



# PowerPlant™ DNA Isolation Kit

Catalog No.	Quantity
13200-50	50 Preps
13200-100	100 Preps

## Instruction Manual

### Introduction

The PowerPlant™ DNA Isolation Kit provides a novel method for isolating genomic DNA with a high level of purity, allowing for successful PCR amplifications from a variety of plant samples.

Plant samples are added to a bead tube containing 4 stainless steel beads along with a kit supplied buffer for rapid homogenization. Cell lysis and DNA release occurs by mechanical and chemical methods. Released genomic DNA is first precipitated with isopropanol and then captured on a silica membrane in a spin column format. DNA is washed and eluted from the membrane and ready for PCR and other downstream applications. The PowerPlant™ DNA Isolation Kit provides PCR ready DNA from a wide variety of plant leaves, roots, and seeds.

The PowerPlant™ DNA Isolation Kit also comes with extra volumes of reagents that can be used to perform a simple DNA clean-up protocol. This may be required for DNA from plants high in polysaccharides or phenolics to improve its functional quality. Occasionally, plants such as grapes, cotton, sunflower, strawberry, pine needles, etc. will yield DNA with inhibitors, which may prevent target sequences from amplifying in PCR. Under such circumstances, it is suggested to use the clean-up protocol provided. Alternatively you can dilute the template DNA one to several fold, for successful PCR.

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

Version 07312006

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)  
Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)



### Required Equipment:

Centrifuge for 2ml tubes (15000 x g)

Pipettor (50 µl – 200 µl, 100µl – 1000µl)

Vortex

Vortex Adapter for 2 ml tubes (MO BIO catalog number 13000-V1 for a Vortex Genie 2 or 13000-LV2 for Labnet Vortex)

### Kit Contents

Component	Kit Catalog# 13200-50		Kit Catalog# 13200-100	
	Catalog #	Amount	Catalog #	Amount
PowerPlant™ Bead Tubes	13200-50-BT	50	13200-100-BT	100
PowerPlant™ Bead Solution	13200-50-BS	35 ml	13200-100-BS	70 ml
PowerPlant™ Solution PB1	13200-50-1	5.5 ml	13200-100-1	11 ml
PowerPlant™ Solution PB2	13200-50-2	20 ml	13200-100-2	43 ml
PowerPlant™ Solution PB3	13200-50-3	3 x 30 ml	13200-100-3	6 x 30 ml
PowerPlant™ Solution PB4	13200-50-4	28 ml	13200-100-4	55 ml
PowerPlant™ Solution PB5	13200-50-5	30 ml	13200-100-5	2 x 30 ml
PowerPlant™ Solution PB6	13200-50-6	11 ml	13200-100-6	22 ml
PowerPlant™ Solution PB7 (for use with clean-up protocol only)	13200-50-7	4 ml	13200-100-7	8 ml
PowerPlant™ Spin Filters	13200-50-SF	50	13200-100-SF	100
PowerPlant™ 2 ml Collection Tubes	13200-50-T1	100	13200-100-T1	200
PowerPlant™ 2.2 ml Collection Tubes	13200-50-T2	50	13200-100-T2	100

### 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 PB3 is 99% isopropanol and Solution PB5 contains ethanol. Both the reagents are flammable.**

**IMPORTANT NOTE FOR USE: Make sure the 2 ml PowerPlant™ Bead Tubes rotate freely in your centrifuge without rubbing.**

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)  
Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)

## Experienced User Protocol

Please wear gloves at all times

1. To the PowerPlant™ Bead Tubes provided, add up to 50 mg (0.05 g) of plant tissue sample, followed by the addition of 550 µl of PowerPlant™ Bead Solution.  
**NOTE: THE DNA EXTRACTION EFFICIENCY WILL IMPROVE BASED ON THE CONDITION OF HOMOGENIZATION AND THE TYPE OF HOMOGENIZATION METHOD. PLEASE REFER TO THE “ADDITIONAL INFORMATION” SECTION FOR DIFFICULT PLANT TYPES.**
2. Gently vortex to mix.
3. **Check Solution PB1.** If Solution PB1 has precipitated, heat solution to 60°C until dissolved before use.
4. Add 60µl of Solution PB1 and invert several times or vortex briefly.
5. Place the PowerPlant™ Bead Tubes in a water bath at 65°C for 10 minutes.
6. Secure PowerPlant™ Bead Tubes horizontally using the MO BIO Vortex Adapter (MO BIO Catalog No. 13000-V1 or 13000-LV2) or secure tubes horizontally on a flat-bed vortex pad with tape. Vortex at maximum speed for 10 minutes. **NOTE: Please see the “Additional Information” section for other methods of homogenization. The Bead tubes are compatible with Precellys 24, Fast prep machines, and all bead beater instruments.**
7. Make sure the PowerPlant™ Bead Tubes rotate freely in your centrifuge without rubbing. Centrifuge tubes at 10,000 x g for 30 seconds at room temperature. **CAUTION:** Be sure not to exceed 10,000 x g or tubes may break.
8. Transfer the supernatant to a clean 2 ml Collection Tube (provided).  
**Note:** Expect between 400 to 500µl of supernatant. Supernatant may still contain some plant tissue particles.
9. Add 250µl of Solution PB2 and invert the tubes to mix the contents. Incubate at 4°C for 5 minutes.
10. Centrifuge the tubes at room temperature for 1 minute at 10,000 x g.
11. Avoiding the pellet, transfer the entire volume of supernatant to a clean 2.2 ml Collection Tube (provided).
12. Add 1 ml of Solution PB3 and invert the tubes at least 5 times to mix the contents. Incubate at room temperature for 10 minutes.
13. Centrifuge the tubes at room temperature for 15 minutes at 13,000 x g.
14. Discard the supernatant and resuspend the pellet in 100 µl of Solution PB6. Note: The tubes do NOT have to be air dried as residual isopropanol will not affect the process.
15. Add 500µl of Solution PB4 and vortex briefly to mix.
16. Load the entire volume (600 µl) onto a Spin Filter and centrifuge at 10,000 x g for 1 minute.
17. Remove the Spin Filter basket, discard the flow through, and replace the Spin Filter basket back in the tube.
18. Add 500µl of Solution PB5 and centrifuge at room temperature for 30 seconds at 10,000 x g.
19. Discard the flow through from the 2 ml Collection Tube.
20. Centrifuge again at room temperature for 1 minute at 10,000 x g.
21. Carefully place Spin Filter in a clean 2 ml Collection Tube (provided). Avoid splashing any Solution PB5 onto the Spin Filter.
22. Add 50µl of Solution PB6 to the center of the white filter membrane. Alternatively, sterile DNA-Free PCR Grade Water may be used for elution from the silica Spin Filter membrane at this step (MO BIO Catalog No. 17000-10).
23. Centrifuge at room temperature for 30 seconds at 10,000 x g.

**Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)  
Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)**



24. 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° to -80°C). Solution PB6 does not contain EDTA. To concentrate DNA see the Additional Information Section.

**NOTE:** Occasionally, plants such as grapes, cotton, sunflower, strawberry, pine needles, etc. will yield DNA with inhibitors, which may prevent target sequences from amplifying in PCR. Under such circumstances, it is suggested to use the clean-up protocol provided. Alternatively you can dilute the template DNA one to several fold, for successful PCR.

**Thank you for choosing the PowerPlant™ DNA Isolation Kit.**

## Detailed Protocol

***This protocol is written for the first time user. It is designed to be informative and describes each step in detail. After understanding the principles involved in each step, it will be easier for the user to follow the Experienced User protocol.***

### Please wear gloves at all times

1. To the PowerPlant™ Bead Tubes provided, add up to 50 mg (0.05 g) of plant tissue sample, followed by the addition of 550 µl of PowerPlant™ Bead Solution.

**NOTE: THE DNA EXTRACTION EFFICIENCY WILL IMPROVE BASED ON THE CONDITION OF HOMOGENIZATION AND THE TYPE OF HOMOGENIZATION METHOD. PLEASE REFER TO THE “ADDITIONAL INFORMATION” SECTION FOR DIFFICULT PLANT TYPES.**

*After your sample has been loaded into the PowerPlant™ Bead Tube, the next step is a homogenization and lysis procedure. The PowerPlant™ Bead Tube contains a buffer that will (a) help wet the tissue surfaces, and (b) protect nucleic acids from degradation.*

2. Gently vortex to mix.

*Gentle vortexing mixes the components in the PowerPlant™ Bead Tube.*

3. **Check Solution PB1.** If Solution PB1 has precipitated, heat solution to 60°C until the precipitate has dissolved before use.

*Solution PB1 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 proteins, fatty acids and lipids associated with the cell membranes. 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 PB1 can be used while it is still warm.*

4. Add 60µl of Solution PB1 and invert several times or vortex briefly.
5. Place the PowerPlant™ Bead Tubes in a water bath at 65°C for 10 minutes.

*Heating the plant tissues help in homogenizing them in the following step.*

6. Secure PowerPlant™ Bead Tubes horizontally using the MO BIO Vortex Adapter (MO BIO Catalog No. 13000-V1 or 1300-LV2) or secure tubes horizontally on a flat-bed vortex pad with tape. Vortex at maximum speed for 10 minutes. **NOTE: Please see the “Additional Information” section for other methods of homogenization. The Bead tubes are compatible with Precellys 24, Fast prep machines, and all bead beater instruments.**

**Note:** *The vortexing step is critical for homogenization and disruption of cell walls. Cells are lysed by a combination of chemical agents from steps 1-4 and mechanical shaking introduced at this step. By randomly shaking the steel balls in the presence of disruption agents, collision of the balls with plant tissues will cause the cells to break open.*



The MO BIO Vortex Adapter is a simple platform to facilitate keeping the tubes tightly attached to the vortex. It is a highly recommended and cost effective way to obtain maximum DNA yields utilizing bead beating technology. Visit [www.mobio.com](http://www.mobio.com) for more information.

The Precellys® 24 Homogenizer is an instrument that provides highly effective lysing of biological samples.

This unit provides high throughput and accommodates processing of up to 24 samples at once. Visit [www.mobio.com](http://www.mobio.com) for more information.

7. Make sure the PowerPlant™ Bead Tubes rotate freely in your centrifuge without rubbing. Centrifuge tubes at 10,000 x g for 30 seconds at room temperature. **CAUTION:** Be sure not to exceed 10,000 x g or tubes may break.
8. Transfer the supernatant to a clean 2 ml Collection Tube (provided).

**Note:** Expect between 400 to 500ml of supernatant at this step. The exact recovered volume depends on the absorbency of your starting material and is not critical for the procedure to be effective. The supernatant may be dark green in appearance and still contain some tissue debris. The presence of carry over tissue debris or a dark color in the mixture is expected in many plant types at this step. Subsequent steps in the protocol will remove both carry over tissue debris and coloration of the mixture.

9. Add 250µl of Solution PB2 and invert the tubes to mix the contents. Incubate at 4°C for 5 minutes.

*Solution PB2 contains a reagent to precipitate non-DNA organic and inorganic material including plant polysaccharides, cell debris, and proteins. It is important to remove contaminating organic and inorganic matter that may reduce DNA purity and inhibit downstream DNA applications.*

10. Centrifuge the tubes at room temperature for 1 minute at 10,000 x g.

11. Avoiding the pellet, transfer the entire volume of supernatant to a clean 2.2 ml Collection Tube (provided).

*The pellet at this point contains non-DNA organic and inorganic material including plant tissue debris, cell debris, and proteins. For the best DNA yields, and quality, avoid transferring any of the pellet.*

12. Add 1 ml of Solution PB3 and invert the tubes at least 5 times to mix the contents. Incubate at room temperature for 10 minutes.

*Solution PB3 is 99% isopropanol and will precipitate DNA along with some organic contaminants. Most of the co-extracted impurities will be removed at this step.*

13. Centrifuge the tubes at room temperature for 15 minutes at 13,000 x g.

14. Discard the supernatant and resuspend the pellet in 100 µl of Solution PB6. Note: The tubes do NOT have to be air dried as residual isopropanol will not affect the process.

*Isopropanol will precipitate and pellet the DNA. The pellet at this point contains relatively pure DNA along with some organic contaminants; mostly polysaccharides and phenolics depending on the plant tissues processed, leaving a majority of the contaminants in solution.*

**Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)  
Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)**

15. Add 500 $\mu$ l of Solution PB4 and vortex briefly to mix.

*Solution PB4 is a high concentration salt solution. Since DNA binds tightly to silica at high salt concentrations, this will adjust the DNA solution salt concentrations 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.*

16. Load the entire volume (600  $\mu$ l) onto a Spin Filter and centrifuge at 10,000 x g for 1 minute.

*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.*

17. Remove the Spin Filter basket, discard the flow through and replace the Spin Filter basket back in the tube.

18. Add 500 $\mu$ l of Solution PB5 and centrifuge at room temperature for 30 seconds at 10,000 x g.

*Solution PB5 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 salts and other contaminants while allowing the DNA to stay bound to the silica membrane.*

19. Discard the flow through from the 2 ml Collection Tube.

*This flow through fraction is non-DNA organic and inorganic waste removed from the silica Spin Filter membrane by the ethanol wash solution.*

20. Centrifuge again at room temperature for 1 minute at 10,000 x g.

*This second spin removes residual Solution PB5 (ethanol wash solution). It is critical to remove all traces of wash solution because the ethanol in Solution PB5 can interfere with many downstream DNA applications such as PCR, restriction digests, and gel electrophoresis.*

21. Carefully place Spin Filter in a clean 2 ml Collection Tube (provided). Avoid splashing any Solution PB5 onto the Spin Filter.

**Note:** *It is important to avoid any traces of the ethanol based wash solution.*

22. Add 50 $\mu$ l of Solution PB6 to the center of the white filter membrane. Alternatively, sterile DNA-Free PCR Grade Water may be used for elution from the silica Spin Filter membrane at this step (MO BIO Catalog No. 17000-10).

**Note:** *Placing the Solution PB6 in the center of the small white membrane will make sure 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 PB6 (elution buffer) passes through the silica membrane, DNA that was bound in the presence of high salt is selectively released by Solution PB6 (10 mM Tris) which is a low salt solution.*

*Alternatively, sterile DNA-Free PCR Grade Water may be used for DNA elution from the silica Spin Filter membrane at this step (MO BIO Catalog No. 17000-10). Solution PB6 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.*



23. Centrifuge at room temperature for 30 seconds at 10,000 x *g*.
24. 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° to -80°C). Solution PB6 does not contain any EDTA. To concentrate DNA see the Additional Information Section.

**NOTE:** Occasionally, plants such as grapes, cotton, sunflower, strawberry, pine needles, etc. will yield DNA with inhibitors, which may prevent target sequences from amplifying in PCR. Under such circumstances, it is suggested to use the clean-up protocol provided. Alternatively you can dilute the template DNA one to several fold, for successful PCR.

**Thank you for choosing the PowerPlant™ DNA Isolation Kit.**

## Clean-Up Protocol

Use this protocol to improve the functional quality of extracted DNA if it does not successfully amplify in PCR.

**NOTE: This protocol requires additional 1.5 - 2.0 ml microcentrifuge tubes which are user provided.**

1. Bring the volume of the eluted DNA up to 150  $\mu$ l using sterile water and add 70  $\mu$ l of PowerPlant™ Bead Solution. Gently invert 3-5 times to mix.
2. Check Solution PB1. If it has precipitated, heat solution to 60°C until dissolved before use.
3. Add 20  $\mu$ l of Solution PB1 and invert 3-5 times to mix.
4. Add 85  $\mu$ l of Solution PB2 and invert 3-5 times to mix. Incubate at 4°C for 5 minutes.
5. Centrifuge the tubes at room temperature for 1 minute at 10,000 x g.
6. Avoiding the pellet, transfer the entire volume to another microcentrifuge tube, add 70  $\mu$ l of Solution PB7 and invert 3-5 times to mix. Incubate at 4°C for 5 minutes.
7. Centrifuge the tubes at room temperature for 1 minute at 10,000 x g.
8. Avoiding the pellet, transfer the supernatant to another microcentrifuge tube. Add 0.5 ml of Solution PB3 and invert 3-5 times to mix.
9. Incubate at room temperature for 10 minutes followed by centrifugation at 13,000 x g for 10 minutes.
10. Decant the supernatant and air dry the tubes until they are free of residual isopropanol.
11. Resuspend the DNA in Solution PB6. Use appropriate volumes to reconstitute the pellet; usually the original starting volume of DNA is used. A reduced volume may be used to obtain a more concentrated solution of DNA. Sterile water can also be used to reconstitute the DNA instead of Solution PB6.

## Additional Information

### Plant Types

Plant tissues vary widely in their composition but predominately consist of polysaccharides and polyphenols. The efficiency of DNA isolation is dictated by these two components because polyphenols and polysaccharides can complex with nucleic acid molecules and initiate their degradation very rapidly thus preventing their isolation for further downstream applications. This detrimental association can be avoided by grinding the samples in the absence of any liquid. The PowerPlant™ DNA Isolation Kit offers the advantage of either grinding the samples dry, in the absence of any liquid or it can be done in the presence of the PowerPlant™ Bead Solution as per the protocol. We recommend homogenizing the plant samples such as grapes, strawberry, etc. dry, in the absence of any liquid. After homogenizing the samples, you can add the PowerPlant™ Bead Solution and proceed with the protocol.

### Methods of Homogenization

Plant tissues are usually tough and fibrous which makes lysing the cells difficult; often requiring mechanical homogenization, hand grinding, or freezing and grinding in liquid nitrogen. A vast majority of leaf tissues are soft and can be processed for DNA isolation with MO BIO's PowerPlant™ DNA Isolation Kit by means of a simple vortex adapter or hand vortexing for a few minutes. However other plant tissues such as roots, wood tissues, and plant seeds are tough to homogenize and thus require the use of mechanical homogenization. The versatile nature of MO BIO's PowerPlant™ DNA Isolation Kit chemistry makes it compatible with most other methods of homogenization. The following methods have been validated with this kit:

- **Homogenization by hand**

This is achieved through simple grinding with a micro pestle in a microcentrifuge tube. Up to 100 mg of plant tissue material has been consistently used and homogenized sufficiently with this method. Please note that it is strenuous to handle a large number of samples using this method. Another option is to use a pestle and mortar which is much easier. However, this is effective only when a large amount of plant material is processed. A known amount of material (usually 50 mg) can then be transferred to the PowerPlant™ Bead Tubes and processed as per the protocol.

- **Homogenization with Precellys 24**

Up to 24 samples can be homogenized in 2 ml screw cap tubes. This method is fast because the homogenization time is usually only 30 seconds for leaf tissues and 24 samples can be processed at one time. The following table serves as a guide to determine the optimal speed, number of cycles, and homogenization cycle time:

Plant Tissue Type	Speed	Number of Cycles	Time/Cycle
-------------------	-------	------------------	------------

**Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)**

**Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)**

Soft leaf tissues	6500 rpm	1	30 seconds
Fibrous leaf tissues	6500 rpm	2	20 seconds
Seeds	6100 rpm	3	20 seconds
Roots	6100 rpm	3	20 seconds

- **Homogenization with Retsch Shaker**

A tube adapter (MO BIO Laboratories' Inc. Catalog No 11999) is needed in order to process the PowerPlant™ Bead Tubes in the Retsch Shaker. The recommended speed for this machine is 20 for two cycles of 5 minutes each. The samples are placed in the tube adaptor and homogenized for 5 minutes and then the tube adaptor is turned around vertically and the samples are homogenized for another 5 minutes. For fibrous tissues and seeds the recommended time is 20 minutes, 10 minutes on each side of the block, for effective homogenization.

## Additional Information cont.

- **Other Methods**

For the use of other homogenizers such as the Fast Prep Machine, BioSpec, or Genogrinder, please call Technical Services at 800-606-6246.

- **Liquid Nitrogen**

Liquid nitrogen is another powerful method of homogenization; however there are safety issues involved. If using liquid nitrogen, transfer the plant material into a microcentrifuge that is rated for liquid nitrogen use (call technical services if you are not sure) and freeze in liquid nitrogen for up to 10 minutes. Then, using a sterile micro pestle, grind the tissues to a paste as fast as possible. Resuspend the paste in the PowerPlant™ Bead Solution and transfer it to a PowerPlant™ Bead Tube and proceed with the protocol.

### Concentrating the DNA

The final volume of eluted DNA will be 50 µl. The DNA may be concentrated by adding 5 µl (1/10<sup>th</sup> volume) of 5M NaCl and inverting 3-5 times to mix. Next, add 100 µl of 100% cold ethanol and invert 3-5 times to mix. Incubate at -20°C for up to 30 minutes and centrifuge at 10,000 x g for 15 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, dessicator, or ambient air. Resuspend precipitated DNA in sterile water or sterile 10 mM Tris.

### 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 PB5 remains in the final sample. Prevent this by being careful 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 PB5.

### Storing DNA

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)  
 Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)



DNA is eluted in Solution PB6 (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.

## Other quality products available from MO BIO Laboratories, Inc.

<u>Kit Description</u>	<u>Catalog Number</u>
<b>Genomic DNA Isolation Kits</b>	
PowerSoil™ DNA Isolation Kit (50 preps)	12888-50
PowerSoil™ DNA Isolation Kit (100 preps)	12888-100
UltraClean™ Soil DNA Isolation Kit (50 preps)	12800-50
UltraClean™ Soil DNA Isolation Kit (100 preps)	12800-100
UltraClean™ Soil DNA Mega Prep Kit (10 preps)	12900-10
UltraClean™ Blood DNA Kit (100 preps)	12000-100
UltraClean™ BloodSpin™ Kit (50 preps)	12200-50
UltraClean™ BloodSpin™ Kit (250 preps)	12200-250
Mega BloodSpin™ Kit (10 preps)	12210-10
UltraClean™ Fecal DNA Kit (50 preps)	12811-50
UltraClean™ Fecal DNA Kit (100 preps)	12811-100
UltraClean™ Microbial DNA Kit (50 preps)	12224-50
UltraClean™ Microbial DNA Kit (250 preps)	12224-250
UltraClean™ Plant DNA Kit (50 preps)	13000-50
UltraClean™ Plant DNA Kit (250 preps)	13000-250
UltraClean™ Tissue DNA (50 preps)	12334-50
UltraClean™ Tissue DNA (250 preps)	12334-250
UltraClean™ Water DNA Kit (10 preps)	14800-10
UltraClean™ Water DNA Kit (25 preps)	14800-25
<b>RNA Isolation Kits</b>	
UltraClean™ Tissue RNA Kit (50 preps)	15000-50
UltraClean™ Tissue RNA Kit (250 preps)	15000-250
UltraClean™ Plant RNA Kit (20 preps)	13300-20
UltraClean™ Plant RNA Kit (50 preps)	13300-50
UltraClean™ Microbial RNA Kit (50 preps)	15800-50
UltraClean™ Microbial RNA Kit (250 preps)	15800-250

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)  
Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)



#### Contact Information

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

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

Fax: 760-929-0109

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

#### Ordering Information for Germany

dianova GmbH  
Warburgstr. 45  
D-20354 Hamburg

e-mail: [bestellung@dianova.de](mailto:bestellung@dianova.de)

Tel. +49 40 45 067 0

Fax +49 40 45 06 74 90

Internet [www.dianova.de](http://www.dianova.de)

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: [technical@mobio.com](mailto:technical@mobio.com)  
Service in Germany: Tel: 040 – 450 67 0 Email: [info@dianova.de](mailto:info@dianova.de)