations 20 isolations
PowerWater® DNA Isolation Kit	 14900-50-NF 14900-50-22 14900-50-45 14900-100-NF 14900-100-22 14900-100-45	50 preps (No filters) (0.22 µm) (0.45 µm) 100 preps (No filters) (0.22 µm) (0.45 µm)
RapidWater™ DNA Isolation Kit	 14810-50-NF 14810-50-22 14810-50-45 14810-100-NF 14810-100-22 14810-100-45	50 preps (No filters) (0.22 µm) (0.45 µm) 100 preps (No filters) (0.22 µm) (0.45 µm)
UltraClean® Water DNA Isolation Kit (0.45µm filters)	14800-10 14800-25	10 preps 25 preps
UltraClean® Water DNA Isolation Kit (0.22 µm filters)	14880-10 14880-25	10 preps 25 preps
UltraClean® Water DNA Isolation Kit (No filters)	14800-10-NF 14800-25-NF	10 preps 25 preps
Microbiological Culture Media	**Catalog No.**	**Quantity**
TB DRY® Powder Growth Media	12105-05 12105-1 12105-5	500 g 1 kg 5 kg
LB Broth Powder Growth Media, pH 7	12106-05 12106-1 12106-5	500 g 1 kg 5 kg
LB Agar Powder Growth Media, pH 7	12107-05 12107-1 12107-5	500 g 1 kg 5 kg
LB Broth (Lennox) Powder Growth Media, pH 7	12108-05 12108-1 12108-5	500 g 1 kg 5 kg
LB Agar (Lennox) Powder Growth Media, pH 7	12109-05 12109-1 12109-5	500 g 1 kg 5 kg
Soybean-Casein Digest Medium (TSB), USP	12114-05 12114-1 12114-5	500 g 1 kg 5 kg
Soybean-Casein Digest Agar Medium (TSA), USP	12115-05 12115-1 12115-5	500 g 1 kg 5 kg
Yeast Extract	12110-05 12110-1 12110-5	500 g 1 kg 5 kg
Tryptone	12111-05 12111-1 12111-5	500 g 1 kg 5 kg
Agar, Bacteriological Grade	12112-05 12112-1 12112-5	500 g 1 kg 5 kg
Other Reagents and Lab Accessories	**Catalog No.**	**Quantity**
20 bp DNA Ladder	17020-40	40 µg

Other Reagents and Lab Accessories...*Continued*	Catalog No.	Quantity
100 bp DNA Ladder	17100-40	40 µg
1 kb DNA Ladder	17200-100	100 µg
UltraClean® Agarose, Molecular Biology Grade	15003-50 15003-100 15003-500 15003-1000	50 g 100 g 500 g 1 kg
UltraClean® MS-8 Agarose	15515-50 15515-100 15515-500	50 g 100 g 500 g
UltraClean® Forensic Agarose	15505-50 15505-100 15505-500	50 g 100 g 500 g
UltraClean® Low Melt Agarose	15005-50 15005-100 15005-500	50 g 100 g 500 g
UltraClean® Low Melt Sieve Agarose	15004-50 15004-100 15004-500	50 g 100 g 500 g
Ethidium Bromide Solution	15006-1 15006-10	1 ml 10 ml
Ethidium Bromide Destaining Tea Bags	15007-25	25 bags
Bromophenol Blue Gel Loading Buffer	15008-1 15008-5	1 ml 5 x 1 ml
Bromophenol Blue/Xylene Cyanol Gel Loading Buffer	15009-1 15009-5	1 ml 5 x 1 ml
TAE Buffer, 50X (Tris-acetate-EDTA)	15001-100 15001-500 15001-1000	100 ml 500 ml 1 liter
TBE Buffer, 10X (Tris-borate-EDTA)	15002-100 15002-500 15002-1000	100 ml 500 ml 1 liter
RNase-Free Gloves	1555-XS 1555-S 1555-M 1555-L	bag of 100 bag of 100 bag of 100 bag of 100
UltraClean® Lab Cleaner	12095-250 12095-500 12095-1000	250 ml squeeze bottle 500 ml spray bottle 1 liter bottle
OmniTaq™ DNA Polymerase Enzyme	1224-250	250 reactions (10 U/µl)
OmniTaq™ DNA Polymerase 2x Master Mix	1226-250	250 reactions (5 x 1.25 ml/tube)
Omni KlenTaq™ DNA Polymerase Enzyme	1225-250	250 reactions (25 U/µl)
Omni KlenTaq™ DNA Polymerase 2x Master Mix	1227-250	250 reactions (5 x 1.25 ml/tube)

Other Quality Products Available from MO BIO Laboratories, Inc.

For more product and detailed information go to www.mobio.com/catalog-request to request a catalog.

Other Reagents and Lab Accessories…*Continued*	Catalog No.	Quantity
DNase (RNase-Free)	15600-5 15601-100	5 mg 2500 units
Proteinase K	1223-100 1222-2	100 mg 2 ml (20 mg/ml)
Ribonuclease A (25 mg/ml)	1202-1 1202-5	1 ml 5 ml
PCR Water	17000-1 17000-5 17000-10 17000-11	1 ml 5 x 1 ml 10 x 1 ml 10 ml bottle
Molecular Biology Grade Water	17012-200 17012-5200	200 ml 5 x 200 ml
DEPC Treated Water	17011-200 17011-5200	200 ml 5 x 200 ml
Endotoxin-Free Water	17013-10 17013-50 17013-100 17013-500	10 ml 50 ml 100 ml 500 ml
Instrumentation and Accessories	**Catalog No.**	**Quantity**
BagMixer® 400 VW	23112	1 unit
BagFilter® 400 P	23113-500	Box of 500
BagPage® 400	23114-500	Box of 500
Precellys®24 Homogenizer, 120V	13112	1 unit
Ceramic Bead Tubes, 1.4 mm	13113-50	50 bead tubes
Ceramic Bead Tubes, 2.8 mm	13114-50	50 bead tubes
Glass Bead Tubes, 0.5 mm	13116-50	50 bead tubes
Glass Bead Tubes, 0.1 mm	13118-50	50 bead tubes
Metal Bead Tubes, 2.38 mm	13117-50	50 bead tubes
2.0 ml Tough Tubes with Cap	13119-500 13119-1000	500 1000
Carbide Bead Tubes, 0.25 mm	13121-50	50 x 0.5 ml tubes
Garnet Bead Tubes, 0.15 mm	13122-50	50 x 0.5 ml tubes
Garnet Bead Tubes, 0.70 mm	13123-50	50 x 2 ml tubes
Garnet + ¼ Ceramic 15 ml Bead Tubes, 0.70 mm	13134-50	50 tubes
Garnet + ¼ Ceramic 50 ml Bead Tubes, 0.70 mm `	13144-10 13144-50 13144-100 13144-500	10 tubes 50 tubes 100 tubes 500 tubes
Glass 15 ml Bead Tubes, 0.1 mm	13135-50	50 tubes

Instrumentation and Accessories… *Continued*	Catalog No.	Quantity
Glass 50 ml Bead Tubes, 0.1 mm	13145-10 13145-50 13145-100 13145-500	10 tubes 50 tubes 100 tubes 500 tubes
Glass 15 ml Bead Tubes, 1.0 mm	13136-50	50 tubes
Ceramic 15 ml Bead Tubes, 1.4 mm	13137-50	50 tubes
Ceramic 50 ml Bead Tubes, 1.4 mm	13147-10 13147-50	10 tubes 50 tubes
Metal 50 ml Bead Tubes, 2.38 mm	13149-10 13149-50	10 tubes 50 tubes
PowerMix 15 ml Bead Tubes	13138-50	50 tubes
PowerMix 50 ml Bead Tubes	13148-10 13148-50	10 tubes 50 tubes
2 ml Collection Tubes	1200-100-T 1200-150-T 1200-250-T	100 tubes 150 tubes 250 tubes
2 ml Screw Cap Tubes	12800-200-E	200 tubes & caps
15 ml Collection Tubes	12700-T	25 tubes
50 ml Centrifuge Tubes	12600-T	25 tubes
Spin Filters (in 1.9 ml tubes)	1200-50-SF 1200-100-SF 1200-250-SF	50 filters 100 filters 250 filters
Endotoxin-Free Centrifuge Tubes	12617-100 12618-50 12619-25	100 each/2 ml tubes 50 each/15 ml tubes 25 each/50 ml tubes
15 ml Midi Spin Filters	12700-SF	25 spin filters
Vortex-Genie® 2 Vortex (120V)	13111-V	1 unit
Vortex-Genie® 2 Vortex (220V)	13111-V-220	1 unit
Vortex Adapter, holds 12 (1.5-2.0 ml) tubes	13000-V1	1 unit
Vortex Adapter, holds 6 (5 ml) tubes	13000-V1-5	1 unit
Vortex Adapter, holds 4 (15 ml) tubes	13000-V1-15	1 unit
Vortex Adapter, holds 2 (50 ml) tubes	13000-V1-50	1 unit
Vortex Adapter, holds 24 (1.5-2.0 ml) tubes	13000-V1-24	1 unit
Power Supply w/Timer, (120V)	16023	1 unit
Power Supply w/Timer, (220V)	16023-220	1 unit
Polycarbonate Single-sided Comb	16005 16006 16007 16008	1 mm x 3 well 1 mm x 8 well 1 mm x 10 well 1 mm x 12 well

Other Quality Products Available from MO BIO Laboratories, Inc.

For more product and detailed information go to www.mobio.com/catalog-request to request a catalog.

Instrumentation and Accessories… *Continued*	Catalog No.	Quantity
Polycarbonate Dual-sided Comb	16013 16014 16015 16016	1 mm x 8 well/16 well 1 mm x 10 well/14 well 2 mm x 8 well/16 well 2 mm x 10 well/14 well
Teflon Single-sided Comb	16009 16010 16011 16012	1 mm x 3 well 1 mm x 8 well 1 mm x 10 well 1 mm x 12 well
Teflon Dual-sided Comb	16017 16018 16019 16020	1 mm x 8 well/16 well 1 mm x 10 well/14 well 2 mm x 8 well/16 well 2 mm x 10 well/14 well
Mini Horizontal Gel System	16001	1 each
Mini Horizontal Gel Caster, 3 place	16003	1 each
Mini Horizontal Gel Tray	16004	1 each
96 Well Plate Shaker (120V)	11996	1 unit

Instrumentation and Accessories… *Continued*	Catalog No.	Quantity
96 Well Plate Shaker (220V)	11996-220	1 unit
Plate Adapter Set	11999	1 set
Tube Adapter Set	11995	1 set
Vacuum Pump (120V)	11998	1 unit
Vacuum Pump (220V)	11998-220	1 unit
UltraVac™ Manifold	11997	1 unit