

# NEB expressions

*a scientific update*



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[www.basefacility.org.au](http://www.basefacility.org.au)  
+ mRNA design  
+ DNA template

# mRNA Synthesis Democratized with Open-source Approach by BASE Facility Researchers

By Lydia Morrison, Marketing Communications Manager, New England Biolabs

New England Biolabs Sales Manager of Australia & New Zealand, Jenny Brown, interviewed Professor Timothy Mercer and Associate Professor Seth Cheetham from the BASE mRNA Facility at the University of Queensland, Australia to find out more about their recently published novel protocol for mRNA synthesis in Nature Protocols, utilizing standard laboratory techniques and equipment to produce high-purity mRNA suitable for *in vitro* and *in vivo* preclinical studies.

**Jenny Brown:** Please tell us about the BASE facility.

**Seth Cheetham:** The BASE facility is a national facility that provides researchers around Australia with high-quality mRNA. We provide an end-to-end service, from mRNA design through to final formulation. This enables people to start using mRNA in their research to develop new vaccines and therapies.

In addition to supporting scientists with mRNA, we also have our own internal research program, where we explore new mRNA manufacturing methods, quality control of mRNA, new approaches to deliver mRNA to tissues, and develop our own pipeline of mRNA candidates.

**Timothy Mercer:** Everyone thinks about mRNA in terms of medicines, vaccines and therapies, but scientists are increasingly realizing that mRNA makes a fantastic experimental reagent. We see the scientific community increasingly adopting mRNA for use in their experiments, especially in fields such as immunology and neuroscience, that have been otherwise difficult to explore.

**Jenny Brown:** What specific issue in mRNA manufacturing were you aiming to solve with this protocol?

**Seth Cheetham:** So far, mRNA manufacturing has been regarded as being a very specialized approach, which has only been accessible through specialized facilities such as the BASE facility. What we wanted to do was to develop an open-source approach to democratize mRNA access. This allows researchers around the world to produce

high-quality mRNA in their own lab, and develop new vaccines and therapies.

**Timothy Mercer:** This protocol has really been developed with the researcher in mind. It's designed to be able to produce mRNA in a standard laboratory, using standard equipment, in an affordable manner. First, we design the mRNA using the mRNA Architect software ([app.basefacility.org.au/](http://app.basefacility.org.au/)). After that, we use a PCR approach to prepare that DNA template, which is then used for *in vitro* transcription to



BASE facility interviewees with NEB interviewer Jenny Brown. From left to right: Timothy Mercer, Jenny Brown, Seth Cheetham. Photo courtesy of Luke Brown, Run Media.

synthesize the mRNA. Finally the mRNA can be formulated within the lipid nanoparticle at the end for *in vivo* delivery, or within your *in vitro* experiments, depending on what that final application is.

**Jenny Brown:** What are some of the technical hurdles labs commonly face when making mRNA?

**Seth Cheetham:** One of the issues in mRNA manufacturing was that it relied on plasmid DNA, which is extracted from bacterial cells.

**Timothy Mercer:** A big challenge for plasmids is the bioburden, the contamination that they can sometimes introduce within the process. When you're making mRNA, you want to remove any of those contaminants, and so excluding the plasmid removes one of those primary sources of contaminants.

**Seth Cheetham:** We wanted to move away from this approach by using synthetic templates. So, we used PCR amplification to produce our templates either from a synthetic piece of DNA or from plasmid, which removes the need to grow large amounts of bacteria. This makes the process both cleaner and faster, and results in a higher quality mRNA.

**Jenny Brown:** Who specifically do you think it will benefit the most? What type of researcher?

**Timothy Mercer:** I think all researchers have a lot to benefit from mRNA. I envision mRNA assuming a position alongside plasmids and proteins in terms of experimental tool. We support a lot of scientists who work with non-dividing or fickle or difficult cells, and they are getting really good results using mRNA. It's a really powerful tool to express genes in those difficult cell lines experimental models.

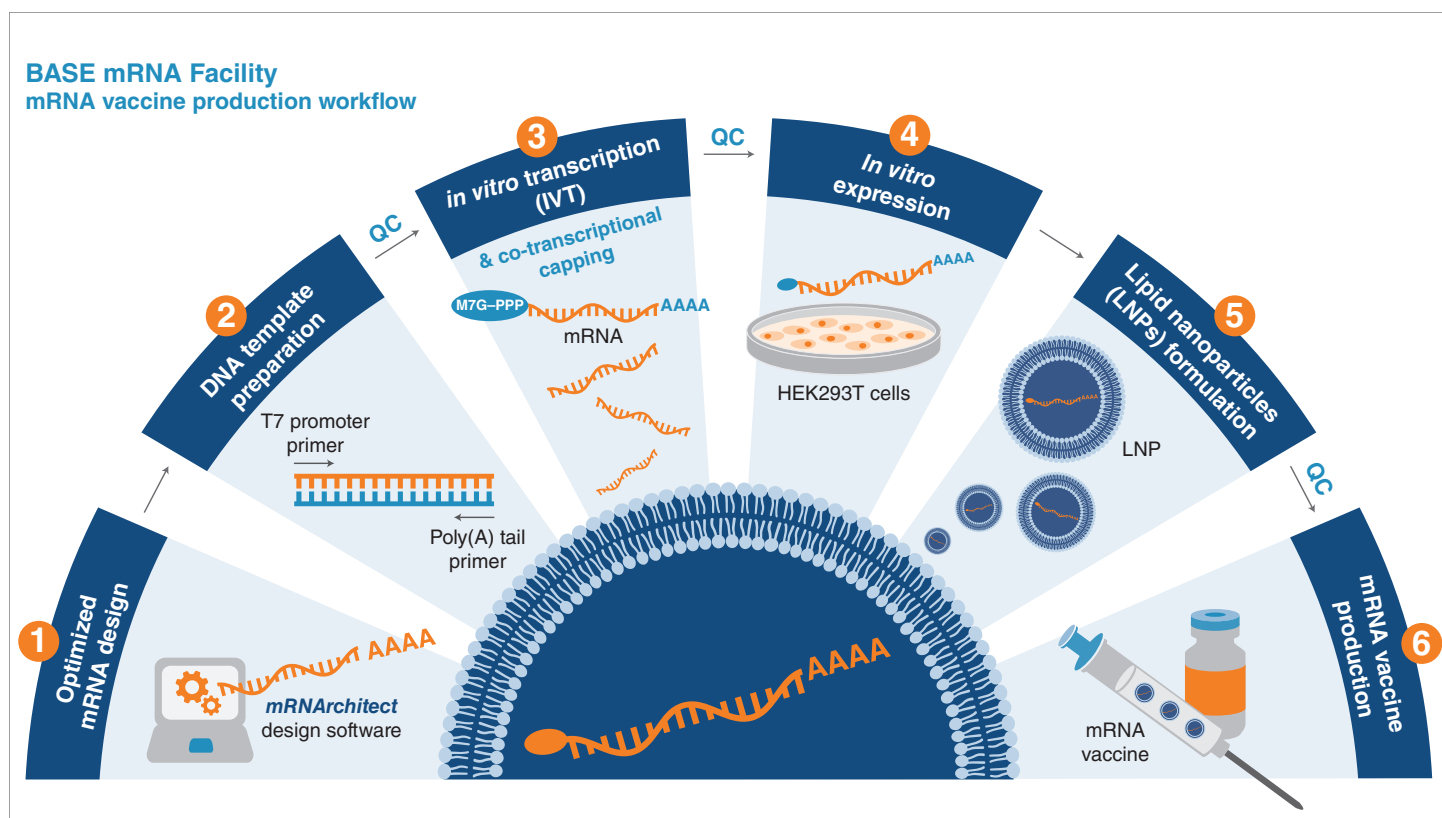
**Jenny Brown:** What global impacts do you see this protocol having?

**Timothy Mercer:** We hope that this protocol allows people to start adopting and producing mRNA within their lab. In some ways, it demystifies the process of making mRNA. This protocol is pretty easy-to-follow and provides guidelines to make sure you produce good, high-quality and non-contaminated mRNA. We just hope it gets adopted by different scientists all over the world, so they can start generating their own mRNA and start using it in their experiments.



## Read the Publication

Leighton, L.J., Chaudhary, N., Tompkins, H.T. et al. The design, manufacture and LNP formulation of mRNA for research use. *Nat Protoc* 20, 3552–3581 (2025). <https://doi.org/10.1038/s41596-025-01174-4>



This novel mRNA synthesis workflow relies on PCR for DNA template preparation, which is then used for in vitro transcription to synthesize the mRNA. Finally the mRNA can be formulated within the lipid nanoparticle at the end for final applications.

# Migrate to Monarch



## Choose Monarch for uncompromising quality of your nucleic acid purification

Monarch nucleic acid purification kits provide fast and reliable isolation and purification of high-quality DNA and RNA from a variety of sample types. Technologies used include best-in-class silica columns, silica-coated mag beads, or glass-beads for the isolation of high molecular weight DNA. The resulting nucleic acids are highly pure and ready for sequencing, cloning, PCR, and other enzymatic applications.

The Monarch nucleic acid purification portfolio can serve your needs, whether you are isolating nucleic acids from biological samples, cleaning up DNA and RNA from enzymatic reactions, extracting DNA fragments from gels, or purifying plasmids.

Monarch DNA and RNA kits use purposefully reduced-plastic columns and bottles and come in compact packaging, providing environmental responsibility without compromising on performance.

### Advantages

- Highly pure and concentrated nucleic acids
- Fast and easy workflows
- Column- and bead-based formats
- Kits for every application
- Less plastic and reduced packaging



### DNA extraction & purification with NEB

Enjoy exclusive discounts on your purchase of NEB Monarch® DNA extraction and purification kits at UGAP.

For more information, visit [www.UGAP.fr](http://www.UGAP.fr).



For more information, visit [www.NEBMonarch.com](http://www.NEBMonarch.com)



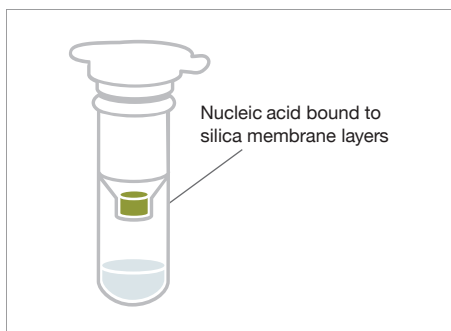
Interested in giving Monarch a try?

**Request a free sample**

### The right technology for your application

#### Monarch Spin Columns

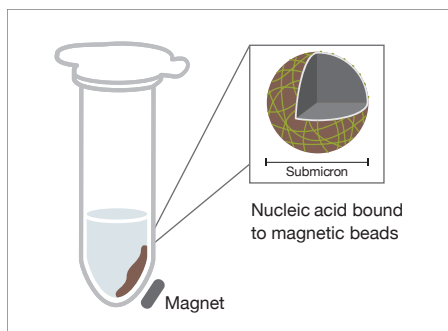
For fast and simple standard applications using centrifuges or vacuum manifolds.



Monarch Spin Columns offer the best-in-class silica column technology. The optimized design minimizes buffer retention and salt carryover, delivering highly pure and concentrated nucleic acids for your downstream needs.

#### Monarch Mag Beads

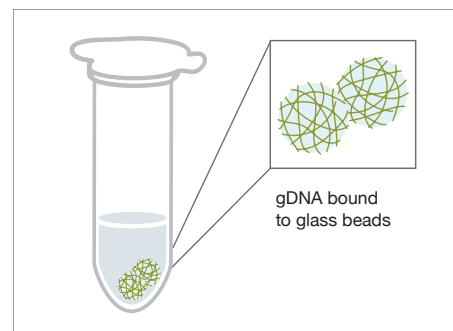
For high-throughput applications, compatible with manual and automated workflows.



Monarch Mag Beads feature a silica-coated surface for efficient nucleic acid binding and a submicron size that maximizes surface area. Their superparamagnetic core enables a fast magnetic response, ensuring easy handling and smooth integration into automated workflows.

#### Monarch Glass Beads

For the purification of extremely high molecular weight DNA.



The Monarch Glass Bead-based kits utilize an optimized process that combines gentle cell lysis with a tunable fragment length generation, followed by precipitation of the extracted high molecular weight DNA onto the surface of large glass beads.

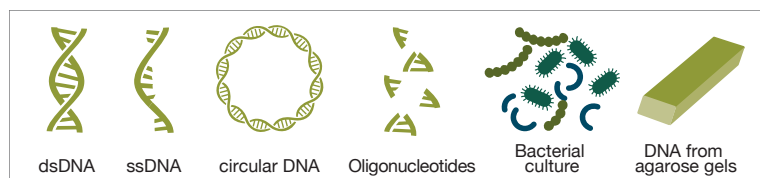


# The ideal Monarch solution for your needs

## DNA isolation and purification

Monarch DNA Purification Kits from NEB combine speed, reliability, and exceptional purity to meet the diverse needs of modern molecular biology workflows, whether you prefer the simplicity of spin columns or the flexibility of magnetic beads.

## DNA input material

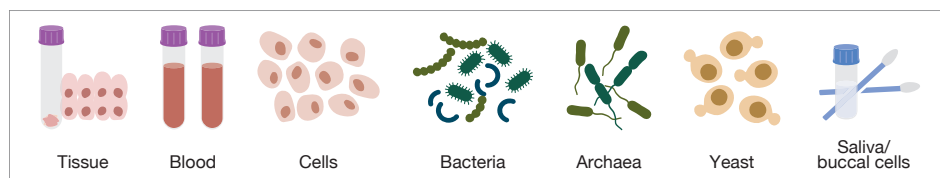


|                           | MONARCH SPIN PCR & DNA CLEANUP KIT (5 µg)                          | MONARCH SPIN HIGH-CAPACITY DNA CLEANUP KIT (100 µg)                                       | MONARCH MAG PCR & DNA CLEANUP KIT (5 µg)                                                  | MONARCH SPIN PLASMID MINIPREP KIT                            | MONARCH SPIN DNA GEL EXTRACTION KIT                         |
|---------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|
| <b>Main specification</b> | Purify DNA in 5 minutes and elute in as little as 5 µl             | Purify and concentrate up to 100 µg DNA                                                   | Purify and concentrate DNA using magnetic beads                                           | Easily purify plasmids with convenient colored buffer system | Extract excellent DNA yields and elute in as little as 5 µl |
| <b>NEB#</b>               | T1130S/L                                                           | T1135V/S/L                                                                                | T4130V/S/L                                                                                | T1110S/L                                                     | T1120S/L                                                    |
| <b>Kit size</b>           | 50/250 preps                                                       | 10/50/200 preps                                                                           | 10/100/400 preps                                                                          | 50/250 preps                                                 | 50/250 preps                                                |
| <b>Technology</b>         | Spin column                                                        | Spin column                                                                               | Magnetic beads                                                                            | Spin column                                                  | Spin column                                                 |
| <b>Input material</b>     | dsDNA, ssDNA, circular/linear DNA, oligonucleotides                | dsDNA, ssDNA, circular/linear DNA, oligonucleotides, gDNA                                 | dsDNA, ssDNA, circular/linear DNA, oligonucleotides, gDNA                                 | Bacterial culture                                            | dsDNA from agarose gels                                     |
| <b>Binding capacity</b>   | 5 µg                                                               | 100 µg                                                                                    | 5 µg                                                                                      | 20 µg                                                        | 5 µg                                                        |
| <b>Nucleic acid size</b>  | 50 bp–25 kb (oligonucleotide protocol: ssDNA >16 nt, dsDNA >12 nt) | 40 bp–25 kb (oligonucleotide protocol: ssDNA >12 nt, dsDNA >10 nt, gDNA protocol: ≥25 kb) | 50 bp–25 kb (oligonucleotide protocol: ssDNA ≥18 nt, dsDNA ≥14 nt, gDNA protocol: ≥25 kb) | up to 25 kb                                                  | 100 bp–25 kb                                                |
| <b>Elution volume</b>     | 5–20 µl                                                            | 50–200 µl                                                                                 | 25–50 µl                                                                                  | 30 µl                                                        | ≥ 5 µl                                                      |
| <b>Protocol time</b>      | 5 min                                                              | Approx. 10 min                                                                            | Approx. 20 min                                                                            | Approx. 10 min                                               | 10–15 min, depending on gel melting time                    |

## Genomic DNA and high molecular weight DNA isolation

NEB offers two approaches for the extraction and purification of gDNA: the Monarch Spin gDNA Purification Kit, which is a silica spin column-based process and the Monarch HMW DNA Extraction Kits, which utilize a novel glass bead-based process for purification of extremely high molecular weight DNA.

## gDNA input material



|                           | MONARCH SPIN gDNA EXTRACTION KIT                                                    | MONARCH HMW DNA EXTRACTION KIT FOR CELLS & BLOOD          | MONARCH HMW DNA EXTRACTION KIT FOR TISSUE                             |
|---------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Main specification</b> | Purify high-quality, genomic DNA from several sample types                          | Achieve DNA from cells & blood in the Megabase size range | Achieve DNA from tissue samples in the Megabase size range            |
| <b>NEB#</b>               | T3010S/L                                                                            | T3050S/L                                                  | T3060S/L                                                              |
| <b>Kit size</b>           | 50/150 preps                                                                        | 5/50 preps                                                | 5/50 preps                                                            |
| <b>Technology</b>         | Spin column                                                                         | Glass beads                                               | Glass beads                                                           |
| <b>Input material</b>     | Cells, blood, tissue, bacteria, yeast, saliva, buccal swabs, gDNA requiring cleanup | Cells, blood                                              | Tissue (e.g. mammalian, insect, amphibian, nematode), bacteria, yeast |
| <b>Binding capacity</b>   | 30 µg                                                                               | not limited by glass beads                                | not limited by glass beads                                            |
| <b>Nucleic acid size</b>  | up to 80 kb (peak size > 50 kb)                                                     | 100 kb to megabase range                                  | 100 kb to megabase range                                              |
| <b>Elution volume</b>     | ≥ 35 µl                                                                             | 100 µl                                                    | 100 µl                                                                |
| <b>Protocol time</b>      | Varies by sample type                                                               | 30 min for cells, 60 min for blood                        | 90 min                                                                |

“We’ve had great success with obtaining HMW DNA for long read sequencing from a variety of cell types, using less input and obtaining a comparable yield... It is straightforward and easy to use.”

— Inswasti Cahyani & Matt Loose,  
DeepSeq, University of Nottingham

# Migrate to Monarch

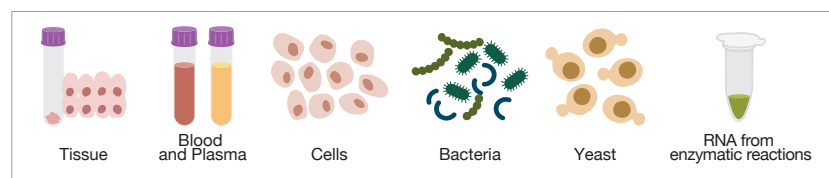


## Transform your RNA purification experience

### RNA isolation and purification

NEB provides high-performance, easy-to-use RNA cleanup kits using silica-based spin columns. Compared to traditional methods such as phenol/chloroform extraction, precipitation, or gel purification, spin columns offer a faster, user-friendly way to clean and concentrate RNA.

### RNA input material



|                           | MONARCH SPIN RNA ISOLATION KIT (MINI)                                           | MONARCH SPIN RNA CLEANUP KIT (10 µg)                             | MONARCH SPIN RNA CLEANUP KIT (50 µg)                             | MONARCH SPIN RNA CLEANUP KIT (500 µg)                                                           |
|---------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>Main specification</b> | Purify RNA from multiple sample types and elute in as little as 10 µl           | Efficiently purify and concentrate RNA after enzymatic reactions | Efficiently purify and concentrate RNA after enzymatic reactions | Efficiently purify and concentrate RNA from large-scale <i>in vitro</i> transcription reactions |
| <b>NEB#</b>               | T2110V/S/L                                                                      | T2030S/L                                                         | T2040S/L                                                         | T2050S/L                                                                                        |
| <b>Kit size</b>           | 10/50/200 preps                                                                 | 10/100 preps                                                     | 10/100 preps                                                     | 10/100 preps                                                                                    |
| <b>Technology</b>         | Spin column                                                                     | Spin column                                                      | Spin column                                                      | Spin column                                                                                     |
| <b>Input material</b>     | Cells, tissues (e.g. insect, mammalian), plants, bacteria, yeast, blood, plasma | RNA from enzymatic reactions                                     | RNA from enzymatic reactions                                     | RNA from large-scale <i>in vitro</i> transcription reactions                                    |
| <b>Binding capacity</b>   | 100 µg                                                                          | 10 µg                                                            | 50 µg                                                            | 500 µg                                                                                          |
| <b>Nucleic acid size</b>  | ≥20 nt total RNA (including small RNA, miRNA, mRNA, lncRNA, rRNA)               | ≥25 nt (modified protocol: ≥15 bp)                               | ≥25 nt (modified protocol: ≥15 bp)                               | ≥25 nt (modified protocol: ≥15 bp)                                                              |
| <b>Elution volume</b>     | ≥10 µl                                                                          | ≥6 µl                                                            | ≥20 µl                                                           | ≥50 µl                                                                                          |
| <b>Protocol time</b>      | Varies by sample type                                                           | 5 min                                                            | 5 min                                                            | 10–15 min, depending on elution incubation                                                      |

### Viral DNA and RNA isolation

The Monarch Mag Viral DNA/RNA Extraction Kit provides a rapid and reliable magnetic bead-based process for extracting viral nucleic acids from saliva and respiratory swab samples.



### RNA extraction & purification with NEB

Enjoy exclusive discounts on your purchase of NEB Monarch® RNA extraction and purification kits at UGAP.

For more information, visit [www.UGAP.fr](http://www.UGAP.fr).

|                           | MONARCH MAG VIRAL DNA/RNA EXTRACTION KIT                                          |
|---------------------------|-----------------------------------------------------------------------------------|
| <b>Main specification</b> | Isolate viral nucleic acids using magnetic beads                                  |
| <b>NEB#</b>               | T4010S/L/X                                                                        |
| <b>Kit size</b>           | 100/600/3×600 preps                                                               |
| <b>Technology</b>         | Magnetic beads                                                                    |
| <b>Input material</b>     | Viruses (enveloped and non-enveloped, dsDNA and ssRNA), saliva, respiratory swabs |
| <b>Binding capacity</b>   | 3 µg                                                                              |
| <b>Nucleic acid size</b>  | suitable for typical viral genome sizes                                           |
| <b>Elution volume</b>     | 33–100 µl                                                                         |
| <b>Protocol time</b>      | Varies by protocol                                                                |

### Tips for Successful RNA Extractions

- 1. Prevent RNase Activity:** Process samples quickly after harvest, use preservation reagents, and always ensure you are working in nuclease-free working environments.
- 2. Inactivate RNases after harvesting your sample:** Nucleases in your sample will lead to degradation, so inactivating them is essential.
- 3. Do not exceed recommended input amounts:** Buffer volumes are optimized for the recommended input amounts. Exceeding these can result in inefficient lysis and clog the column.
- 4. Ensure samples are properly homogenized/disrupted:** Samples should be disrupted and homogenized completely to release all RNA.
- 5. For sensitive applications, ensure proper gDNA removal:** gDNA is removed by the gDNA removal column (S2C) and subsequent on-column DNase I treatment.

# Listen up! The message is spreading



## Advance your RNA workflows with NEB

The versatility of RNA makes it a powerful tool in transforming how we understand, diagnose, and treat disease. Over the past several years, advances in RNA research have catalyzed breakthroughs in therapeutics, personalized medicine, molecular diagnostics, infectious disease research, and agricultural biology. Therefore, advanced tools for manipulation and analysis of mRNA are more important than ever.

For many years, NEB has been invested in the research and development of tools for the manipulation and analysis of mRNA. We offer a broad portfolio of reagents for purification, sequencing, detection, synthesis, and manipulation, all of which are vetted by our own research scientists in their work. Whether you are working in an academic or industrial setting, we have the products, services, and support that will help drive your research forward.

**RNA Purification**  
Transform your RNA purification experience with Monarch

**RNA Synthesis**  
Synthesize high-quality RNA with HiScribe

**RNA Sequencing**  
Achieve exceptional RNA Libraries from any sample with NEBNext

**RNA Detection**  
Optimize your RT-qPCR with Luna

### Request NEB Literature supporting your RNA workflows:



- RNA Technical guide
- Monarch RNA brochure
- RNA sequencing brochure
- Luna brochure
- RNA synthesis brochure
- RNA “Metro map” poster

[www.neb-online.fr/doc-request](http://www.neb-online.fr/doc-request)

### Avoiding RNase contamination

**SOURCES**

- Dust & air
- Skin & hair
- Aqueous solutions & reagents
- Most surfaces (doorknobs, keyboards)

**LABORATORY PRECAUTIONS**

- Wear laboratory gloves and change them often
- Use RNase-free certified, disposable plasticware and solutions
- Decontaminate glassware & plasticware
- Maintain a separate, clean surface for RNA work

**SOLUTION PREPARATION**

Diethylpyrocarbonate (DEPC) treatment:

1. Add 1 ml DEPC per liter of solution.
2. Stir for 1 hour.
3. Autoclave for 1 hour.

⊗ DEPC:

- Compounds with primary amine groups (e.g., Tris)
- Compounds that are not stable during autoclaving

Not using DEPC?

Prepare solution with Nuclease-free Water or Milli-Q® water

Dissolving solids:

- Use high-purity solids (e.g., DTT, nucleotides, manganese salts)
- Use autoclaved DEPC-treated or Milli-Q water
- Sterilize with a 0.22 µm filter

FEATURED  
PRODUCT

### RNase Inhibitor, Murine

- Specifically inhibits RNases A, B, and C
- Recombinant for improved resistance to oxidation
- Ideal for reactions where low DTT concentrations are required (e.g., Real-time PCR)
- Glycerol-free version available to support lyophilization and automation workflows



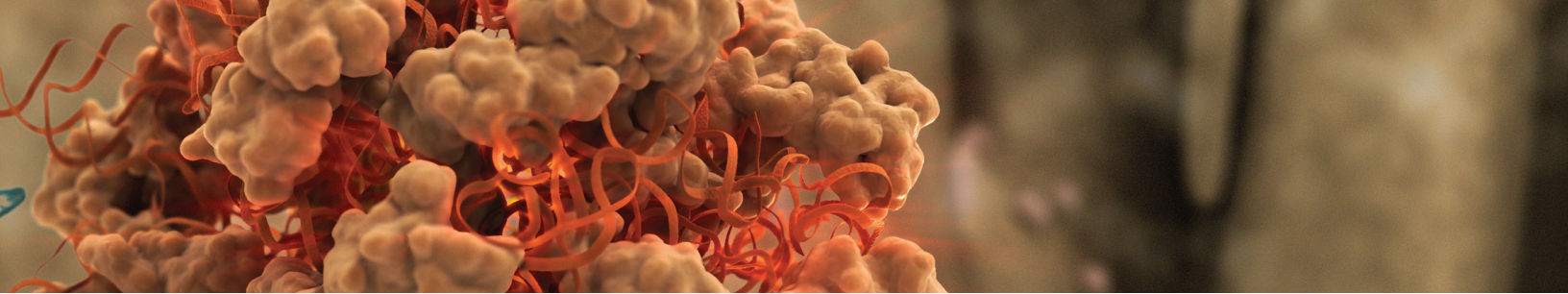
GMP-grade reagent also available.

Learn more at

[www.neb.com/GMP](http://www.neb.com/GMP)

### Ordering Information

| PRODUCT                                 | NEB #    | SIZE                   |
|-----------------------------------------|----------|------------------------|
| RNase Inhibitor, Murine                 | M0314S/L | 15,000/<br>3,000 units |
| RNase Inhibitor, Murine (Glycerol-free) | M0628S   | 3,000 units            |



# Synthesize high-quality RNA with HiScribe

New England Biolabs' reagents allow the synthesis of high-quality RNA – from template generation and transcription, to capping, tailing, and cleanup. Robust *in vitro* RNA synthesis requires optimization of each reaction component. NEB offers six *in vitro* RNA synthesis kits, all optimized to generate reproducible yields of quality RNA. Additionally, individual components can be purchased for *in vitro* transcription and mRNA capping.

**HiScribe T7 mRNA Kit with CleanCap Reagent AG (E2080):**  
Delivers highest-yield, natural Cap-1 mRNA with options for co- or post-transcriptional poly(A) tailing and streamlined cleanup via DNase I/LiCl.

**HiScribe T7 ARCA mRNA Kit with Tailing (E2060):**  
Enables co-transcriptional ARCA capping (Cap-0) with T7 RNA Polymerase plus enzymatic poly(A) addition, including DNase I/LiCl.

**HiScribe T7 ARCA mRNA Kit (E2065):** Provides flexible co-transcriptional ARCA capping (Cap-0) without Poly(A) Polymerase, letting you choose your preferred poly(A) tailing strategy.

**HiScribe T7 High Yield RNA Synthesis Kit (E2040):** Delivers robust, high-yield RNA synthesis across diverse template sizes with flexible protocols for challenging conditions and modified nucleotide incorporation.

**HiScribe T7 Quick High Yield RNA Synthesis Kit (E2050):** Enables fast, low-error RNA synthesis with a convenient master-mix format and included DNase I/LiCl for streamlined template removal and cleanup.

**HiScribe SP6 RNA Synthesis Kit (E2070):** Provides high-yield SP6-driven RNA synthesis with options for capped, labeled, or radiolabeled transcripts for versatile downstream applications.

## Your mRNA synthesis workflow with NEB solutions

| TEMPLATE GENERATION                                                                                |                                            | IN VITRO TRANSCRIPTION                                                              |                                                 | RNA CAPPING                                                                         | POLY(A) TAILING                   | RNA PURIFICATION                      |
|----------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------|
| <br>COMING SOON | Q5® Hot Start High-Fidelity DNA Polymerase | HiScribe® T7 mRNA Kit with CleanCap® Reagent AG                                     |                                                 |                                                                                     | <i>E. coli</i> Poly(A) Polymerase | Monarch® Spin RNA Cleanup Kit (10 µg) |
|                                                                                                    |                                            | HiScribe T7 ARCA mRNA Synthesis Kit (with tailing)                                  |                                                 |                                                                                     |                                   |                                       |
|                 | phi29 DNA Polymerase                       | HiScribe T7 ARCA mRNA Synthesis Kit                                                 |                                                 |                                                                                     |                                   | Monarch Spin RNA Cleanup Kit (50 µg)  |
|                 | TelN Protelomerase                         |  | HiScribe T7 High Yield RNA Synthesis Components |  | Faustovirus Capping Enzyme        | Monarch Spin RNA Cleanup Kit (500 µg) |
|                 | dNTP solution mixes                        |                                                                                     |                                                 |  | Vaccinia Capping System           |                                       |
|                 | BspQI*                                     |                                                                                     | HiScribe T7 Quick High Yield RNA Synthesis Kit  |  | mRNA Cap 2'-O-Methyltransferase   | Lithium Chloride                      |
|                 | NEBuffer™ 4                                |                                                                                     | HiScribe SP6 High Yield RNA Synthesis Kit       |                                                                                     | ARCA and other mRNA cap analogs   |                                       |
| DNA Assembly:<br>• NEBuilder HiFi DNA Assembly<br>• Golden Gate Assembly                           |                                            |                                                                                     | T3 & SP6 RNA Polymerases                        |  | S-Adenosylmethionine (SAM)        |                                       |
|                                                                                                    |                                            |  | T7 RNA Polymerase                               |                                                                                     |                                   |                                       |
|                                                                                                    |                                            |                                                                                     | Hi-T7 RNA Polymerase                            |                                                                                     |                                   |                                       |

## Ordering Information

| PRODUCT                                        | NEB #    | SIZE        |
|------------------------------------------------|----------|-------------|
| HiScribe T7 mRNA Kit with CleanCap Reagent AG  | E2080S/L | 20/100 rxns |
| HiScribe T7 ARCA mRNA Kit (with Tailing)       | E2060S   | 20 rxns     |
| HiScribe T7 ARCA mRNA Kit                      | E2065S   | 20 rxns     |
| HiScribe T7 High Yield RNA Synthesis Kit       | E2040S/L | 50/250 rxns |
| HiScribe T7 Quick High Yield RNA Synthesis Kit | E2050S/L | 50/250 rxns |
| HiScribe SP6 RNA Synthesis Kit                 | E2070S   | 50 rxns     |

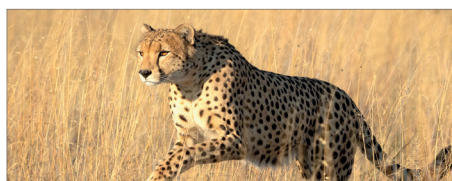


Learn more about products for your RNA-related workflow at [www.NEBrna.com](http://www.NEBrna.com)

# NGS Library Prep? We've got you covered

## Achieve exceptional RNA Libraries with NEBNext

The NEBNext suite of products supports sequencing of multiple types of RNAs, with sample prep tools that streamline workflows, minimize inputs, improve library yields and quality, and allow you to sequence relevant RNAs.



### NEBNext UltraExpress RNA Library Prep Kit

- Streamlined workflows
- For central applications and input amounts
- Save time, consumables, and costs
- Automation friendly



### NEBNext Ultra II Library Prep Kits for RNA

- Flexible, modular workflows
- For demanding samples with low or high input amounts
- Directional and non-directional workflow options



### NEBNext Low-bias Small RNA Library Prep Kit

- Analyze small RNA species without library prep-generated bias
- Simple and streamlined library prep workflow



### NEBNext Single Cell/Low Input RNA Library Prep Kit

- For single cell or ultra-low input
- Obtain full-length, uniform transcript coverage, regardless of input amount

### Scale your NGS output

NEBNext reagents have been automated for several applications on various liquid handling automation platforms.

#### Why NEBNext is ideal for automation

- Fewer components for easy setup
- Streamlined workflows reduce errors
- Lower bead use cuts cost per reaction
- Low input amounts still deliver strong sequencing results
- Robust reagents ensure reliable, high-yield libraries
- Reagent volumes automation compatible
- Modular design for maximum flexibility



For automated solutions for NEBNext reagents, visit [www.neb.com/automation](http://www.neb.com/automation)

### Ordering Information

| PRODUCT                                                                      | NEB #    | SIZE       |
|------------------------------------------------------------------------------|----------|------------|
| NEBNext UltraExpress RNA Library Prep Kit                                    | E3330S/L | 24/96 rxns |
| NEBNext Ultra II Directional RNA Library Prep Kit for Illumina               | E7760S/L | 24/96 rxns |
| NEBNext Ultra II Directional RNA Library Prep with Sample Purification Beads | E7765S/L | 24/96 rxns |
| NEBNext Ultra II RNA Library Prep Kit for Illumina                           | E7770S/L | 24/96 rxns |
| NEBNext Ultra II RNA Library Prep Kit with Sample Purification Beads         | E7775S/L | 24/96 rxns |
| NEBNext Low-bias Small RNA Library Prep Kit                                  | E3420S/L | 24/96 rxns |
| NEBNext Single Cell/Low Input RNA Library Prep Kit for Illumina              | E6420S/L | 24/96 rxns |



For the full NEBNext product portfolio, visit [www.NEBNext.com](http://www.NEBNext.com)



Interested in giving NEBNext a try?

**Request a free sample**



Did you know that many NEB products can be purchased in large volumes and custom formats?

Learn more at [www.neb.com/customizedsolutions](http://www.neb.com/customizedsolutions)

# Lighting the way



## Optimize your (RT-)qPCR with Luna

### Make a simpler choice

- Convenient master mix and supermix formats and user-friendly protocols simplify reaction setup
- Non-interfering, visible tracking dye eliminates pipetting errors
- Formulated with a unique passive reference dye, compatible across a wide variety of thermal cyclers



### RT-qPCR with NEB

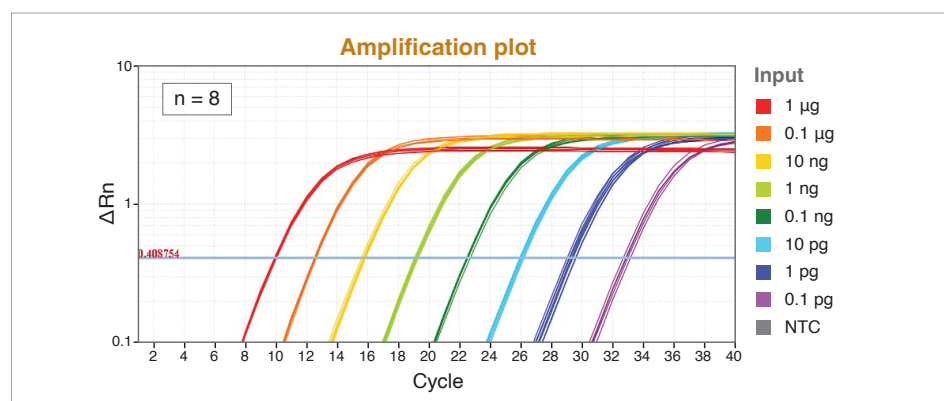
Enjoy exclusive discounts on your purchase of NEB Luna® (RT-)qPCR solutions at UGAP.

For more information, visit [www.UGAP.fr](http://www.UGAP.fr).

### Optimize your One-Step RT-qPCR

- Luna WarmStart RT paired with Hot Start *Taq* enables room temperature setup and stability
- 4X option allows for more sample input, increasing sensitivity
- Available in a lyophilized format

### Luna products offer exceptional sensitivity, reproducibility, and qPCR performance



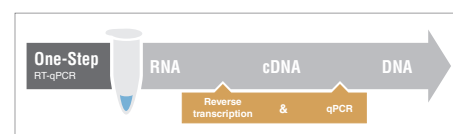
RT-qPCR targeting human GAPDH was performed using the Luna Universal One-Step RT-qPCR Kit over an 8-log range of input template concentrations (1 μg – 0.1 pg Jurkat total RNA) with 8 replicates at each concentration, following recommended protocols, including a 10-minute RT step at 55°C for the Luna WarmStart Reverse Transcriptase. NTC = non-template control.

### Ordering Information

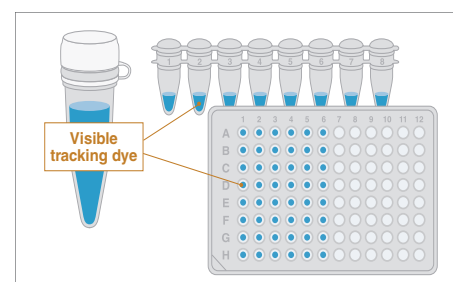
| PRODUCT                                              | NEB #        | SIZE                     |
|------------------------------------------------------|--------------|--------------------------|
| Luna Universal One-Step RT-qPCR Kit                  | E3005S/L/X/E | 200/500/1,000/2,500 rxns |
| Luna Universal Probe One-Step RT-qPCR Kit            | E3006S/L/X/E | 200/500/1,000/2,500 rxns |
| Luna Probe One-Step RT-qPCR Kit (No ROX)             | E3007E       | 2,500 rxns               |
| Luna Probe One-Step RT-qPCR 4X Mix with UDG          | M3019S/L/X/E | 200/500/1,000/2,000 rxns |
| Luna Probe One-Step RT-qPCR 4X Mix with UDG (No ROX) | M3029S/L/E   | 200/500/2,000 rxns       |
| LunaScript Multiplex One-Step RT-PCR Kit             | E1555S/L     | 50/250 rxns              |
| LyoPrime Luna Probe One-Step RT-qPCR Mix with UDG    | L4001S/P     | 120 rxns/ 1 x 96 wells   |

### Advantages

- Highest reliability and reproducibility
- Excellent sensitivity and accuracy on all templates (AT-rich, GC-rich,...)
- Simple reaction setup and fast protocols
- MIQE-Guideline validated
- Compatible with all qPCR machines



### Luna products feature a blue tracking dye eliminating pipetting errors



“The choice of One-step kit is critical for sensitivity and at the same time a major cost factor. We recommend the NEB Luna Universal Probe One-Step RT-qPCR Kit (E3007), which is attractively priced and performs among the most sensitive One-step kits we tested.”

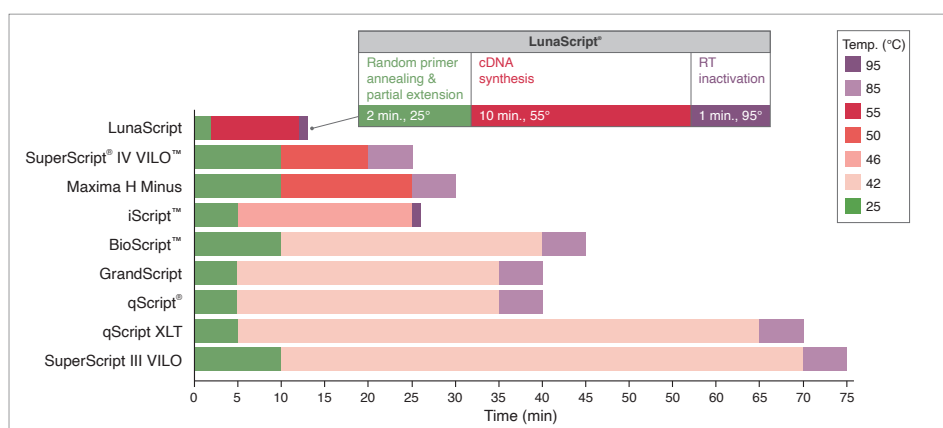
– VIENNA COVID-19 Detection Initiative (VCDI)

# Find the right Luna product for your application

## Speed up your Two-Step RT-qPCR

- LunaScript RT SuperMix is ideal for first strand cDNA synthesis with a fast 13-minute protocol
- Primer-free option enables flexibility of primers used for optimal cDNA synthesis

## The LunaScript RT SuperMix offers the shortest available first-strand cDNA synthesis protocol



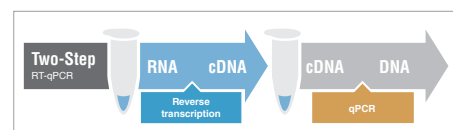
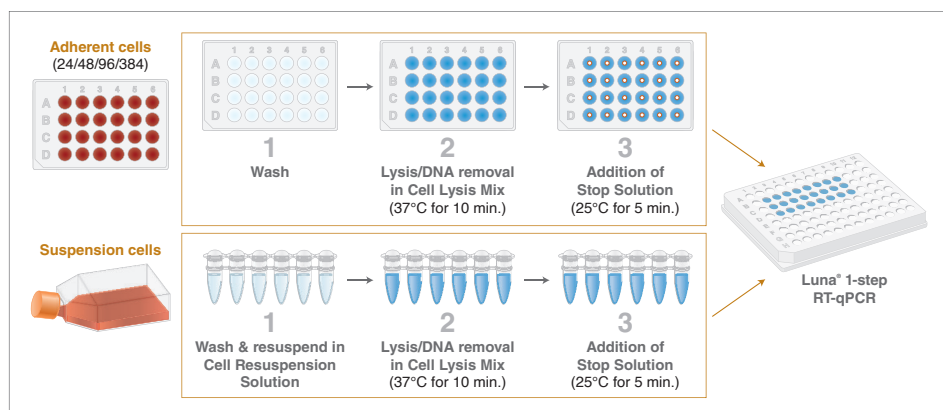
## Ordering Information

| PRODUCT                                    | NEB #        | SIZE                     |
|--------------------------------------------|--------------|--------------------------|
| Luna Universal qPCR Master Mix             | M3003S/L/X/E | 200/500/1,000/2,500 rxns |
| Luna Universal Probe qPCR Master Mix       | M3004S/L/X/E | 200/500/1,000/2,500 rxns |
| LunaScript RT Master Mix Kit (Primer-free) | E3025S/L     | 25/100 rxns              |
| LunaScript RT SuperMix Kit                 | E3010S/L     | 25/100 rxns              |
| LunaScript RT SuperMix                     | M3010L/X/E   | 100/500/2,500 rxns       |

## Go direct to RNA quantitation

- Direct RNA quantification from cell lines, eliminating the need for RNA extraction
- 15-minute sample preparation protocol prior to RT-qPCR

## Luna Cell Ready offers an easy, direct workflow



## Easy miniaturization of your qPCRs:

In this new application note, our technology partner Hamilton shows you how to establish assay miniaturization with low-volume qPCRs using MagPip technology and the Luna Universal qPCR Master Mix.

## Take advantage of the protocol to:



- boost throughput
- save reagents
- reduce plastic waste



Read the application note at  
[www.neb-online.de/qPCRAutomation](http://www.neb-online.de/qPCRAutomation)

## Ordering Information

| PRODUCT                                    | NEB #  | SIZE           |
|--------------------------------------------|--------|----------------|
| Luna Cell Ready One-Step RT-qPCR Kit       | E3030S | 100 + 500 rxns |
| Luna Cell Ready Probe One-Step RT-qPCR Kit | E3031S | 100 + 500 rxns |



Interested in giving Luna a try?  
**Request a free sample**



Learn more about Luna at  
[www.LUNAqPCR.com](http://www.LUNAqPCR.com)

Coming soon!

# Listen up! Our RNA mascot is on the loose and we need you to find him.



This spring, something playful is hiding across our RNA-related pages. Keep your eyes open! Foxes may be closer than you think. Find one, click it, and you could unlock your chance to win exclusive prizes.



Up to **100 exclusive prizes** will be available to win, like Fox pens, hats, socks, plushes, NEB Lego® sets\*.

## Don't miss the launch!



Subscribe to our newsletter and be notified as soon as the game goes live.  
[www.neb-online.fr/news](http://www.neb-online.fr/news)

\*Photos and content are non-contractual. Subject to change depending on stock availability.

## We'd love to see you in person!

Join us at scientific conferences and trade shows in France to talk about your research project and see how NEB can help to make your experiments a success.

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02**

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**JUN  
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**RNA Club Symposium**  
Bordeaux, France

**JUN  
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**Salon du Laboratoire Pasteur**  
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Versailles, France

Visit [www.neb.com/events](http://www.neb.com/events) to find out where we will be throughout 2026.

## New England Biolabs France

Genopole Campus 1, Bâtiment 6  
5 rue Henri Desbruyères  
91030 EVRY cedex

Toll Free: 0800 100 632  
[info.fr@neb.com](mailto:info.fr@neb.com)

### USA (Headquarter) New England Biolabs, Inc.

Telephone: (978) 927-5054  
Toll Free: (U.S. Orders) 1-800-632-5227  
Toll Free: (U.S. Tech) 1-800-632-7799

Fax: (978) 921-1350  
[info@neb.com](mailto:info@neb.com)

### United Kingdom New England Biolabs (UK), Ltd.

Call Free 0800 318486  
[info.uk@neb.com](mailto:info.uk@neb.com)

### Germany & Austria New England Biolabs GmbH

Free Call 0800/246 5227 (Germany)  
Free Call 00800/246 52277 (Austria)  
[info.de@neb.com](mailto:info.de@neb.com)

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