

Cherry blossoms as seen at NEB Headquarter, Ipswich

In the COVID-19 pandemic, scientists around the world are making rapid advances in diagnostics, epidemiology and surveillance, as well as clinical research.

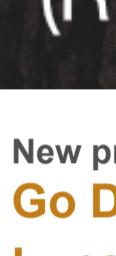
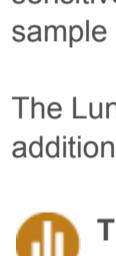
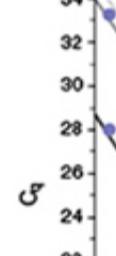
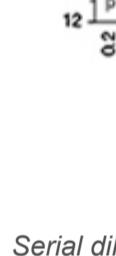
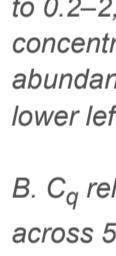
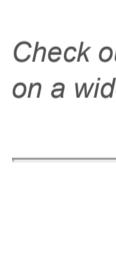
A fast-growing number of methods are being developed to address these applications, including:

- novel nucleic acid detection assays, including RT-LAMP assays
- assays combining isothermal amplification and CRISPR-based detection methods
- targeted SARS-CoV-2 sequencing
- host genomic sequencing
- metagenomic sequencing

NEB<sup>®</sup> products are finding new applications in these methods, and our trusted reagents provide performance that can be relied upon.

The use of [BioRxiv](#) and [MedRxiv](#) preprint servers, as well as [protocols.io](#), is facilitating wide sharing of these new methods, rapidly increasing knowledge in the scientific community and furthering collaboration.

NEB products are playing a role in several applications related to COVID-19 research. Examples include:

-  Colorimetric LAMP is a key part of Color's SARS-CoV-2 diagnostic assay
-  Point-of-care testing for COVID-19 using Sherlock diagnostics
-  CRISPR-Cas12a-based detection of SARS-CoV-2 using the DETECTR method
-  Luna RT-qPCR reagents used in resilient SARS-CoV-2 diagnostic workflows including viral heat inactivation
-  ARTIC protocols for Oxford Nanopore Technologies and Illumina<sup>®</sup> sequencing, which employ NEBNEXT modules and Q5<sup>®</sup> High-Fidelity DNA Polymerase
-  Methods for transcriptome profiling of virus, host and co-infections using NEBNEXT library preparation and RNA depletion reagents
-  Tracking of viral spread through a population, using NEBNEXT library preparation reagents

## Luna Universal (RT)-qPCR Reagents



### New products:

### Go Direct to RNA Quantitation Without Purification: Luna<sup>®</sup> Cell Lysis Ready Module and Kits

The [Luna Cell Ready One-Step RT-qPCR Kit](#) provides all the necessary components for direct RNA detection and quantitation from cultured mammalian and insect cell lines. Removing the need for traditional RNA extraction and purification, it offers a robust, sensitive, and convenient workflow for evaluating RNA expression levels in a 15-minute sample preparation protocol (prior to RT-qPCR).

The Luna Cell Ready portfolio includes kits for both [dye](#) and [probe](#) detection methods. In addition, the [lysis module](#) can be purchased separately.

 The Luna Cell Ready One-Step RT-qPCR kit offers reliable and precise RNA quantitation comparable to purified RNA across 5-log cell input.



Serial dilutions of A549 cells (100,000–10) were lysed in 50  $\mu$ l Luna Cell Ready lysis reactions using standard reaction conditions (10 min lysis at 37°C, 5 min inactivation at 25°C). Alternatively, RNA was purified using a column-based RNA extraction kit.

A. Genes of interest (GOI) were then quantitated using the Luna Universal One-Step RT-qPCR Kit with 1  $\mu$ l of cell lysate (closed circles) or purified RNA (empty circles) as input (equal to 0.2–2,000 cells in a 20  $\mu$ l RT-qPCR reaction), with duplicate reactions at each input concentration. Left: Detection of β-actin, an abundant target, and ARF3 and tubulin, two less abundant targets, across 5-logs of cell inputs. Efficiency (E) for each target is shown at the lower left corners of the panel.

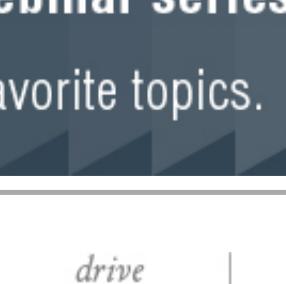
B.  $C_q$  relative to β-actin at each dilution ( $\Delta C_q$  (GOI)) was calculated from the data in (A) across 5-log cell inputs. The average  $C_q$ s are shown as bars.

[Learn More About Luna Products](#)

[Request latest qPCR Brochure from your local distributor!](#)

### The NEB<sup>®</sup> Podcast Series

## LESSONS from Lab & Life™



Looking for some new perspective during this challenging time? Perhaps something entertaining to listen to might help!

Check out the NEB podcast, *Lessons from Lab & Life* for insights from successful scientists on a wide range of topics.

 We have really big aspirations... you can imagine being able to detect flu at home or being able to know if you actually have a viral disease or bacterial cold and whether you need to go into the hospital or not. 

Learn more about how researchers at the McGovern Institute at MIT are using gene editing technology to detect RNA targets. Featuring:

- Omar Abudayyeh, Ph.D., McGovern Fellow, McGovern Institute at MIT
- Jonathan Gootenberg, Ph.D., McGovern Fellow, McGovern Institute at MIT

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 Rather than trying to understand biology and use that as a mechanism to program computers, I want to flip the arrow and take what I know about computing and use that to program biology. 

Hear from one of the founders of synthetic biology on how he became interested in the field, and where the future lies. Featuring:

- Ron Weiss, Professor of Biological Engineering, Massachusetts Institute of Technology

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Learn more about applications of PCR, including food safety testing and point of care diagnostics. Featuring:

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