



# UltraClean<sup>®</sup> Mega Soil DNA Isolation Kit

Catalog No.	Quantity
12900-10	10 Preps

## *Instruction Manual*

New protocol instruction: *Shake Solution S3 to mix before using to ensure consistent results.*



Please recycle



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## Introduction

The UltraClean<sup>®</sup> Mega Soil DNA Isolation Kit provides researchers the ability to process larger volumes of soil, critical when microbial load is low. This reliable kit is based on a novel bead beating method to effectively remove PCR inhibitors including humic acid. This kit has become the method of choice among researchers around the world studying microbial organisms in soil. This kit will isolate cellular, PCR quality DNA from soil and ensures removal of humic acid inhibitors. Use this kit for isolating DNA from 5-10 grams soil samples.

## Protocol Overview

The basic procedure is to lyse the microorganisms in the soil by a combination of heat, detergent, and mechanical force against specialized beads. The released DNA is then bound to a spin filter. The filter is washed and then PCR quality DNA is released into a buffer.

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

Other Related Products	Catalog No.	Quantity
PowerMax <sup>®</sup> Soil DNA Isolation Kit	12988-10	10 preps
Vortex Adapter, holds 24 (1.5-2.0 ml) tubes	13000-V1-24	1 unit
UltraClean <sup>®</sup> -htp 96 Well Soil DNA Isolation Kit	12896-4	4 x 96 preps
	12896-12	12 x 96 preps



## Equipment Required

Shaking water bath set at 65°C.

Centrifuge capable of spinning 50 ml tubes (2500 x g)

Pipettes (volumes required 1 ml and 10 ml),

Vortex-Genie<sup>®</sup> 2 Vortex (MO BIO Catalog# 13111-V or 13111-V-220)

## Kit Contents

Kit Catalog# 12900-10		
Component	Catalog#	Amount
Mega Bead Tubes	12900-10-BT	10
Bead Solution	12900-10-BS	165 ml
Solution S1	12900-10-1	14 ml
Solution IRS	12900-10-IRS	44 ml
Solution S2	12900-10-2	22 ml
Solution S3	12900-10-3	330 ml
Solution S4	12900-10-4	2 x 30 ml
Solution S5	12900-10-5	88 ml
Spin Filter Units in 50 ml Tubes	12900-10-SF	10
Collection Tubes (50 ml)	12900-10-T	30

## 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](http://www.mobio.com). Reagents labeled flammable should be kept away from open flames and sparks.

**WARNING:** Solution S4 contains Ethanol. It is flammable.

**IMPORTANT NOTE FOR USE:** Shake to mix Solution S3 before use.

## Experienced User Protocol

Please wear gloves at all times

1. Adjust a shaking water bath to 65°C before starting (see step 8).
2. **Each prep will require you to add 15 ml of Bead Solution to a 50 Mega Bead Tube. These tubes will now be referred to as Bead Solution Tubes.**
3. Add 5 -10 grams of soil sample to a **Bead Solution Tube**.
4. Vortex vigorously for 1 minute to mix.
5. Check **Solution S1**. If **Solution S1** is precipitated, heat solution to 60°C until dissolved before use.
6. Add 1.2 ml of **Solution S1** and vortex vigorously 30 seconds.
7. Add 4 ml of **Solution IRS (Inhibitor Removal Solution)**. This is only required if the DNA is to be used for PCR.
8. Place the 50 ml **Bead Solution Tubes** on the MO BIO Vortex Adapter, for a Genie 2 Vortex (MO BIO Catalog# 13000-V1-50) or for a Labnet vortex (MO BIO Catalog# 13000-LV2-50), and vortex for 10 minutes at 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.
9. Centrifuge tubes at 2500 x *g* for 3 minutes.
10. Transfer the supernatant to a clean **Centrifuge Tube** (provided).
11. Supernatant may still contain some soil particles.
12. Add 2 ml of **Solution S2**, invert twice to mix.
13. Incubate at 4°C for 10 minutes.
14. Centrifuge the tubes for 4 minutes at 2500 x *g*.
15. Avoiding the pellet, transfer supernatant to a clean **Centrifuge Tube** (provided).
16. Shake to mix **Solution S3**. Add 30 ml of **Solution S3** to the supernatant and invert twice.
17. This step requires two spins. First fill **Spin Filter** with solution from step 16. Centrifuge at 2500 x *g* for 2 minutes. Discard the flow through and add the remaining supernatant to the same **Spin Filter** and centrifuge at 2500 x *g* for 2 minutes. Discard flow through.
18. Add 6 ml of **Solution S4** and centrifuge for 3 minutes at 2500 x *g*.
19. Discard the flow through.
20. Centrifuge again at 2500 x *g* for 5 minutes.
21. Carefully place **Spin Filter** in a new clean **Centrifuge Tube** (provided). Avoid splashing any **Solution S4** onto the **Spin Filter**.
22. Add 8 ml of **Solution S5** to the center of **Spin Filter** membrane.
23. Centrifuge for 3 minutes at 2500 x *g*.
24. Discard **Spin Filter**. DNA in the tube is now application ready. No further steps are required.

We recommend storing DNA frozen (-20°C). **Solution S5** contains no EDTA. To concentrate the DNA see the Hints and Troubleshooting Guide.

Thank you for choosing the UltraClean® Mega Soil DNA Isolation Kit.

## Detailed Protocol (Describes what is happening at each step)

Please wear gloves at all times

1. Adjust a shaking water bath to 65°C before starting (see step 8).
2. **Each prep will require you to add 15 ml of Bead Solution to a 50 Mega Bead Tube. These tubes will now be referred to as Bead Solution Tubes.**

3. Add 5.0 grams -10 grams of soil sample to a **Bead Solution Tube**. (For amounts of sample to process see the Hints and Troubleshooting Guide).

*What's happening: The soil or fecal sample has now been loaded into the Bead Tube. This is the first part of the lysis procedure. The Bead Solution is a buffer that will disperse the soil particles and begin to dissolve humic acids.*

4. Vortex vigorously for 1 minute to mix.

*What's happening: This step mixes the sample and Bead Solution.*

5. Check **Solution S1**. If Solution S1 is precipitated, heat solution to 60°C until dissolved before use.

*What's happening: Solution S1 contains SDS. If it gets cold, it will precipitate. Heating to 60°C will dissolve the SDS. The Solution S1 can be used while it is still warm.*

6. Add 1.2 ml of **Solution S1** and vortex vigorously 30 seconds.

*What's happening: Solution S1 contains SDS. This is a detergent that aids in cell lysis. The detergent breaks down fatty acids and lipids associated with the cell membrane of several organisms.*

7. Add 4 ml of **Solution IRS (Inhibitor Removal Solution)**. This is only required if the DNA is to be used for PCR.

*What's happening: IRS is a proprietary reagent designed to precipitate humic acids and other PCR inhibitors. This precipitation step is required if the intended use of the DNA is for PCR. Humic acids are generally brown in color. They belong to a large group of organic compounds associated with most soils that are high in organic content.*

8. Place the 50 ml **Bead Solution Tubes** MO BIO Vortex Adapter, for a Genie 2 Vortex (MO BIO Catalog# 13000-V1-50) or for a Labnet vortex (MO BIO Catalog# 13000-LV2-50), and vortex for 10 minutes at 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.

*What's happening: The method you use to secure tubes to the vortex is critical. We have designed the vortex adapter as a simple tool that keeps tubes tightly attached to the vortex. It should be noted that although you can attach tubes with tape, often the tape becomes loose and not all tubes will shake evenly or efficiently. This may lead to inconsistent results or lower yields. The use of the vortex adapter is highly recommended for maximum DNA yields.*

*Mechanical lysis is introduced at this step. The protocol uses a combination of mechanical and chemical lysis. By randomly shaking the beads, they collide with one another and with microbial cells causing them to break open.*

9. Centrifuge tubes at 2500 x g for 3 minutes.

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*What's happening: Particulates including cell debris, soil, beads, and humic acids, will form a pellet at this point. DNA is in the liquid supernatant at this stage.*

10. Transfer the supernatant to a clean **Centrifuge Tube** (provided).

11. Supernatant may still contain some soil particles.

12. Add 2 ml of **Solution S2**, invert twice to mix.

13. Incubate at 4°C for 10 minutes.

*What's happening: Solution S2 contains a protein precipitation reagent. It is important to remove contaminating proteins that may reduce DNA purity and inhibit downstream applications for the DNA.*

14. Centrifuge the tubes for 4 minutes at 2500 x g.

15. Avoiding the pellet, transfer supernatant to a clean **Centrifuge Tube** (provided).

*What's happening: The pellet at this point contains residues of humic acid, cell debris, and proteins. For the best DNA yields, and quality, avoid transferring any of the pellet.*

16. Shake to mix Solution S3. Add 30 ml of **Solution S3** to the supernatant and invert twice.

*What's happening: Solution S3 is a DNA binding salt solution. DNA binds to silica in the presence of high salt concentrations.*

17. This step requires two spins. First fill **Spin Filter** with solution from step 16. Centrifuge at 2500 x g for 2 minutes. Discard the flow through and add the remaining supernatant to the same **Spin Filter** and centrifuge at 2500 x g for 2 minutes. Discard flow through.

*What's happening: DNA is selectively bound to the silica membrane in the Spin Filter device. Almost all contaminants pass through the filter membrane, leaving only the desired DNA behind.*

18. Add 6 ml of **Solution S4** and centrifuge for 3 minutes at 2500 x g.

*What's happening: Solution S4 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 residues of salt, humic acid, and other contaminants while allowing the DNA to stay bound to the silica membrane. Note: You can wash more than one time to further clean DNA if desired. In some cases where soils have very high humic acid content, it will be beneficial to repeat this wash step. There is 10% extra Solution S4 in the bottle for this purpose. Solution S4 is also sold separately.*

19. Remove the **Spin Filter** and discard the flow through.

*What's happening: This flow through is just waste containing ethanol wash solution and contaminants that did not bind to the silica Spin Filter membrane.*

20. Replace the **Spin Filter** and centrifuge again for 5 minutes.

*What's happening: This step removes residual Solution S4 (ethanol wash solution). It is critical to remove all traces of wash solution because it can interfere with downstream applications for the DNA.*

21. Carefully place **Spin Filter** in a new clean **Collection Tube** (provided). Avoid splashing any **Solution S4** onto the **Spin Filter**.

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*What's happening: Once again it is important to avoid any traces of the ethanol based wash solution.*

22. Add 8 ml of **Solution S5** to the center of **Spin Filter** membrane.

*What's happening: Placing the Solution S5 (sterile elution buffer) in the center of the small white membrane will make sure the entire membrane is wetted. This will result in more efficient release of the desired DNA.*

23. Centrifuge for 3 minutes at 2500 x g.

*What's happening: As the Solution S5 (elution buffer) passes through the silica membrane, DNA is released, and it flows through the membrane, and into the collection tube. The DNA is released because it can only bind to the silica Spin Filter membrane in the presence of salt. Solution S5 is 10mM Tris pH. 8 and does not contain salt.*

24. Discard **Spin Filter**. DNA in the tube is now application ready. No further steps are required.

We recommend storing DNA frozen (-20°C). **Solution S5** contains no EDTA.

**Thank you for choosing the UltraClean<sup>®</sup> Mega Soil DNA Isolation Kit.**



## Hints and Troubleshooting Guide

### ***Concentrating the DNA***

The final volume will be 8 ml. If this is too dilute for your purposes, add 0.32 ml of 5 M NaCl and mix. Then add 16.6 ml of 100% cold ethanol. Mix. Centrifuge at 2500 x *g* for 30 minutes. Decant all liquid. Dry residual ethanol in a speed vac, dessicator or ambient air. Resuspend precipitated DNA in desired volume.

### ***Amount of Soil to Process***

Depends on soil type. Usually 5 - 10 grams works well.

### ***If DNA Does Not Amplify***

This is due to high humic acid content in soil sample. If the humic acid content in sample is high, you can do the following:

- Diluting template DNA may also work because this will also dilute the inhibitors of the reaction.
- Perform two to three washes of Solution S4 in step 18.
- Dilute the elution three fold and add two volumes of Solution S3. Run through spin filter, wash and elute.
- Make sure to check DNA yields by gel electrophoresis or spectrophotometer reading. An excess amount of DNA will also inhibit a PCR reaction.
- If DNA will still not amplify after trying the steps above, then PCR optimization may be needed.

### ***DNA Floats Out of Well When Loaded on a Gel***

Residual Solution S4 in the final sample. Prevent this by being careful in step 20 not to transfer liquid onto the bottom of the Spin Filter basket. Ethanol precipitation is the best way to remove residues of Solution S4.

### ***Storing DNA***

DNA is eluted in Solution S5 (10mM Tris) therefore it must be stored at -20°C or it may degrade. DNA can be eluted in TE but the EDTA may inhibit reactions such as PCR and automated sequencing.



## Contact Information

### Technical Support:

Phone MO BIO Laboratories, Inc. Toll Free 800-606-6246, or 760-929-9911

Email: [technical@mobio.com](mailto:technical@mobio.com)

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Mail: MO BIO Laboratories, Inc, 2746 Loker Ave West, Carlsbad, CA 92010

### Ordering Information:

Direct: Phone MO BIO Laboratories, Inc. Toll Free 800-606-6246, or 760-929-9911

Email: [orders@mobio.com](mailto:orders@mobio.com)

Fax: 760-929-0109

Mail: MO BIO Laboratories, Inc, 2746 Loker Ave West, Carlsbad, CA 92010

For the distributor nearest you, visit our web site at [www.mobio.com/distributors](http://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](http://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
Bi Ostic® Stabilized Blood RNA Isolation Kit	12231-20 12231-50 12231-100	20 preps 50 preps 100 preps
Bi Ostic® 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
Bi Ostic® Bacteremia DNA Isolation Kit	12240-50	50 preps
Bi Ostic® FFPE Tissue DNA Isolation Kit	12250-50	50 preps
Bi Ostic® 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

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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)

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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](http://www.mobio.com/catalog-request) to request a catalog.

Instrumentation and Accessories... <i>Continued</i>	Catalog No.	Quantity
Polycarbonate Dual-sided Comb	16013	1 mm x 8 well/16 well
	16014	1 mm x 10 well/14 well
	16015	2 mm x 8 well/16 well
	16016	2 mm x 10 well/14 well
Teflon Single-sided Comb	16009	1 mm x 3 well
	16010	1 mm x 8 well
	16011	1 mm x 10 well
	16012	1 mm x 12 well
Teflon Dual-sided Comb	16017	1 mm x 8 well/16 well
	16018	1 mm x 10 well/14 well
	16019	2 mm x 8 well/16 well
	16020	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... <i>Continued</i>	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