INSTRUCTION MANUAL

Monarch® Spin Plasmid Miniprep Kit

NEB #T1110S/L

50/250 preps

Version 1.1_05/24

Table of Contents

Kit Contents

Component	NEB #	Application/Usage	#T1130S (50 preps)	#T1130L (250 preps)	Storage Temperature
Monarch Buffer B1	T1111	Resuspension buffer	12 ml	57 ml	15–25°C, 4°C after RNase A addition
Monarch Buffer B2	T1112	Lysis buffer	11 ml	2 x 27 ml	15–25°C
Monarch Buffer B3	T1113	Neutralization buffer	22 ml	110 ml	15–25°C
Monarch Buffer BZ	T1114	Wash buffer 1 concentrate (1.42X)	8.4 ml	42 ml	15–25°C
Monarch Buffer WZ	T1115	Wash buffer 2 concentrate (5X)	5 ml	26 ml	15–25°C
Monarch Buffer EY	T1116	Elution buffer	7 ml	25 ml	15–25°C
Monarch RNase A	T3018	RNase A for digestion of RNA	170 µl	500 µl	-20°C upon receiving
Monarch Spin Columns S2D	T1117	Spin column for nucleic acid purification	50 columns	250 columns	15–25°C
Monarch Spin Collection Tubes	T2118	Collection tube	50 tubes	250 tubes	15–25°C

Storage Recommendations

- Upon receipt, store Monarch RNase A at -20°C for long-term storage and stability.
- After adding Monarch RNase A to Monarch Buffer B1, store buffer at 4°C.
- Remaining kit components should be stored at room temperature.
- Always keep reagent bottles tightly closed.
- Keep columns sealed in the enclosed bag.
- See individual component labels for specific storage guidance.

Intended Use

The Monarch Spin Plasmid Miniprep Kit is developed for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Safety Information

- Monarch Buffers B3 and BZ contain guanidine hydrochloride, which can form highly reactive compounds when combined with bleach. Do not add bleach or acidic solution directly to the buffers or to the sample preparation waste.
- For more information regarding the composition of buffers, please consult the Safety Data Sheets available on our website (www.neb.com).
- Proper laboratory safety practices should be employed when using this kit, including the use of lab coats, gloves, and eye protection.

Quality Control

To help ensure consistent quality and performance, each lot of this kit is tested for predetermined quality control and functional specifications.

Introduction

The Monarch Spin Plasmid Miniprep Kit is a rapid and reliable method for the extraction and purification up to 20 µg of high-quality plasmid DNA from various bacterial strains. Designed with sustainability in mind, these kits use significantly less plastic compared to other kits on the market.

Features of this kit include:

- **High Performance:** Achieve high yields (up to 20 µg) and high purity in the extraction and concentration of plasmid DNA without genomic DNA or RNA contamination.
- **High Concentration:** Elute in as low as 30 µl, allowing for highly concentrated plasmid DNA.
- **Time Savings:** 9.5–12.5 minutes of spin and incubation time needed to complete the workflow (Figure 1).
- **Unique Design:** The spin column features a unique design that enables elution in low volumes and minimizes buffer retention and contaminant carryover (Figure 2).
- **Optimized:** The buffer system is optimized with color indicators to monitor the completion of each step.
- **Application Compatibility:** Purified plasmid DNA is ready-to-use for restriction digestion and other enzymatic manipulations, transformation, transfection, DNA sequencing, PCR, labeling, cell-free protein synthesis, etc.

Sustainability and Recycling Information

Monarch DNA and RNA Purification Kits are designed for sustainability and developed for performance. Learn more about Monarch sustainability at www.neb.com/monarchsustainability.

- **Sustainable performance:** Significantly less plastic is used in spin columns, bottles and other plastic parts, compared to similar kits from other leading suppliers, with no compromise on high yield, purity, and performance.
- **Thinner-walled columns:** Reduction in total plastic without affecting performance.
- **Flexible purchasing options:** Columns and buffers are also available separately. Purchase only what you need and avoid wasted materials.
- **Same performance, design, and formulations:** Standalone products are the same components and formulations that are included in complete kits.
- **Streamlined packaging:** Monarch kits come in sustainable, sturdy, reusable boxes at just the right size with concise protocol cards that replace printed manuals.
- **Sustainable and recyclable packaging**: Packaging is printed with less ink using eco-friendly practices and powered by sustainable sources such as wind, where possible. Packaging is sourced for recyclability, and recycled paper is used where possible to make the kit boxes, inserts, and paper materials.

Help keep Monarch sustainable by recycling after using. Learn more on how to recycle Monarch boxes and kit components at www.neb.com/monarchrecycling.

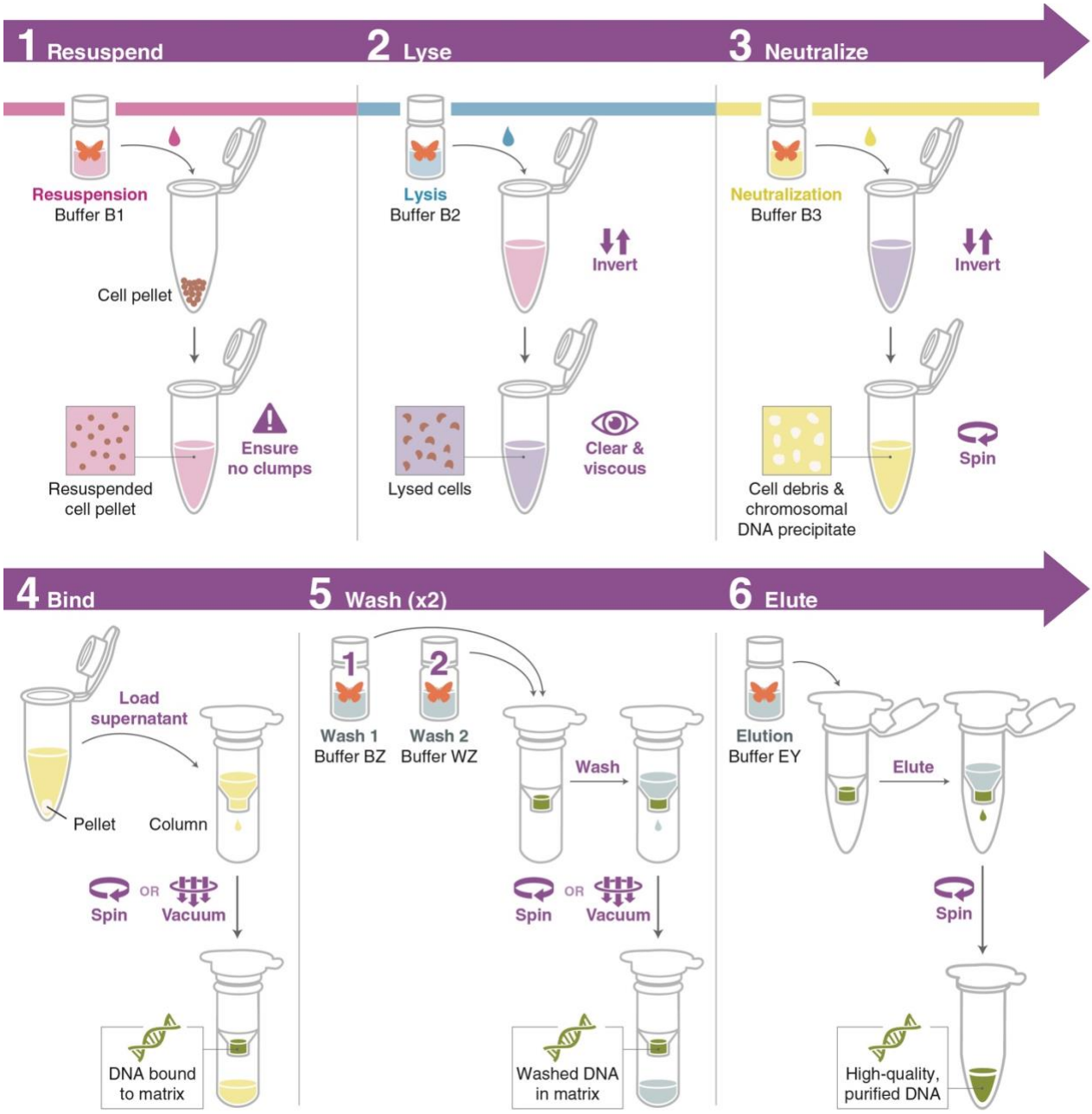
Principle of Monarch Spin Plasmid Miniprep Kit

The Monarch Spin Plasmid Miniprep Kit utilizes a protocol featuring unique spin columns and optimized buffers based on alkaline lysis and chaotropic salt-based adsorption of plasmid DNA to the silica membrane, followed by wash and elution steps. Our resuspension buffer (Monarch Buffer B1, pink) is formulated to create optimal conditions for cell lysis, and inclusion of Monarch RNase A in the resuspension buffer facilitates RNA degradation. The lysis buffer (Monarch Buffer B2, blue) creates alkaline conditions necessary for efficient cell lysis, leading to the release of plasmid DNA and denaturation of genomic DNA and cellular proteins. Subsequently, the neutralization buffer (Monarch Buffer B3, yellow) restores the pH balance inducing the precipitation of genomic DNA, proteins, and other cellular debris. Each step in the process is critical for the success of plasmid DNA extraction, and the buffers are designed with the additional advantage of color indicators at each stage for easy monitoring of completion. Following the clarification of the lysate through centrifugation, plasmid DNA binds to our proprietary silica matrix under high salt conditions. The application of unique wash buffers

ensures the removal of salts, residual proteins, RNA, and other cellular components. Finally, elution under low-salt conditions produces highly pure and concentrated plasmid DNA, making it suitable for various molecular applications.

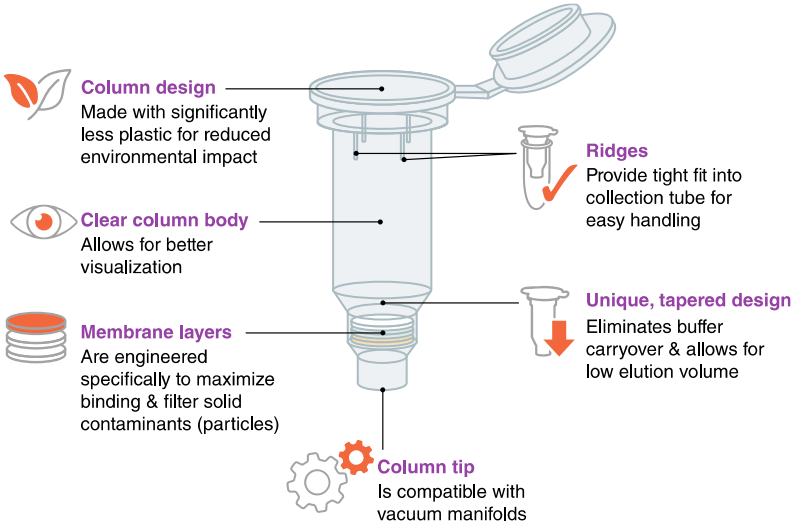
Our innovative column design, featuring precision-engineered silica matrices and layers, enables elution volumes as low as 30 µl with minimal buffer retention and reduced contaminants. Paired with our optimized buffer system, this kit delivers a rapid and reliable extraction and purification process, yielding up to 20 µg of high-quality plasmid DNA.

Figure 1: Monarch Spin Plasmid Miniprep Workflow



The Monarch Spin Plasmid Miniprep Kit features unique spin columns and optimized buffers based on alkaline lysis.

Figure 2. Monarch Column Design



NEB Monarch's unique column design and membrane assembly allows high-quality DNA purification with low elution volume, for highly-concentrated DNA for downstream applications. The column is designed and made with significantly less plastic for a reduced environmental impact.

Properties

To view functional performance data, please visit the product webpage.

Purification Format	Spin column for nucleic acid purification
Compatible Methods	Centrifugation or vacuum manifold
Intended Usage	Plasmid extraction and preparation from various *E.coli* host strains and other microbial strains
Plasmid DNA Yield	Up to 20 µg*
Culture Volume	1–5 ml, not to exceed 15 OD units
Column Binding Capacity	Up to 20 µg
Plasmid Size	Up to 25 kb
Elution Volume	≥ 30 µl
DNA Purity	$A_{260/280}$ > 1.8 and $A_{260/230}$ > 1.8
Protocol Time	9.5–12.5 minutes of spin and incubation time
Compatible Downstream Applications	Restriction digestion and other enzymatic manipulations, transformation, transfection, DNA sequencing, PCR, labeling, cell-free protein synthesis, etc.

* Yield depends on plasmid copy number, host strain, culture volume and growth conditions

Important Notes Before Starting

The yield and quality of plasmid DNA are influenced by several critical factors, including plasmid copy number, plasmid size, insert toxicity, host strain, antibiotic selection, growth media, and culture conditions. It is crucial to take these factors into account to optimize cell culturing and plasmid yield.

Growth Media and Conditions

For standard *E. coli* cloning strains, we recommend starting cultures with a single colony from a freshly streaked selective agar plate. Inoculate this colony into a conventional growth medium, such as LB (Luria-Bertani) media. Cultures are typically incubated at 37°C with agitation at 200–250 RPM in vessels that allow aeration, such as Erlenmeyer flasks or culture tubes on a roller drum. Harvesting is optimal after 12–16 hours as the culture transitions from logarithmic growth to the early stationary phase.

At this stage, the cultures reach saturation with a final OD_{600} between 3–6. Plasmid DNA content is at its peak, while RNA content is minimal. Harvesting cells during the early stationary phase is crucial, as extended growth (harvesting at the late stationary phase) may result in cell lysis. This can lead to reduced plasmid yields and quality, increasing the likelihood of co-purifying unwanted host chromosomal DNA.

The Monarch Spin Plasmid Miniprep Kit and protocols are optimized for cells grown in LB media. However, the use of rich media, such as 2X YT or TB, is permissible as it generates higher biomass in a shorter time. If using other media, adjust parameters so that the culture does not exceed 15 OD units.

Antibiotics

Antibiotic selection should be used in any step involving the growth of the bacteria to ensure selective pressure and maintain the plasmid. If selective pressure is not employed, cells that do not contain plasmid from cell division will likely grow faster and dominate the culture. This will result in low/no yield of the plasmid.

Common antibiotics and concentration

Antibiotic	Stock solution concentration	Storage	Working concentration
Ampicillin	100 mg/ml (H_2O)	–20°C	50–200 µg/ml
Carbenicillin	100 mg/ml (H_2O)	–20°C	20–200 µg/ml
Chloramphenicol	34 mg/ml (ethanol)	–20°C	25–170 µg/ml
Kanamycin	10 mg/ml (H_2O)	–20°C	10–50 µg/ml
Streptomycin	10 mg/ml (H_2O)	–20°C	10–50 µg/ml
Tetracycline	5 mg/ml (ethanol)	–20°C	10–50 µg/ml

Plasmid Copy Number

Plasmid copy numbers will vary over a wide range depending on the origin of replication they contain, the size of the plasmid and the insert fragment cloned into the plasmid. For example, high-copy plasmid such as pUC19 may yield up to 500–700 copies per cell. However, the copy number can significantly decrease based on the size and toxicity of the cloned insert. To obtain higher amounts of plasmid, optimizing growth conditions and increasing the culture volume may be considered.

Common plasmids and copy number

Plasmid	Replicon	Copy Number	Classification
pUC and its derivatives	pMB1*	>75	High copy
pBR322 and its derivatives	pMB1	15–20	Low copy
pACYC and its derivatives	P15A	10–12	Low copy
pSC101	pSC101	~5	Very low copy

*****pUC and its derivatives lack the *Rop* gene and contain a point mutation in the RNAII transcript. These changes result in higher copy numbers during routine growth with many sources reporting levels as high as 500-700 copies per cell.

General Guidelines for Monarch Spin Plasmid Miniprep Kit

- Centrifugation should be carried out at 16,000 x g (~13,000 RPM) in a standard laboratory microcentrifuge at room temperature. This ensures all traces of buffer are eluted at each step.
- If using vacuum manifold, read and follow the manufacturer's instructions before starting.
- The column holds a maximum volume of 800 µl.
- If precipitate has formed in Monarch Buffer B2, incubate at 30-37°C, inverting periodically to dissolve.
- All wash steps are required.
- Always keep columns tightly sealed in provided bag.

Equipment and Reagents Required & Supplied by the User

Equipment

- Benchtop microcentrifuge
- Vacuum manifold (for the vacuum manifold protocol)
- Vacuum pump (for the vacuum manifold protocol)

Reagents/supplies

- Isopropanol (100%)
- Ethanol (≥ 95%)
- 1.5 ml or 2 ml microfuge tubes
- Optional: Nuclease-free water for elution, if the supplied elution buffer will not be used

Buffer Preparation

Add supplied Monarch RNase A to Monarch Buffer B1 for a final concentration of 100 µg/ml. Mix and store at 4°C.

- For T1110G (10-prep) kit, add 12 µl of Monarch RNase A to Monarch Buffer B1.
- For T1110S (50-prep) kit, add 60 µl of Monarch RNase A to Monarch Buffer B1.
- For T1110L (250-prep) kit, add 285 µl of Monarch RNase A to Monarch Buffer B1.

Add isopropanol to the Monarch Buffer BZ prior to use (0.43 volumes of isopropanol per volume of Monarch Buffer BZ).

- For T1110G (10-prep) kit, add 1.5 ml of isopropanol to Monarch Buffer BZ.
- For T1110S (50-prep) kit, add 3.6 ml of isopropanol to Monarch Buffer BZ.
- For T1110L (250-prep) kit, add 18 ml of isopropanol to Monarch Buffer BZ.

Add ethanol to the Monarch Buffer WZ prior to use (4 volumes of ≥ 95% ethanol per volume of Monarch Buffer WZ).

- For T1110G (10-prep) kit, add 4 ml of ethanol to Monarch Buffer WZ.
- For T1110S (50-prep) kit, add 20 ml of ethanol to Monarch Buffer WZ.
- For T1110L (250-prep) kit, add 104 ml of ethanol to Monarch Buffer WZ.

Always keep all buffer bottles tightly closed when not in use.

Protocols

1. Plasmid Miniprep Protocol using centrifugation
2. Plasmid Miniprep Protocol using vacuum manifold

Plasmid Miniprep Protocol using Centrifugation

1. **Pellet 1–5 ml bacterial culture (not to exceed 15 OD units) by centrifugation for 30 seconds. Discard the supernatant.** For a standard miniprep to prepare plasmid for restriction digestion or PCR, we recommend 1.5 ml of culture, which is sufficient for most applications. Ensure cultures are not overgrown; 12–16 hours is usually ideal for optimal growth.
2. **Resuspend the pellet in 200 µl of Monarch Buffer B1 (pink●).** Vortex or pipet mix to ensure cells are completely resuspended. There should be no visible clumps.
3. **Add 200 µl of Monarch Buffer B2 (blue●), gently invert the tube 5-6 times, and incubate at room temperature for 1 minute. Do not vortex.** The color should change to dark pink, and the solution should be transparent and viscous. Handle the sample gently to reduce the risk of shearing chromosomal DNA, which can be co-purified as a contaminant. Avoid incubating longer than one minute to prevent irreversible plasmid denaturation.
4. **Add 400 µl of Monarch Buffer B3 (yellow●), and gently invert the tube until neutralized. Do not vortex.** The color should be uniformly yellow and a precipitate will form. Incubate for 2 minutes. Gentle but uniform mixing will ensure complete neutralization without shearing chromosomal DNA.
5. **Centrifuge the lysate for 2–5 minutes.** The pellet should be compact; spin longer if needed. Spin time should not be less than 2 minutes. For culture volumes > 1 ml, we recommend a longer spin (~5 minutes) to ensure efficient RNA removal by RNase A and a more compact pellet, which will lower the risk of clogging the column.
6. **Carefully transfer the supernatant to the Monarch Spin Column S2D and centrifuge for 1 minute. Discard the flow-through.**
7. **Re-insert the Monarch Spin Column S2D in the Monarch Spin Collection Tube and add 200 µl of Monarch Buffer BZ (wash 1). Centrifuge for 1 minute.** Discarding the flow-through is optional. This is a high-salt wash step that helps remove any residual RNA, protein, and other contaminants. Incubate for 5 minutes after adding Monarch Buffer BZ and prior to centrifugation if the plasmid will be used for transfection.
8. **Wash by adding 400 µl of Monarch Buffer WZ (wash 2) and centrifuge for 1 minute.**
9. **Transfer the column to a clean 1.5 ml microfuge tube.** Use care to ensure that the tip of the column does not touch the flow-through. If in doubt, re-spin for 1 minute.
10. **Add ≥ 30 µl of Monarch Buffer EY to the center of the matrix. Wait for 1 minute, then spin for 1 minute to elute DNA.** Nuclease-free water (pH 7– 8.5) can also be used to elute the DNA. Yield may slightly increase if a larger volume of Monarch Buffer EY is used, but the DNA will be less concentrated. For larger size plasmids (≥ 15 kb), incubate the column with elution buffer at room temperature for 5 minutes to maximize the yield. Alternatively, the elution buffer can be heated to 50°C prior to use.

Plasmid Miniprep Protocol using a Vacuum Manifold

1. **Pellet 1-5 ml bacterial culture (not to exceed 15 OD units) by centrifugation for 30 seconds. Discard the supernatant.** For a standard miniprep to prepare plasmid for restriction digestion or PCR, we recommend 1.5 ml of culture, which is sufficient for most applications. Ensure that the cultures are not overgrown; 12–16 hours is usually ideal for optimal growth.
2. **Resuspend the pellet in 200 µl of Monarch Buffer B1 (pink ●).** Vortex or pipet mix to ensure cells are completely resuspended. There should be no visible clumps.
3. **Add 200 µl of Monarch Buffer B2 (blue ●), gently invert the tube 5-6 times, and incubate at room temperature for 1 minute. Do not vortex.** The color of the solution should change to dark pink, and the solution should be transparent and viscous. Handle the sample gently to reduce the risk of shearing chromosomal DNA, which can be co-purified as a contaminant. Avoid incubating longer than one minute to prevent irreversible plasmid denaturation.
4. **Add 400 µl of Monarch Buffer B3 (yellow ●), and gently invert the tube until neutralized. Do not vortex.** The color should be uniformly yellow and a precipitate will form. Incubate for 2 minutes. Gentle but uniform mixing will ensure complete neutralization without shearing chromosomal DNA.
5. **Centrifuge the lysate for 2–5 minutes.** The pellet should be compact; spin longer if needed. Spin time should not be less than 2 minutes. For culture volumes >1 ml, we recommend a longer spin (~5 minutes) to ensure efficient RNA removal by RNase A and a more compact pellet which will lower the risk of clogging the column.
6. **Insert the Monarch Spin Column S2D column into the vacuum adaptor or manifold directly, switch the vacuum on, and load the supernatant to the spin column. Allow the solution to pass through the column, then switch the vacuum source off.**
7. **Add 200 µl of Monarch Buffer BZ (wash 1) and switch the vacuum on. Allow the solution to pass through the column, then switch the vacuum source off.** This is a high-salt wash step that helps to remove RNA, protein, and endotoxin. Incubate for 5 minutes after adding Monarch Buffer BZ and prior to switching the vacuum on if the plasmid will be used for transfection.
8. **Wash by adding 400 µl of Monarch Buffer WZ (wash 2) and switch the vacuum on. Allow the solution to pass through the columns, then switch the vacuum source off.**
9. **(Recommended) Insert the column into the Monarch Spin Collection Tube and centrifuge for 1 minute.** Since vacuum set-ups can vary, centrifugation is recommended before the elution step to ensure no traces of buffer and ethanol are carried over.
10. **Transfer the column to a clean 1.5 ml microfuge tube.** Use care to ensure that the tip of the column does not touch the flow-through. If in doubt, re-spin for 1 minute.
11. **Add ≥ 30 µl of Monarch Buffer EY to the center of the matrix. Wait for 1 minute, then spin for 1 minute to elute DNA**. Nuclease-free water (pH 7– 8.5) can also be used to elute the DNA. Yield may slightly increase if a larger volume of Monarch Buffer EY is used, but the DNA will be less concentrated. For larger size plasmids (≥ 15 kb), incubate the column with elution buffer at room temperature for 5 minutes to maximize the yield. Alternatively, the elution buffer can be heated to 50°C prior to use.

Troubleshooting

Problem	Common Cause	Suggestions/Solutions
No DNA purified	Plasmid lost during growth of culture	Ensure proper antibiotic is used at a correct concentration to maintain selection during growth. Do not sub-culture ampicillin-maintained cultures to avoid depletion of antibiotics by β-lactamase. Use a fresh plate and avoid selecting satellite colonies when inoculating the culture.
	Reagents added incorrectly	Check protocol to ensure buffers were added in the correct order and that the sample is bound, washed and eluted in the correct sequence.
Low DNA yield	Incomplete lysis	Ensure the cell pellet is completely resuspended before adding Monarch Buffer B2 (Lysis Buffer) and that the color changes from light pink to dark pink. Take care not to use too many cells. If the culture volume used is larger than recommended, scale-up Monarch Buffers B1-B3 to ensure proper processing of the sample.
	Plasmid lost during growth of culture	Ensure proper antibiotic is used at the correct concentration to maintain selection during growth. Do not sub-culture ampicillin-maintained cultures to avoid depletion of antibiotics by secreted b-lactamase. Use a fresh plate and avoid selecting satellite colonies when inoculating the culture.
	Too many cells processed	Using more cells than recommended will result in a low yield as cell lysis will not be efficient and the cell debris can clog the matrix and prevent the DNA from binding. Ensure that you do not exceed the recommended amount of cell culture per column.
	Low-copy plasmid selected	Increase number of cells process and scale buffers accordingly.
	Lysis of cells during growth	Harvest culture during the transition from logarithmic growth to stationary phase (typically 12–16 hours for growth of culture in LB) to avoid lysis of cells after extended periods of cell growth.
	Incomplete neutralization	The sample tube should be inverted enough times to produce a complete and uniform color change to yellow. Cell debris will appear in abundance. Nothing should be floating on the surface after centrifugation;, all debris should be compacted into the pellet.
	Incomplete elution	Larger elution volumes and longer incubation times can increase the yield of DNA eluted from the column; however, the sample will be more dilute and the processing time icreased. For typical plasmids in the < 15 kb range, the recommended elution volumes and incubation times are sufficient. For the purification of larger plasmids, incubating at room temperature for 5 minutes or heating the elution Monarch Buffer EY to 50°C prior to elution can improve yield.
Low DNA Quality	Plasmid is degraded	Some *E. coli* strains (HB101 and the JM series) have high levels of endogenous endonuclease. Avoid using these when possible. If these strains are used, keep samples on ice during the prep and ensure the wash step with Monarch Buffer BZ is included.
	Plasmid is denatured	Using Monarch Buffer B2 (lysis buffer) introduces sodium hydroxide to the DNA. Extended incubation in the presence of sodium hydroxide can separate the strands and irreversibly denature the plasmid. Adhere to the protocol, and ensure this step is completed within 2 minutes. Promptly move on to the neutralization step.
	Plasmid is contaminated with genomic DNA	Vigorous mixing after cell lysis and before pelleting of cell debris may cause shearing of the host chromosomal DNA and should be avoided. Additions of Monarch Buffer B2 and B3 should be followed by careful inversion mixing. Do not vortex. Contaminating genomic DNA can also be removed enzymatically using Exonuclease V (RecBCD) (NEB #M0345), which digests linear DNA while leaving circular DNA intact.
	Improper storage	Ensure that DNA is eluted in Monarch Buffer EY (elution buffer) or nuclease-free water to maintain the integrity of the DNA and store at -20°C. DNA should not be stored in a solution containing magnesium.
	Ethanol has been carried over	Ensure final wash spin time is 1 minute to enable complete removal of the wash buffer from the column. Use care when transferring the column to a new tube for the elution step. The column tip should not contact the column flow-through. If there is any doubt, re-spin the column for 1 minute.
	Excessive salt in sample	Wash buffers (Monarch Buffers BZ and WZ) should be used according to the protocol. Unlike other commercial kits, all wash steps in the Monarch Spin Plasmid Miniprep Kit protocol are required. All steps should be performed as described to ensure the recovery of high-quality plasmid DNA.
Low DNA purity and performance	Ethanol is carried over	Ensure final wash spin time is 1 minute to enable complete removal of the wash buffer from the column. Use care when transferring the column to a new tube for the elution step. The column tip should not contact the column flow-through. If there is any doubt, re-spin the column for 1 minute.
	Excessive salt in sample	Wash buffers (Monarch Buffers BZ and WZ) should be used according to the protocol. Unlike other commercial kits, all wash steps in the Monarch Spin Plasmid Miniprep Kit protocol are required. All steps should be performed as described to ensure the recovery of high-quality plasmid DNA.
	Excessive carbohydrate carried over	Similar to the endogenous nucleases, strains like HB101 and the JM series have high amounts of endogenous carbohydrate that can interfere with downstream enzymatic manipulations of plasmid DNA. Be sure to follow the protocol and make sure the first wash step with Monarch Buffer BZ is included.

For more troubleshooting and FAQs, please visit product webpage or reach out to our technical support team at info@neb.com.

Ordering Information

View the entire Monarch DNA & RNA Purification portfolio at NEBMonarch.com.

Monarch® Spin Plasmid Miniprep Kit

PRODUCT	NEB #
Monarch Spin Plasmid Miniprep Kit	T1110
Columns and collection tubes also offered separately	
Monarch Spin Columns S2D and Tubes	T1117
Monarch Spin Collection Tubes	T2118

NEB Companion Products

PRODUCT	NEB #
Endonuclease V (RecBCD)	M0345
Exo-CIP™ Rapid PCR Cleanup Kit	E1050
Gel Loading Dye, Purple (6x)	B7024
Gel Loading Dye, Purple (6x), no SDS	B7025
Quick-Load® Purple 1 kb DNA Ladder	N0552
Quick-Load Purple 100 bp DNA Ladder	N0551
Quick-Load Purple 1kb Plus DNA Ladder	N0550
T4 DNA Ligase	M0202
Blunt/TA Ligase Master Mix	M0367
Instant Sticky-end Ligase Master Mix	M0379

Revision History

Revision #	Description	DATE
1.0	N/A	04/24
1.1	Added T1110G instructions	05/24