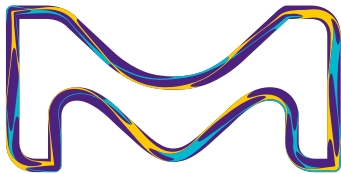
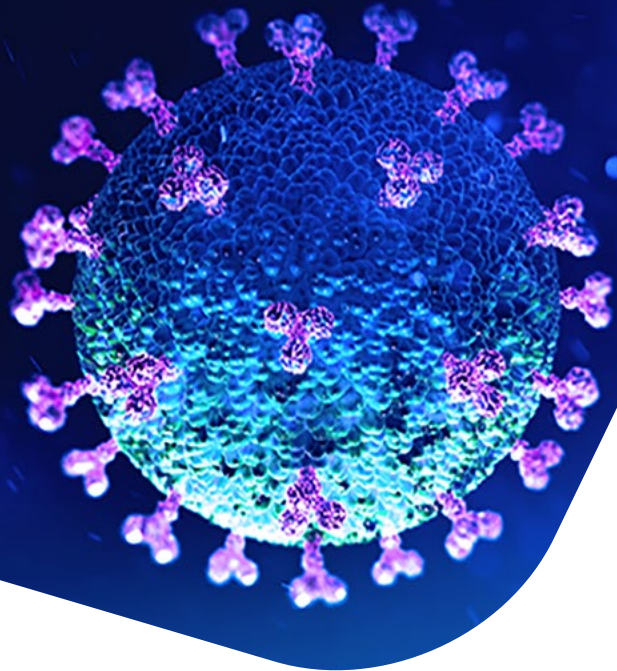


# NEWS on diagnostics

2021 Special Edition COVID-19



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## Expediting Your COVID-19 Response, Vaccine Research, and Therapeutic Development.

As a global life science supplier, we are here to help in the response to COVID-19. This volume of News on Diagnostics expands on the previous COVID-19 Extra-Ordinary Special Edition from 2020 and details the most recent support that is available from Merck on this important subject.

We remain dedicated to supplying our customers in all markets and providing collaboration to the scientific efforts under way around the world, with products and services that support both the detection of COVID-19, and the development of vaccines and therapies.

## Safety & labware

### ATP testing and sanitation

Recent studies from the NIH showed that viable viruses can be detected after 2-3 days. The MVP Icon® is a quick and easy-to-use system to check effectiveness of cleaning and disinfection procedures, even if viruses like SARS-CoV-2 are not directly measured. The MVP ICON® instrument measures the amount of adenosine triphosphate (ATP) in surface samples, an indicator of environmental contamination. Results are obtained in less than a minute and securely documented for subsequent evaluation. The MVP Icon® instrument helps you and your staff in a fast and easy way to monitor the success of [cleaning and disinfection procedures](#).



### Labware

Our Labware partner brands are chosen to bring customers the best products from around the industry with easy access and seamless ordering for all your PCR and RT-PCR needs.

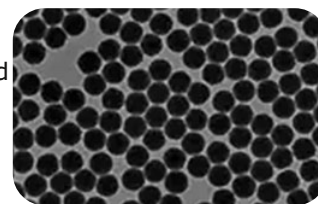
## Air monitoring for chemical disinfectant exposures

Applying cleaning agents such as chemical disinfectants and solvents to various work surfaces may release harmful chemical vapours and fumes and expose the employee to an inhalation risk from these hazardous chemicals. While workers wear personal protective equipment (PPE) to protect themselves from an exposure to the virus, it may not be suitable and effective in preventing an inhalation exposure from these chemical cleaning agents. Learn more about our products for disinfectant exposure monitoring by visiting our [application page](#).



## Microspheres & nanoparticles

\*New\* Estapor® **Europium Fluorescent Microspheres** for enhanced quantitative lateral flow assay development have significant improvement in sensitivity due to longer Stokes shift, reduced background noise, and enhanced quantum yield. Their carboxylated surface (-COOH) makes for easy protein conjugation. We also offer 300-500 nm COOH-Fluorescent microspheres, COOH-Dyed microspheres and magnetic microspheres for automated immunoassay platforms.



TEM analysis of Estapor® Europium Microspheres showing sphere uniformity

Learn more: [SigmaAldrich.com/covid19](https://SigmaAldrich.com/covid19)

## Antibodies & antigens

We have a host of new antibodies and antigens for SARS-CoV-2 to help support your research. These include:

- \*New\* Antibodies for Viral Antigens
- \*New\* Mouse monoclonal anti-SARS-CoV-2 nucleocapsid antibody clones tested for use in Lateral Flow Assay and ELISA.
- \*New\* SARS-CoV-2 Antigens
- \*New\* 2019nCoV Nucleocapsid full-length antigens tested for use in Lateral Flow Assay.

You can find out more about these products [here](#).

## COVID-19 Proficiency Testing

This proficiency testing sample is produced in accordance with ISO/IEC 17043:2010. All information regarding the use of this material can be found in the reporting packet which will be available to download at [Supelco-PT.com](https://Supelco-PT.com).

### Preparation Note

This "SARS-CoV-2 Proficiency Testing Kit" contains 5 samples "SARS-CoV-2 Sample A" through "E". Each of these tubes contain for the PCR testing relevant CDC and WHO consensus gene sequence regions in a range from 0 to 500'000 copies: RdRp, N (Nucleocapsid, CDC-N1, CDC-N2, CDC-N3, Thailand, Japan), E (Envelope), S (Spike). Levels and positive / negative assignments of the individual tubes are unknown.

This is a Quick-Turn Study - (non-scheduled proficiency test that is available at any time)

**Analyte:** COVID Positive Presence/Absence SARS-CoV-2 CDC and WHO consensus gene sequence.

N1 Gene 0-500000 copies	N Gene-Japan 0-500000 copies
N2 Gene 0-500000 copies	S Gene 0-500000 copies
N3 Gene 0-500000 copies	E Gene 0-500000 copies
N Gene-Thailand 0-500000 copies	RdRP Gene 0-500000 copies

See more information about this product [here](#)

## Virus/host protein analysis

Vital tools for analyzing virus and host proteins include the Duolink™ assay, Covidy™ coronavirus protease substrates, industry-leading reagents for protein separation, and tools for mass spectrometry.

### Substrates for Coronavirus protease research

The coronavirus main protease (Mpro), plays a central role in viral gene expression and replication as the agent of proteolytic processing of replicase polyproteins, making it an opportune target for anti-CoV drug development. The inhibition of similar proteases has been an efficacious strategy in the treatment of HIV and hepatitis C, confirming the potential of protease inhibitors for the treatment of viral infections. **Covidy™** peptide substrates are compatible with high-throughput handling systems.



## Protein-protein interaction analysis/PLA

Protein-protein interaction studies have been recently identified as important for SARS-CoV-2 research. The **Duolink™ PLA** (Proximity Ligation Assay) can be used to confirm endogenous protein-protein interaction in cells and tissues with a microscopy or flow cytometry readout.



### Viral protein extraction and separation tools

Affinity gels and columns, plus ready-to-use buffer for cell lysis provide rapid extraction of viral proteins on accelerated timelines, with accurate results. [Learn](#) how [western blot can be used to confirm virus purification](#).

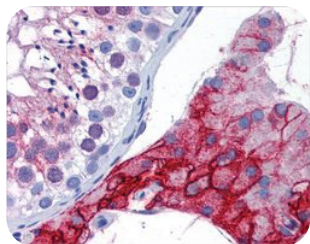
### HPLC/UHPLC and Mass Spectrometry

Current research related to viruses relies increasingly on protein analysis by (U)HPLC and mass spectrometry (MS), including MALDI (Matrix Assisted Laser Desorption Ionization). Our complete solutions for UHPLC, HPLC and MS analysis include columns and solvents optimized for these techniques.

Read archived issues of our Analytix-Reporter newsletter & sign up for future editions [here](#)

## Virus attachment & entry

When a viral outbreak occurs, determining the mechanism of host cell attachment and entry is a priority. SARS-CoV-2 requires the host ACE-2 receptor for entry and exploits the serine protease TMPRSS2 for spike protein priming.



We have collated the various cell lines for viral propagation and such unique *in vitro* models of the human respiratory epithelium as the 16HBE14o- line. Antibodies and small molecules specific for SARS-

CoV-2 include ZooMAb® recombinant monoclonal and chimeric antibodies.

- Cell Lines for virus propagation and respiratory models
- Antibodies and small molecules for SARS-CoV-2 and Coronavirus research
- ZooMAb® recombinant monoclonal SARS-CoV-1/2 antibodies
- ACE-2 enzymatic activity and inhibitor screening kits.
- More information is available at [SigmaAldrich.com/covid-19](https://www.sigmaaldrich.com/covid-19).

## Gene Editing

We have numerous reagents available for shRNA or CRISPR approaches for knockdown / knockout of the ACE2 receptor and other genes relevant to SARS-CoV-2. These are available in plasmid, lentiviral and synthetic formats. For additional information on viral gene editing, please visit our advanced [genomics page](#).

[Explore our Functional Genomics CRISPR and RNAi Libraries](#) to find screening tools to determine

which genes make cells more susceptible or resistant to COVID-19 infection, replication, and progression. These tools facilitate research into the development of genetic tests that can be used as secondary diagnostics when assessing predisposition for COVID-19 complications, as well as the risk of infection.

### Need more help?

If you have additional questions regarding our products relevant to SARS-CoV-2 and the COVID-19 response, we have technical experts prioritised to help.

In Europe, please eMail: [COVID\\_19@merckgroup.com](mailto:COVID_19@merckgroup.com)

For support in your local language you can find the contact information here

