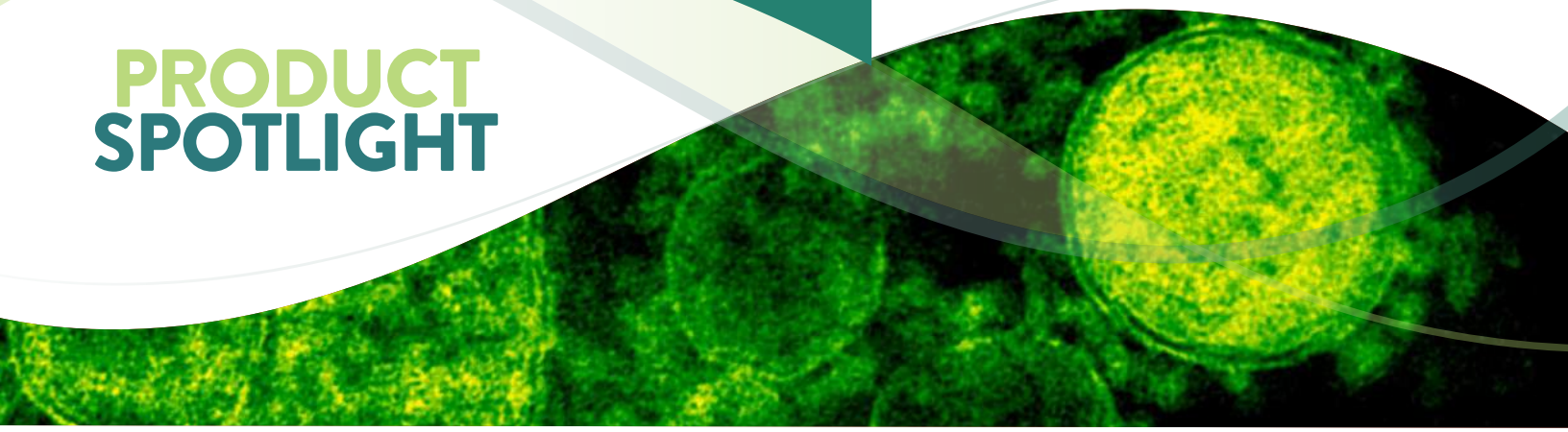
ATCC

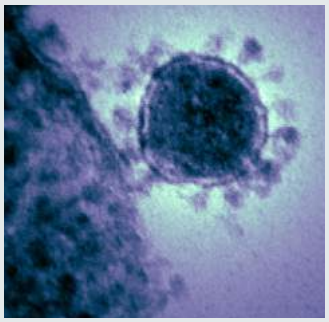
PRODUCT SPOTLIGHT



CORONAVIRUS RESEARCH MATERIALS

CREDIBLE SOLUTIONS FOR CRITICAL PUBLIC HEALTH EMERGENCIES

The outbreak of severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2) has put the health and safety of the global community at risk. With the virus continuing to spread and the number of confirmed cases and deaths rising, the World Health Organization has declared the outbreak a public health emergency of international concern. As in previous public health emergencies such as Zika, SARS, MERS, and the H1N1 2009 pandemic, ATCC stands ready to partner with the dedicated scientists working toward preventing and containing this devastating outbreak.

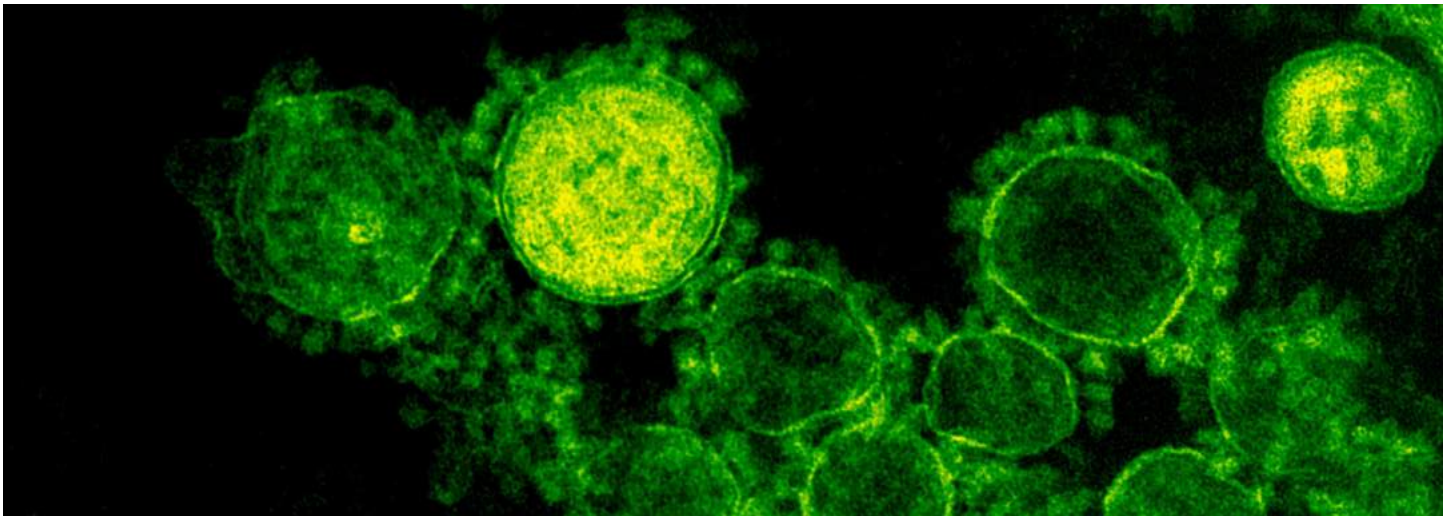


HEAT-INACTIVATED SARS-COV-2

When developing a novel detection assay, researchers need access to relevant positive controls to ensure the reliability and accuracy of their results. To meet this need, ATCC has developed heat-inactivated preparations of the Washington state strain and the Alpha, Beta, Delta, and Omicron variant strains.

- Confirmed to be inviable and non-replicative
- Quantitated by ddPCR™
- Useful for assays that include an extraction step

Order your preparation today at www.atcc.org/Coronavirus



MONOCLONAL ANTI-SARS-COV-2 SPIKE GLYCOPROTEIN RECEPTOR BINDING DOMAIN

We have developed monoclonal antibodies prepared against the spike glycoprotein receptor binding domain (RBD) of SARS-CoV-2. These ten different preparations were purified from hybridoma supernatant by protein G affinity chromatography.

Explore our antibodies today at www.atcc.org/Coronavirus.

POLYCLONAL ANTI-SARS-COV-2 SPIKE GLYCOPROTEIN

We have developed a rabbit polyclonal antibody prepared against the spike glycoprotein of SARS-CoV-2 strain Wuhan-Hu-1 (ATCC® VR-1997™). This preparation was ammonium sulfate precipitated from pooled rabbit serum and purified by protein G affinity chromatography. Get yours today at www.atcc.org/SARSAntibody.

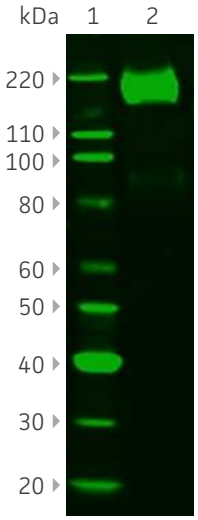


Figure 1: Western blot analysis. Analysis was performed using 0.5µg SARS-CoV-2 S glycoprotein (ACROBiosystems), 1:15,000 dilution of ATCC VR-1997, and 1:10,000 dilution of anti-rabbit IRDye® conjugate (LI-COR Biosciences). Lane 1: MagicMark™ XP Protein Standard (Thermo Fisher Scientific). Lane 2: SARS-CoV-2 S Glycoprotein.

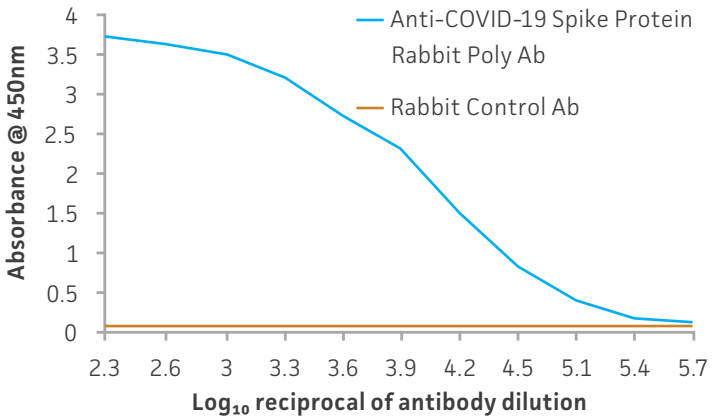
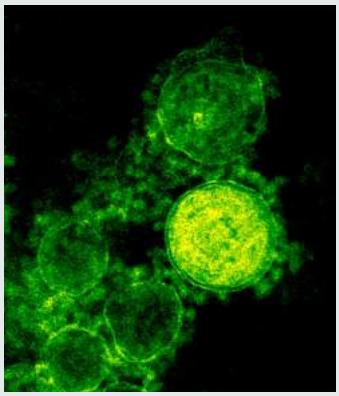


Figure 2: Indirect ELISA. Analysis was performed using 1 µg/mL SARS-CoV-2 S glycoprotein (ACROBiosystems), 1:250 to 1:512,000 dilution of ATCC VR-1997, and 1:10,000 dilution of anti-rabbit HRP conjugate. The polyclonal antibody was also reactive to Human coronavirus HKU1 S glycoprotein.



GENOMIC RNA FOR SARS-COV-2

Credible reference materials are an essential component of basic research and diagnostic development. That's why ATCC has made it a priority to provide genomic RNA from strains sourced from infected patients in Washington (2019-nCoV/USA-WA1/2020), California (Alpha variant), Georgia (Omicron variant), Maryland (Delta and Beta variants), Hong Kong (2019-nCoV/Hong Kong/VM20001061/2020), Italy (2019-nCoV/ Italy-INMI1), and Germany (Germany/ BavPat1/2020).

- Whole-genome sequences available on the ATCC Genome Portal
- Prepared using methods known to inactivate viruses
- Suitable for RT-PCR or other RNA-based assays

Discover more about these reference materials at www.atcc.org/Coronavirus.

SYNTHETIC MOLECULAR STANDARDS FOR SARS-COV-2

The pathogenic nature and transmission dynamics of SARS-CoV-2 has necessitated that the utmost care should be taken when handling the virus. To help ensure the safety of laboratory researchers, ATCC has developed four quantitative synthetic molecular standards for use as controls in the development of assays designed to detect and quantify SARS-CoV-2. Because these standards are synthetically derived, they eliminate the need to culture viruses in the laboratory and they are safe to use under biosafety level 1 conditions. Further, SARS-CoV-2 construct 1 is compatible with the nucleocapsid-targeted real-time RT-PCR primer and probe sets developed by the CDC.

SARS-CoV-2 Construct 1
ATCC® VR-3276SD™
Compatible with the CDC assay

SARS-CoV-2 Construct 2
ATCC® VR-3277SD™

SARS-CoV-2 Construct 3
ATCC® VR-3278SD™

SARS-CoV-2 Construct 4
ATCC® VR-3279SD™

Table 1: Synthetic SARS-CoV-2 RNA

ATCC® No.	Description	Compatible assays
VR-3276SD™	Quantitative Synthetic SARS-CoV-2 RNA containing portions of ORF1ab, N, E, nsp12 (RdRp), and ORF1b-nsp14 genes	China CDC Primers and probes for detection 2019-nCoV (24 January 2020) Diagnostic detection of Wuhan coronavirus 2019 by real-time RT-PCR – Charité, Berlin Germany (17 January 2020) Detection of 2019 novel coronavirus (2019-nCoV) in suspected human cases by RT-PCR – Hong Kong University (23 January 2020) PCR and sequencing protocol for 2019-nCoV - Department of Medical Sciences, Ministry of Public Health, Thailand (Updated 28 January 2020) US CDC Real-Time RT-PCR Panel for Detection 2019-Novel Coronavirus (28 January 2020) US CDC panel primer and probes– U.S. CDC, USA (28 January 2020)
VR-3277SD™	Quantitative Synthetic SARS-CoV-2 RNA: containing a portion of Spike 5' end gene.	Detection of WN-Human1 sequence from clinical specimen. – National Institute of Infectious Diseases Japan (17 January 2020)
VR-3278SD™	Quantitative Synthetic SARS-CoV-2 RNA: containing a portion of Spike 3' end gene.	PCR and sequencing protocols for 2019-nCoV- National Institute of Infectious Diseases Japan (24 January 2020)
VR-3279SD™	Quantitative Synthetic SARS-CoV-2 RNA containing the portion of nsp9 and nsp12 (RdRp) genes	RT-PCR assays for the detection of SARS-CoV-2 with RdRp - Institut Pasteur, Paris (2 March 2020) Diagnostic detection of Wuhan coronavirus 2019 by real-time RT-PCR – Charité, Berlin Germany (17 January 2020)

CORONAVIRUS RESEARCH MATERIALS

Having access to a variety of coronavirus strains is essential for establishing the inclusivity and exclusivity of a novel assay. To support this need, ATCC provides viral strains and nucleic acids representing alphacoronaviruses and betacoronaviruses known to cause disease in humans. Explore our complete collection of research materials at www.atcc.org/coronavirus.

Table 2: Coronavirus research materials

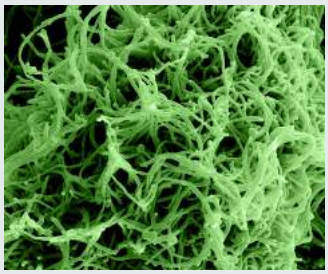
ATCC® No.	Product Description
Viral strains	
VR-1986HK™	Heat-inactivated SARS-CoV-2 strain 2019-n-CoV/USA-WA1/2020
VR-3326HK™	Heat-inactivated SARS-CoV-2 strain USA/CA_CDC_5574/2020 (variant B.1.1.7)
VR-3327HK™	Heat-inactivated SARS-CoV-2 strain USA/MD-HP01542/2021 (variant B.1.351)
VR-3342HK™	Heat-inactivated SARS-CoV-2 strain USA/MD-HP05285/2001 (Delta variant)
VR-3347HK™	Heat-inactivated SARS-CoV-2 strain USA/GA-EHC-2811C/2021 (Omicron variant)
VR-3378HK™	Heat-inactivated SARS-CoV-2 strain USA/COR-22-063113/2022 (Omicron variant, lineage BA.5)
VR-1558™	Betacoronavirus 1 strain OC43
VR-740™	Human coronavirus 229E
Genomic RNA	
VR-1992D™	Quantitative genomic RNA from SARS-CoV-2 strain 2019-nCoV/Italy/INMI1
VR-1986D™	Quantitative genomic RNA from SARS-CoV-2 strain 2019-nCoV/USA-WA1/2020
VR-1994D™	Quantitative genomic RNA from SARS-CoV-2 strain Germany/BavPat1/2020
VR-1991D™	Quantitative genomic RNA from SARS-CoV-2 strain Hong Kong/VM20001061/2020
VR-3326D™	Quantitative genomic RNA from SARS-CoV-2 strain USA/CA_CDC_5574/2020 (variant B.1.1.7)
VR-3327D™	Quantitative genomic RNA from SARS-CoV-2 strain USA/MD-HP01542/2021 (variant B.1.351)
VR-3342D™	Quantitative genomic RNA from SARS-CoV-2 strain USA/MD-HP05285/2001 (Delta variant)
VR-3347D™	Quantitative genomic RNA from SARS-CoV-2 strain USA/GA-EHC-2811C/2021 (Omicron variant)
VR-1558DQ™	Quantitative Genomic RNA from Betacoronavirus 1 OC43
VR-740DQ™	Quantitative Genomic RNA from Human coronavirus 229E
VR-1558D™	RNA from Betacoronavirus 1 OC43
VR-740D™	RNA from Human coronavirus 229E
Synthetic RNA	
VR-3262SD™	Quantitative Synthetic Human coronavirus HKU1 RNA
VR-3263SD™	Quantitative Synthetic Human coronavirus NL63 RNA
VR-3248SD™	Quantitative Synthetic Middle East respiratory syndrome coronavirus (MERS-CoV) RNA
VR-3280SD™	Quantitative Synthetic SARS-CoV [2003] RNA
VR-3278SD™	Quantitative Synthetic SARS-CoV-2 RNA (3' portion of S gene)
VR-3277SD™	Quantitative Synthetic SARS-CoV-2 RNA (5' portion of S gene)
VR-3279SD™	Quantitative Synthetic SARS-CoV-2 RNA (nsp9, nsp12 [RdRp])
VR-3276SD™	Quantitative Synthetic SARS-CoV-2 RNA (portions of ORF 1ab, E, N genes)
Antibodies	
VR-1997™	Polyclonal Anti-SARS-CoV-2 Spike Glycoprotein
VR-3328™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP1B3
VR-3329™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP1B11
VR-3330™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP1C3
VR-3331™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP1D10
VR-3332™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP1E6
VR-3333™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP1F2
VR-3334™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP2C2
VR-3335™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP2C7
VR-3336™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP2E7
VR-3337™	Monoclonal Anti-SARS-CoV-2 Spike Glycoprotein Receptor Binding Domain, Clone 2TP2F2

CELL LINES FOR SARS-COV-2 PROPAGATION

To develop new vaccines or test antiviral compounds, researchers need access to virus isolates. However, during the outbreak of a novel virus like SARS-CoV-2, it can be challenging to determine which propagation host is ideal for successful viral replication. In a recent study by Harcourt J, *et al.*, it was discovered that SARS-CoV-2 can replicate to a high titer in Vero CCL-81 and Vero E6 cells in the absence of trypsin. These cell lines and the media needed to cultivate them are available at ATCC—explore our collection today.

Table 3:

ATCC® No.	Product Description
HTB-37™	Caco-2 [Caco2]
HTB-55™	Calu-3
CCL-244™	HCT-8
CCL-171™	MRC-5
CCL-81™	Vero
CRL-1586™	Vero C1008 [Vero 76, clone E6, Vero E6]
CCL-81-VHG™	Vero.STAT1 KO



CELL LINES FOR ENHANCED VIRUS PRODUCTION

The continual spread of deadly viruses necessitates the development of novel prevention and treatment options. However, the development of a new antiviral vaccine can be challenged by low-yielding manufacturing processes. To address this, ATCC used CRISPR/Cas9 gene-editing technology to develop STAT1 knockout cell lines capable of producing high-titer viral stocks.

Discover how these advanced biological models can be used in your vaccine development research at www.atcc.org/Vaccine.

EXPLORE OUR CORONAVIRUS RESEARCH MATERIALS AT WWW.ATCC.ORG/CORONAVIRUS

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