



UltraClean™ 6 Minute Mini Plasmid Prep Kit™

Catalog # 12300-250
250 preps

Instruction Manual

Introduction

Use this kit for isolating plasmids grown in *E. coli* host strains. There is an increased yield by using high nutrient media such as Terrific Broth, TB DRY™, and 2X YT.

TB DRY™ Mo Bio Catalog #12105 is a single powder formulation of Terrific Broth. Just autoclave, and use.

Precautions

Please wear gloves when using this product. Avoid all skin contact with reagents in this kit. 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 on our web site at www.mobio.com. Reagents labeled flammable should be kept away from open flames and sparks.

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

Equipment required:

Microcentrifuge (10,000 x g), vortex, 80 well microcentrifuge tube rack (optional)

3 Pipettors: It makes things easier to have three pipettors: a P200 set to 50 µl, a P200 set to 100 µl, and a P1000 set to 325 µl.

Kit Contents: Sufficient reagents for 250 mini plasmid preps.

<u>Component</u>	<u>Amount</u>	<u>Description</u>
Solution 1:	15 ml	Cell suspension buffer: Tris, EDTA, RNase A
Solution 2:	30 ml	Cell lysis solution: SDS/NaOH.
Solution 3:	90 ml	Binding buffer: KoAcetate/ binding salt
Solution 4:	45 ml	Wash concentrate: Tris/NaCl.

Before first use, Solution 4 must be prepared. Please see step 1 of protocol.

Solution 5:	15 ml	Elution buffer containing 10 mM Tris-HCl.
Spin Filters	250	Spin filter basket in a 2.0 ml tube.
2.0 ml tubes	500	Microcentrifuge tubes.

Kit Storage

Room temperature for 1 year.

Avoid contact of Solution #3 with bleach or other oxidizers.

WARNING: Solution #4 is flammable after addition of ethanol.

Version 12152005

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: technical@mobio.com



Attn. QIAGEN USERS: PLEASE READ CAREFULLY BEFORE USE:

Two things to consider before you use this kit:

1. Follow the Mo Bio protocol and we guarantee you will get good results.
2. Our protocol is different than Qiagen.

Want to know more? See the information below.

Many Qiagen customers are looking for an alternative mini plasmid prep kit. The Mo Bio UltraClean 6 Minute Mini Plasmid Prep Kit is used by thousands of researchers all over the world. Most find the kit superior because it is faster, easier to use, and less expensive. **With the UltraClean 6 Minute Mini Plasmid Prep Kit, you should expect yields and quality that are equal to or better than Qiagen in 1/5 the amount of time.**

Some Qiagen customers have difficulty with our kit. Common complaints are that the yields were lower or that the quality was not as good when doing a side by side comparison to Qiagen. We have tested many plasmids and have never seen this same result. We believe the problem stems from the differences between the two kits. **The 6 minute Mo Bio protocol is different from the 30 minute Qiagen protocol.** The most important difference is the volumes of the reagents used to perform the plasmid prep. As you know, the first three solutions used in a Qiagen mini prep require volumes of 250µl, 250µl, and 350µl. With the Mo Bio Kit, the reagent volumes are different. Solution 1: 50 µl, Solution 2: 100 µl, and Solution 3: 325 µl. **Because of these different volumes, the Mo Bio protocol requires a different technique.** Keep in mind that any residual media that is not removed from the cell pellet can have a significant affect on the down stream chemistries. It is very common to have 50 to 100 µl of residual culture media in the bottom of a tube after spinning cells initially and dumping off the supernatant. Be careful to remove it as described below. The cells are resuspended in only 50 µl. This small volume is sufficient, but it requires a different technique than the Qiagen kit.

◆ Two common causes of low yields:

1. **The media was not completely removed.** In this case, the pellet that results from spinning, after Solution 3 has been added, is not a firm white pellet on the side of the tube. The pellet is loose and it tends to be difficult to remove any liquid cell lysate. If you see this, start the prep over and be very careful to follow the recommended way to remove the culture media below.

◆ A good method to remove all the culture media:

This method requires two spins. Be careful to orient the tubes in the rotor the same way each time you spin them. Insert the tubes in the centrifuge rotor so that the cap hinge is pointed straight out away from the center of the rotor. The first spin (1 minute) will pellet the cells. The large volume of culture media can then be dumped into a waste receptacle (typically a bottle containing bleach) by inverting the tube. The cap should then be replaced and the tubes oriented in the rotor the same way. The second spin (5 seconds) will push all the residual media from the walls and cap to the bottom of the tube. If the tube was oriented the same as the original spin, the pellet will be very tight and the media will be easy to remove with a pipet tip. The best tips to use for this are the drawn out kind used to load sequencing gels. The small bore tip end makes removing very small volumes easier; however, regular tips can also be used. The cells can now be resuspended in Solution 1 (see next page).



2. **The cell pellet was not completely resuspended.** In this case, a low yield results because clumps of cells do not lyse efficiently. There are a few good ways to resuspend the cells properly.

A. Bump the tube on the vortex every 10 seconds during the 1 minute of vortexing it will take to resuspend the cells. Bumping means hold the tube on the vortex head for 10 seconds, take it off for 1 second then hold it on the vortex again. After 1 minute, hold the tube in a horizontal position up to a light and look at it. If you see any clumps of cells, keep bump vortexing until they are gone. It takes a minimum of 1 minute with the vortex at its highest speed to resuspend cells in the 50 μ l volume. Do two tubes at a time when processing multiple preps.

B. There is a paper in *Biotechniques*¹ that explains how cells can be resuspended in 5 seconds by scraping a tube across the holes of an 80 well microcentrifuge tube rack. The tube is held firmly in hand and the tube tip is run across the holes rapidly back and forth. It's easy and all you need is an 80 well rack. (They are great for storing tubes, most labs have them already).

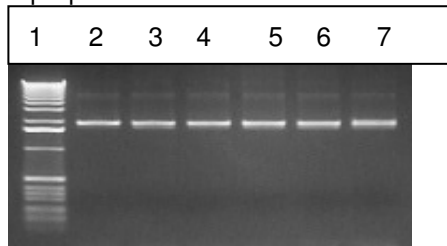
1. Voo, K. S.; Jacobsen, B. M. *BioTechniques* 24:240-243, February 1998

Comparing protocols for Mo Bio UltraClean™ 6 Minute Mini Plasmid Prep and QIAprep™

Step	UltraClean™ Mini Preps	QIAprep™ Spin
1.	Spin 2 ml of overnight culture for 30 seconds	Spin 2 ml of culture
2.	Decant supernatant	Decant supernatant
3.	Spin 5 seconds and remove all traces of liquid	Spin 5 seconds and remove all traces of liquid
4.	Resuspend cell pellet in 50 µl Solution 1	Resuspend cells in 250 µl Buffer P1
5.	Add 100 µl Solution 2	Add 250 µl Buffer P2
6.	Invert to mix	Invert to mix
7.	Add 325 µl Solution 3	Add 350 µl Buffer N3
8.	Invert to mix	Invert to mix
9.	Centrifuge 1 minute	Centrifuge 10 minutes
10.	Add supernatant directly to spin filter unit	Place spin column in collection tube without cap
11.	Centrifuge 30 seconds, discard supernatant	Add supernatant to spin column
12.	Add 300 µl Solution 4 to spin filter	Centrifuge 30-60 seconds
13.	Centrifuge 30 seconds	Add 0.75 ml Buffer PE
14.	Transfer spin basket to a new collection tube	Centrifuge 1 minute
15.	Add 50 µl water or Solution 5 (10mM Tris)	Discard Flow through
16.	Centrifuge 30 seconds	Place spin column in a new collection tube
17.	Discard spin basket	Add 50 µl user supplied 10 mM Tris-HCl or water
18.	DNA is now ready to use	Let stand 1 minute
19.	Total time required 6 minutes	Centrifuge 1 minute
20.		Discard spin column
21.		Transfer DNA to a new tube with a cap
22.		DNA is now ready to use
23.		Total time required 30 minutes

Comparison of yields:

3 preps were done with each kit. 2 ml of culture were processed. pUC 18 in DH5α grown in LB.



Lane 1: 1 kb DNA ladder, Lanes 2-4: Mo Bio UltraClean mini preps, Lanes 5-7: QIAprep mini preps

Spectrophotometer results: Mo Bio: $A_{260}/A_{280} = 1.8$, QIAprep=1.8

Restriction digests: Both kits gave equivalent cutting with Hind III, and Eco R1.

Advantages of Mo Bio UltraClean™ 6 Minute Mini Plasmid Prep Kit

1. UltraClean is less expensive than QIAprep.
2. UltraClean supplies all necessary tubes, and reagents are ready to use.
3. All UltraClean centrifugation steps are in closed tubes preventing cross contamination.
4. Some QIAprep centrifugation steps are in open tubes resulting in possible cross contamination.
5. Typically the user of QIAprep must cut off tube caps to use the QIAprep kit
6. UltraClean takes 6 minutes. QIAprep takes 30 minutes.
7. UltraClean produces plasmid DNA of equal quality to QIAprep. ($A_{260}/A_{280} = 1.8-2.0$)
8. UltraClean is compatible with LB and high nutrient culture medium. Only LB can be used with QIAprep.
9. UltraClean plasmid DNA is used for automated sequencing, manual sequencing, cloning, restriction digests, transformation, transfections, etc.
10. UltraClean plasmid DNA is quickly becoming recommended as quality DNA at many core sequencing facilities. It is compatible with the Applied Biosystems sequencing system.

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: technical@mobio.com



Detailed Protocol

We highly recommend you read this information if this is your first time using the UltraClean 6 Minute Mini Plasmid Prep Kit.

Please wear gloves at all times

Equipment required:

Microcentrifuge (10,000 x g), vortex, 80 well microcentrifuge tube rack (optional)

3 Pipettors: It makes things easier to have three pipettors: a P200 set to 50 μ l, a P200 set to 100 μ l, and a P1000 set to 325 μ l.

1. **BEFORE THE FIRST USE ONLY, Solution 4 must be prepared. Add 45 ml of 100% ethanol. Mix well. Put a check mark in the "ethanol added" box on the bottle cap label.**
2. Grow cells (plasmid culture) to a typical density of $A_{600} = 2.0$ or higher.
3. Each plasmid prep will require a set of 2 tubes and 1 spin filter unit (A plastic spin basket with a white silica membrane sitting inside a 2 ml microcentrifuge tube).
4. Label the caps of each set with an ethanol resistant lab marker. It is convenient to place these sets in a microcentrifuge tube rack in this order: tube, spin filter, tube.
5. Open the first tube in each set, and add up to 2 ml of culture. If you are using high nutrient broth (terrific broth, TB DRY™, 2 x YT, super broth, etc.), use no more than 2 ml of culture per prep. For LB or low nutrient cultures, you can use 2 ml or you can combine cells from up to 5ml of culture. Do this by spinning 2 ml of cells, discarding the supernatant, adding more culture to the same tube and spinning again. Repeat until 5 ml worth of cells have been processed. Note: the yields of many low copy plasmids (containing large inserts), can be drastically increased by growing in high nutrient broth such as TB DRY. (Mo Bio catalog number 12105-1)
6. Orient the microcentrifuge tubes the same way each time you spin them in all the following procedures so that the tube hinge is facing straight out away from the center of the rotor.
7. Centrifuge for 1 minute at 10,000 x g. (usually 15,000 rpm).
What's happening: The bacterial cells are being forced to the bottom of the tube.
8. Decant the supernatant by inverting the tube and pouring into a waste container. You will need to do another spin to be sure to remove all traces of liquid from the sides of the tube as described in the next 3 steps.
9. Orient tubes with the hinges in the same position (hinges pointing straight out from center of rotor).
10. Centrifuge 5 seconds at 10,000 x g.
11. Remove all visible liquid with a narrow pipet tip. **Removing all liquid at this step is critical. Using a small bore pipet tip helps remove all traces of liquid media.**
What's happening: The cells have been pelleted and are now separated from the culture growth medium.
12. **Add 50 μ l Solution 1** to each cell pellet tube and close the tubes.
13. Resuspend the bacterial pellet by bump vortexing with the vortex set at the highest speed. Bump vortexing means: hold the tube tip on the vortex head for 10 seconds, take it off for 1 second then hold it on the vortex again. Repeat this process for 1 minute. After 1 minute, hold the tube in a horizontal position up to a light and look at it. The liquid will spread from one end of the tube to the other. If you see any clumps of cells, keep bump vortexing until they are gone. It takes a minimum of 1 minute with the vortex at its highest speed to resuspend cells in the 50 μ l volume. Do two tubes at a time when processing multiple preps for best efficiency. An alternative procedure is to scrape the tube tips back and forth over the holes of an 80 well microcentrifuge tube rack. This procedure is actually the subject of a paper in *Biotechniques*. Voo, K. S.; Jacobsen, B. M. *BioTechniques* 24:240-243, February 1998.
What's happening: The bacterial cells are re-suspended in a small volume of buffer that keeps them from breaking open (lysing). It is important to make this suspension of cells homogeneous because

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: technical@mobio.com

cells trapped in clumps will be resistant to lysis reagents. Solution 1 contains RNase A; however, it cannot digest RNA until the cells are lysed in the next step.

14. Check Solution 2. If precipitated, heat to 55° - 65°C for 5 minutes to dissolve. **Be sure to cool to room temperature and mix before use.**

What's happening: Solution 2 contains a detergent SDS that can precipitate if cooled. This precipitate is easy to re-suspend by heating. For this reason, always store this kit at room temperature (20-25°C).

15. **Add 100 µl Solution 2 to the cell suspension.**

What's happening: Alkaline cell lysis. Solution 2 is very alkaline (pH 12) and contains the detergent SDS. Addition of Solution 2 causes the bacterial cells to lyse because the proteins in the cell membrane become denatured similar to when you cook an egg. All DNA becomes denatured to its single stranded form at this point. The bacterial chromosomal DNA is long and is attached to broken pieces of the cell membrane. Plasmid DNA is linked so it forms two attached circles. Like two links of a chain. All RNA is digested during this very short step because RNase A is active even in very alkaline conditions.

16. Close all tubes.

17. Gently invert the tubes once to mix. Inverting more than once will reduce the quality of your plasmid prep. It causes chromosomal DNA contamination by breaking pieces of the bacteria's chromosomal DNA which will then co purify with the plasmid DNA. **Do not vortex at this step.**

18. **Add 325 µl Solution 3.**

What's happening: Neutralization. Solution 3 contains potassium acetate and salt. The potassium acetate forms a precipitate when it interacts with SDS. At the same time denatured proteins co-precipitate with the SDS. Solution 3 neutralizes the alkaline pH to a more neutral pH 7. All DNA tries to re-nature. Plasmid can easily re-form to its double stranded form. Bacterial chromosomal DNA finds it difficult to re-nature because it has no reference point and homologous pieces of DNA may be blocked from finding each other by the cell debris present.

19. Close the tubes and gently invert once to mix. Inverting more than once causes chromosomal DNA contamination. **Do not vortex at this step.**

20. Centrifuge for 1 minute. (10,000 x g minimum).

What's happening: Dense cell debris is pelleted to the bottom of the tube. Chromosomal DNA is also pelleted along with the cell debris.

21. Remove the tubes from the centrifuge. There should be a clear non viscous supernatant on top of a large white pellet stuck to the sides of the tube. If the pellet is not firm but instead it is loose or gloppy, this is a clear indication you did not remove all the culture media when you originally pelleted the cells. You will need to start over in this case and be more careful to remove all the culture media.

22. Open the cap of as many spin filters as you have plasmid preps.

23. Transfer all of the clear liquid supernatant to a spin filter. (Avoid the white precipitate). Decanting is the best method here. Just turn the tube so that you pour away from the hinge. The white pellet will stay stuck to the side of the tube. Close the lids of the spin filters.

24. Centrifuge 30 seconds. The liquid will flow through the white spin filter membrane leaving the plasmid DNA bound to the filter membrane.

What's happening: The plasmid DNA now binds to the white silica membrane in the spin filter. Plasmid DNA binds due to the high salt conditions. Unwanted impurities such as digested RNA, and any other cell components that did not pellet are passed through the spin filter and end up in the flow through in the collection tube. This flow through is discarded.

25. (Precaution: Do not let the liquid in the spin filter collection tube come in contact with bleach.). Lift out the plastic filter basket from the collection tube, discard the liquid from the collection tube, and then replace the filter basket into the tube.

26. **Add 300 µl Solution 4** to the spin filter. Close the lid.

27. Centrifuge 30 seconds at 10,000 x g. Discard flow through liquid from the collection tube, and centrifuge again for 5 seconds.



What's happening: Solution 4 washes the DNA that is bound to the spin filter. Solution 4 is about 50% ethanol. The ethanol keeps the plasmid DNA bound to the filter as impurities are washed away.

28. Being careful not to splash liquid on the filter basket, place spin filter basket in a new 2.0 ml collection tube (provided).
29. **Add 50 μ l of Solution 5** or sterile water directly in the middle of the white spin filter membrane.
What's happening: Solution 5 is 10mM Tris. As it passes through the spin filter, the plasmid DNA is released (eluted) off the filter and it passes into the collection tube. The plasmid DNA is released because it will not stay bound to the spin filter when there is no salt present.
30. Centrifuge 30 seconds at 10,000 x g.
31. Remove filter basket and close tube lid. Plasmid DNA in the collection tube is now ready to use for any application.

Thank you for choosing the Mo Bio UltraClean™ 6 Minute Mini Plasmid Prep Kit

To concentrate DNA, if desired, see Hints on next page.



Short Protocol (Use only if you are already familiar with this kit)

Note: All centrifuge steps are 10,000 x g. Remember to orient tubes with hinges pointing straight out from center of centrifuge rotor for all centrifuge steps.

Equipment required:

Microcentrifuge (10,000 x g), vortex, 80 well microcentrifuge tube rack (optional)

3 Pipettors: It makes things easier to have three pipettors: a P200 set to 50 μ l, a P200 set to 100 μ l, and a P1000 set to 325 μ l.

1. **BEFORE THE FIRST USE ONLY, Solution 4 must be prepared. Add 45 ml of 100% ethanol. Mix well. Put a check mark in the "ethanol added" box on the bottle cap.**
2. Grow culture overnight.
3. Label a set of 2 microcentrifuge tubes and 1 spin filter basket in 2 ml tube per prep.
4. Centrifuge cells for 1 minute (2 ml of high nutrient culture or 5 ml LB culture).
5. Discard supernatant.
6. Centrifuge 5 seconds.
7. Remove any remaining liquid from tube with a pipette tip. (This step is critical)
8. Resuspend cell pellet in 50 μ l Solution 1 by bump vortexing 1 minute.
9. Hold tube horizontally up to a light source to make sure cells are totally resuspended.
10. Add 100 μ l Solution 2.
11. Invert one time to mix. Do not vortex.
12. Add 325 μ l Solution 3
13. Invert one time to mix. Do not vortex.
14. Centrifuge 1 minute. If you don't get a tight pellet, start over. Be more careful to remove all liquid in step 6.
15. Transfer supernatant into a spin filter by decanting.
16. Centrifuge spin filter 30 seconds.
17. Discard liquid in collection tube.
18. Add 300 μ l Solution 4.
19. Centrifuge 30 seconds.
20. Discard flow through and centrifuge for 5 seconds.
21. Carefully transfer spin filter basket to a new microcentrifuge tube.
22. Add 50 μ l Solution 5 to middle of spin filter membrane.
23. Centrifuge 30 seconds.
24. Remove spin filter basket.

Plasmid DNA in the microcentrifuge tube is now ready to use.

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: technical@mobio.com



Hints and Troubleshooting Guide

Concentrating the DNA

Your final volume will be 50 μ l. If this is too dilute for your purposes, add 2 μ l of 5M NaCl and mix. Then add 100 μ l of 100% cold ethanol. Mix. Centrifuge at 10,000 x g for 5 minutes. Decant all liquid. Dry residual ethanol in a speed vac or desiccator or ambient air. Resuspend precipitated DNA in desired volume.

Amount of culture to process

2 mls of high nutrient media or 5 mls of LB culture. (To get higher yields use TB DRY High nutrient media. Cat #12105)

To combine cells from up to 5 mls of LB culture:

Centrifuge 2 ml of culture for 30 seconds in a 2 ml tube (provided). Discard supernatant. Repeat until 5 ml of culture has been processed into one tube.

Low recovery

◆ Two common causes of low yields:

1. **The media was not completely removed.** In this case, the pellet that results from spinning, after Solution 3 has been added, is not a firm white pellet on the side of the tube. The pellet is loose and it tends to be difficult to remove any liquid cell lysate. If you see this, start the prep over and be very careful to follow the recommended way to remove the culture media below.

◆ A good method to remove all the culture media:

This method requires two spins. Be careful to orient the tubes in the rotor the same way each time you spin them. Insert the tubes in the centrifuge rotor so that the cap hinge is pointed straight out away from the center of the rotor. The first spin (1 minute) will pellet the cells. The large volume of culture media can then be dumped into a waste receptacle (typically a bottle containing bleach) by inverting the tube. The cap should then be replaced and the tubes oriented in the rotor the same way. The second spin (5 seconds) will push all the residual media from the walls and cap to the bottom of the tube. If the tube was oriented the same as the original spin, the pellet will be very tight and the media will be easy to remove with a pipet tip. The best tips to use for this are the drawn out kind used to load sequencing gels. The small bore tip end makes removing very small volumes easier however; regular tips can also be used. The cells can now be resuspended in Solution 1 (see the notes below).

2. **The cell pellet was not completely resuspended.** In this case, a low yield results because clumps of cells do not lyse efficiently. There are a few good ways to resuspend the cells properly.

A. Bump the tube on the vortex every 10 seconds during the 1 minute of vortexing it will take to resuspend the cells. Bumping means hold the tube on the vortex head for 10 seconds, take it off for 1 second then hold it on the vortex again. After 1 minute, hold the tube in a horizontal position up to a light and look at it. If you see any clumps of cells, keep bump vortexing until they are gone. It takes a minimum of 1 minute with the vortex at its highest speed to resuspend cells in the 50 μ l volume. Do two tubes at a time when processing multiple preps.

B. There is a paper in *Biotechniques*¹ that explains how cells can be resuspended in 5 seconds by scraping a tube across the holes of an 80 well microcentrifuge tube rack. The tube is held firmly in hand and the tube tip is run across the holes rapidly back and forth. It's easy and all you need is an 80 well rack. (They are great for storing tubes, most labs have them already).

1. Voo, K. S.; Jacobsen, B. M. *BioTechniques* 24:240-243, February 1998

If DNA floats out of well when loaded on a gel

Residual Solution 4 is in the final sample. Prevent this by being careful not to transfer Solution 4 liquid onto the bottom of the spin filter basket. Ethanol precipitate to remove residues of Solution 4. See concentrating DNA above.

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: technical@mobio.com



Other quality products available from MO BIO Laboratories, Inc.

<u>Kit description</u>	<u>Cat. Number</u>
Plasmid Prep Kits	
6 minute Mini Plasmid Prep Kit (100 preps)	12300-100
6 minute Mini Plasmid Prep Kit (250 preps)	12300-250
25-50 ml Plasmid Prep Kit (20 preps)	12700-20
25-50 ml Plasmid Prep Kit (50 preps)	12700-50
250-500 ml Plasmid Prep Kit (10 preps)	12600-10
250-500 ml Plasmid Prep Kit (20 preps)	12600-20
Endotoxin-Free Plasmid Prep Kits	
Endotoxin-free Mini Prep Kit (100 preps)	12311-100
Endotoxin-free Mini Prep Kit (250 preps)	12311-250
Endotoxin-free Midi Prep Kit (10 preps)	12711-10
Endotoxin-free Maxi Prep Kit (10 preps)	12611-10
DNA Purification Kits	
Agarose Gel DNA Purification Kit (300 preps)	12100-300
Agarose Gel-Spin DNA Purification (100 preps)	12400-100
Agarose Gel-Spin DNA Purification (250 preps)	12400-250
PCR Clean-Up Kit (100 preps)	12500-100
PCR Clean-Up Kit (250 preps)	12500-250
DNA Isolation Kits	
DNA Blood Isolation Kit (100 preps)	12000-100
DNA BloodSpin Kit (50 preps)	12200-50
DNA BloodSpin Kit (250 preps)	12200-250
Mega BloodSpin Kit (10 preps)	12210-10
Soil DNA Isolation Kit (50 preps)	12800-50
Soil DNA Isolation Kit (100 preps)	12800-100
Soil DNA Mega Prep Kit (10 preps)	12900-10
Fecal DNA Isolation Kit (50 preps)	12811-50
Fecal DNA Isolation Kit (100 preps)	12811-100
Microbial DNA Isolation Kit (50 preps)	12224-50
Microbial DNA Isolation Kit (250 preps)	12224-250
Plant DNA Isolation Kit (50 preps)	13000-50
Plant DNA Isolation Kit (250 preps)	13000-250
Tissue DNA Isolation Kit (50 preps)	12334-50
Tissue DNA Isolation Kit (250 preps)	12334-250
Water DNA Isolation Kit (10 preps)	14800-10
Water DNA Isolation Kit (25 preps)	14800-25
Forensic DNA Kit- Single prep format (10 preps)	14000-10
Forensic DNA Kit- Single prep format (20 preps)	14000-20
RNA Isolation Kits	
Tissue RNA Isolation Kit (50 preps)	15000-50
Tissue RNA Isolation Kit (250 preps)	15000-250
Plant RNA Isolation Kit (20 preps)	13300-20
Plant RNA Isolation Kit (50 preps)	13300-50
Microbial RNA Isolation Kit (50 preps)	15800-50
Microbial RNA Isolation Kit (250 preps)	15800-250
Growth Media	
TB DRY (1 kg) Terrific Broth powder	12105-1
LB (1 kg) LB powder (Miller)	12106-1
LB Agar (1 kg) LB Agar Powder (Miller)	12107-1

Technical information: Toll free 1-800-606-6246, or 1-760-929-9911 email: technical@mobio.com



Contact Information

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

Email: technical@mobio.com

Fax: 760-929-0109

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

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