One Workflow, Multiple Viruses

Solutions developed to simplify, accelerate and customize your PCR-based SARS-CoV-2 research and epidemiology

Sample to Insight

How can we continue confronting the challenges of SARS-CoV-2 and the COVID-19 pandemic?

According to some recent reports[1,2], the virus is expected to evolve further and we expect cases to rise in the fall and winter. This warrants the need for testing methods to compensate for current and emerging SARS-CoV-2 mutations, helping provide continued confidence in results now and into the future. Moreover, with increasing overlap in symptoms between the predominant SARS-CoV-2 variants and Influenza or Respiratory Syncytial Virus (RSV), the research challenge will be to confidently discriminate between the different co-circulating viruses.

Why partner with us?

High speed and throughput

- Time to result <1 hour
- Automation on your platform of choice*
- Process up to 250,000 samples a day (when working 24/7 and pooling, and using automated liquid handlers)

Simplicity

- Three-step end-to-end liquid-based workflow
- No separate RNA extraction step
- Compatibility with most cyclers and all non-fixation transport media

Cost-efficiency

- No specific equipment
- and software or personnel training
- High savings on plastics – less to buy and less to waste
- Affordable running cost per sample

Customization capabilities

- Future-proof SARS-CoV-2 detection (assay design using 6 targets within 4 genomic regions)
- Easy detection of Influenza A, B, RSV A/B and SARS-CoV-2 in one reaction
- Compatibility with swabs, saliva (incl. Lolli-PCR-Test) and gargle samples

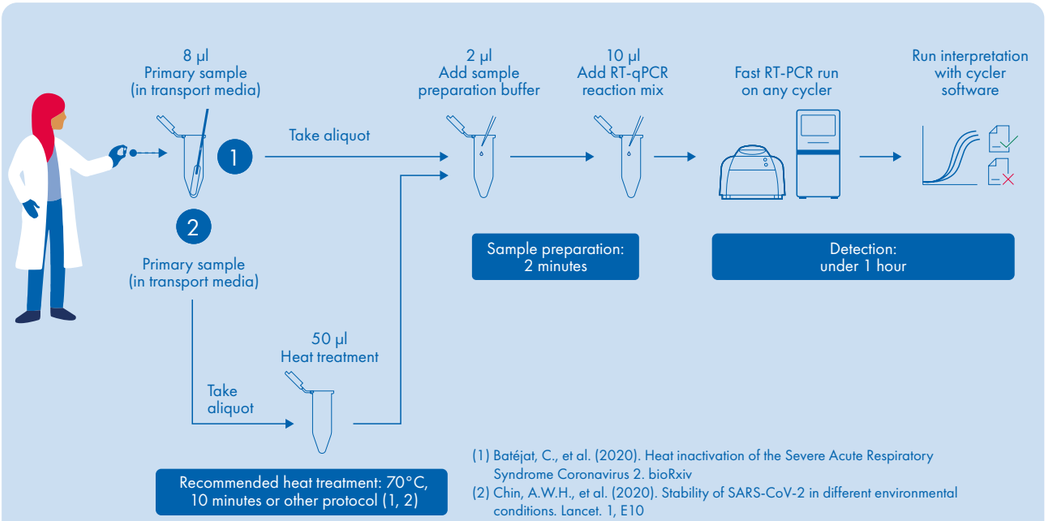
High assay performance

- Analytical sensitivity down to 8 copies/reaction
- Significantly reduced experiment repetition due to RNA protection and the unique liquid-based workflow
- High specificity for SARS-CoV-2 detection (does not detect SARS-CoV-1 or other *Sarbecovirus* species)

Accelerate your SARS-CoV-2 RNA detection with the QIAprep&amp® Viral RNA UM Kit

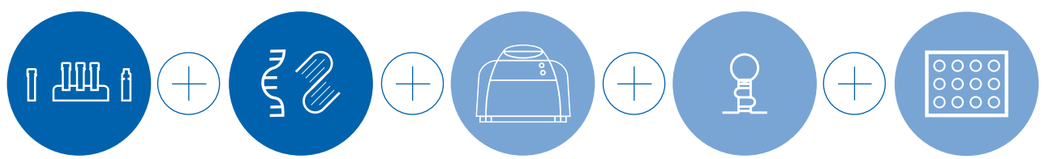
The QIAprep&amp Viral RNA UM Kit combines a unique liquid-based sample preparation step completed in two minutes with a one-step RT-qPCR in a single end-to-end procedure to deliver results in under one hour.

Follow a simple three-step protocol



(1) Batéjat, C., et al. (2020). Heat inactivation of the Severe Acute Respiratory Syndrome Coronavirus 2. bioRxiv
(2) Chin, A.W.H., et al. (2020). Stability of SARS-CoV-2 in different environmental conditions. Lancet. 1, E10

All you need for SARS-CoV-2 viral RNA detection are:



QIAprep&amp Viral RNA UM Kit

SARS-CoV-2 Neo or SARS-CoV-2 N1+N2 Assay Kit

Any real-time PCR cycler

Synthetic (SARS-CoV-2 or SARS-CoV-2 Neo Positive Control) or real positive material as an experimental positive control

PCR plates/tubes, sealing foil, pipette tips for any liquid handler or manual setup

Future-proof your SARS-CoV-2 detection

Since the beginning of the pandemic, more than 20 SARS-CoV-2 variants have been identified worldwide. For the Omicron lineage itself, five variants have been reported. The more recent BA.4 and BA.5 variants have shown global spread by mid-2022, and further mutation of the virus is more likely.[3]

The high mutation rate of the virus is a challenge for current testing methods.

According to a recent publication by Jüni et al (2022)[4], while 81% of Delta-positive samples could be identified with rapid antigen tests, only 37.1% of Omicron-positive samples could be successfully detected with the same method. As mutation rates increase, rapid antigen tests may become less specific.

PCR detection, which is the gold standard, might also be error-prone:

- S-gene dropout
  Many assays targeting the S gene failed Omicron detection[5]
- Risk of false positives
  Charité E-gene assay is not specific for SARS-CoV-2 and detects all Sarbecovirus species[6]
- Reduced sensitivity
  Charité RdRp Assay (2020) shows reduced sensitivity[7]

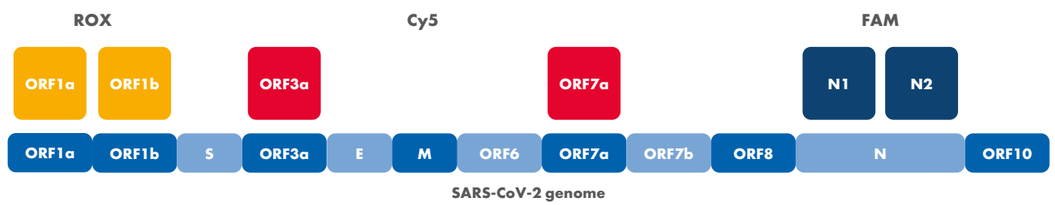
Confidence in results now and into the future – SARS-CoV-2 Neo Assay Kit

SARS-CoV-2 Neo Assay is a robust design of primers and probes for real-time RT-PCR detection of SARS-CoV-2 and its future variants with maximum specificity and minimum risk of dropouts. This means you only need to rely on a single assay for all future SARS-CoV-2 detections.

Features and benefits include:

High mutational tolerance

A unique combination of six targets across four genomic regions (ORF1a, ORF1b, ORF3a, ORF7a and N1 and N2 genes) ensures long-term reliable SARS-CoV-2 detection irrespective of the variant.



High specificity

Tests against the entire NCBI database and in the laboratory on a respiratory pathogen panel showed that only SARS-CoV-2 was detected.

High compatibility

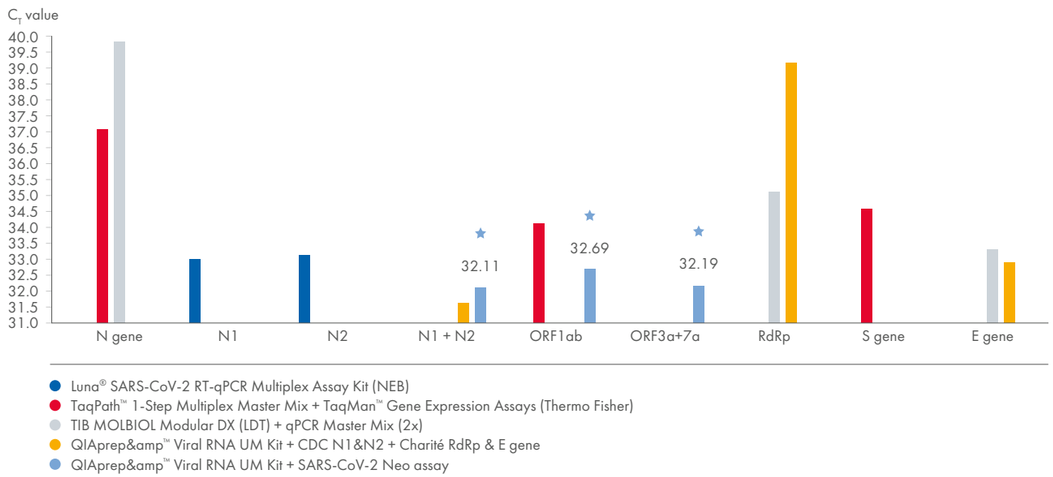
- With nasopharyngeal and oropharyngeal swabs, lolly (lollipop swab), gargle and saliva
- With cyclers having FAM, ROX and Cy5 detection channels
- With samples collected in all non-fixation transport media
- With wastewater samples*

Ease and convenience

- Ready-to-use assay mix (all-in-one tube)
- Can be used in combination with the QIAprep&amp Viral RNA UM Kit chemistry

Superior performance

Shows a very good sensitivity indicated by early C_t values

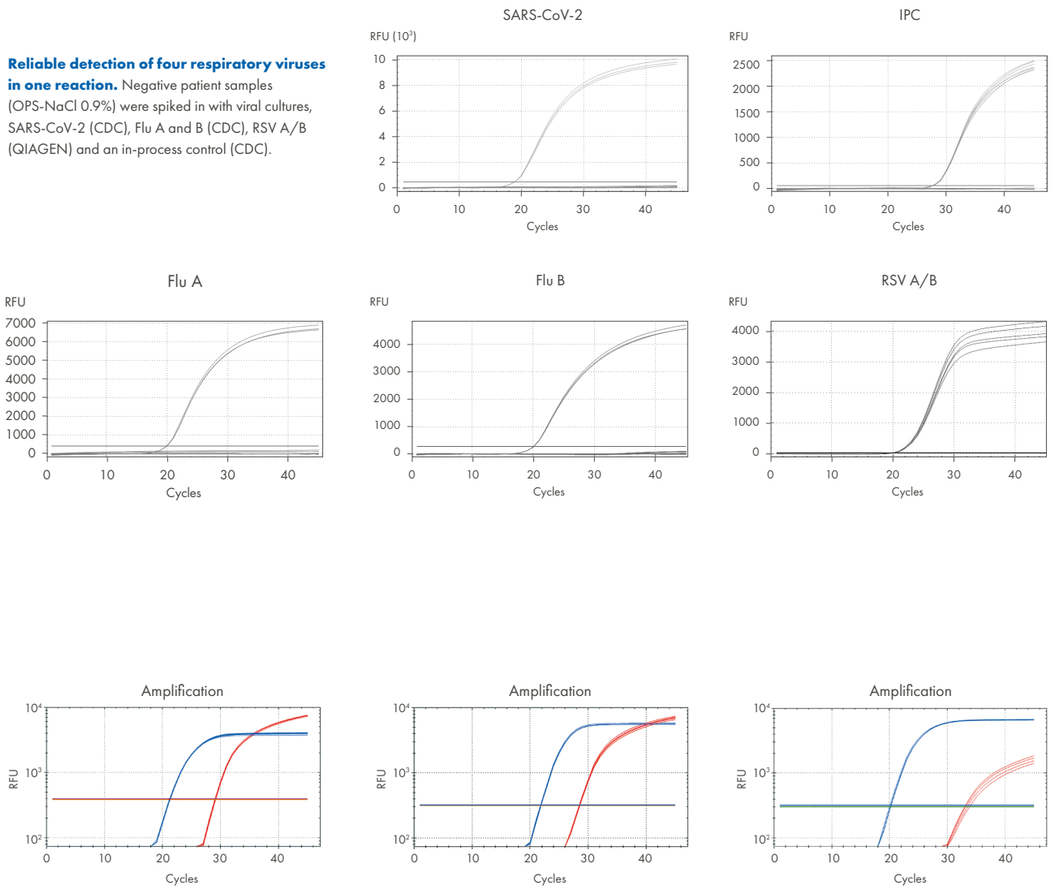


* For testing of wastewater samples, we recommend using QuantiNova Pathogen + IC Kit (Cat. No. 208654)

Expand your SARS-CoV-2 research to other respiratory viruses

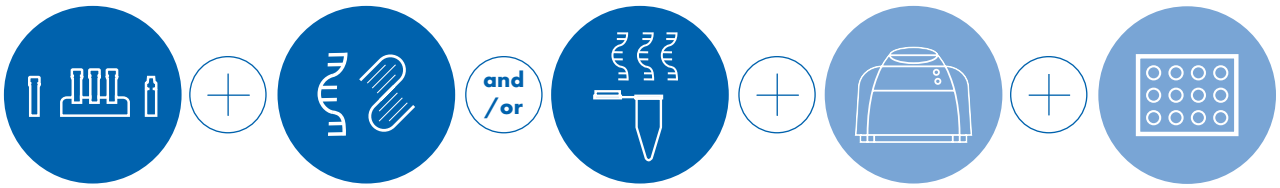
A highly specific and sensitive multitarget detection assay has been developed to provide confidence in differentiating between multiple respiratory viruses this flu season. In a single real-time PCR reaction using your current lab equipment, the multiplex assay can detect and discriminate between Influenza A, Influenza B, RSV A/B and SARS-CoV-2 in under one hour – all while maintaining the workflow simplicity and research costs.

Reliable detection of four respiratory viruses in one reaction. Negative patient samples (OPS-NaCl 0.9%) were spiked in with viral cultures, SARS-CoV-2 (CDC), Flu A and B (CDC), RSV A/B (QIAGEN) and an in-process control (CDC).



Reliable detection of low abundant targets in presence of high abundant targets in samples containing two viruses.
In vitro transcribed (IVT) RNA containing viral sequences diluted in NaCl 0.9% to assess co-infection.

All you need for SARS-CoV-2 detection and simultaneous detection of the seasonal respiratory viruses are:



QIAprep&amp Viral RNA UM Kit

SARS-CoV-2 N1+N2 Assay Kit

Multitarget detection assay for respiratory viruses

SARS-CoV-2, Flu A, Flu B, RSV A/B (in-process control included)

Any real-time PCR cycler

PCR plates/tubes, sealing foil, pipette tips for any liquid handler or manual setup

References

1. https://www.hsph.harvard.edu/news/hsph-in-the-news/the-latest-on-the-coronavirus/
2. https://www.ecdc.europa.eu/en/covid-19/situation-updates
3. Cao, Y., Yisimayi, A., Jian, F. et al. BA.2.12.1, BA.4 and BA.5 escape antibodies elicited by Omicron infection. Nature 608, 593–602 (2022)
4. https://covid19-sciencetable.ca/wp-content/uploads/2022/02/Use-of-Rapid-Antigen-Tests-during-the-Omicron-Wave_published_20220211.pdf
5. www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/sars-cov-2-viral-mutations-impact-covid-19-tests#omicron
6. Corman, V. M. et al. (2020). Detection of 2019 novel coronavirus (2019-nCoV) by real-time RT-PCR. Euro Surveill. 25(3), 2000045
7. Muenchhoff, M. et al. (2020). Multicentre comparison of quantitative PCR-based assays to detect SARS-CoV-2, Germany, Euro Surveill. 25(24), 2001057

To order the QIAprep&amp Viral RNA UM Kit, visit:
www.qiagen.com/qiaprepamp-viral-rna-um-kit

To order the SARS-CoV-2 N1+N2 Assay Kit, visit: **www.qiagen.com/sars-cov-2-n1n2-assay-kit**
To order the SARS-CoV-2 Neo Assay Kit, visit: **www.qiagen.com/sars-cov-2-neo-assay**

To order the multitarget detection assay for respiratory viruses, visit our partner biomers.net:
www.biomers.net/products/Catalog_Products/Multitarget_Assay_QIAGEN

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