

**ACCELERATED EMERGENCY USE AUTHORIZATION (EUA) TEMPLATE**  
**FOR SARS-COV-2 THAT CAUSES CORONAVIRUS DISEASE (COVID-19)**  
**MOLECULAR TESTING OF RESPIRATORY SPECIMENS IN CLIA**  
**CERTIFIED HIGH-COMPLEXITY LABORATORIES**

**GENERAL INFORMATION ABOUT THIS TEMPLATE**

- This EUA interactive review template (EUA template) is only for use by CLIA certified high-complexity laboratories with experience developing and validating molecular diagnostics for viral pathogens. Use of the template is applicable only for testing of respiratory specimens, e.g., nasopharyngeal, sputum, and BAL specimens.
- Text highlighted in yellow with brackets [***Text***] should be completed by the laboratory/sponsor. The remaining text should be unchanged. Text in ***italic bold*** outlines Food and Drug Administration (FDA) suggestions and clarifications.
- If authorized, the EUA means that this SARS-CoV-2 IVD is temporarily authorized for use until further notice, the public health emergency is terminated or the EUA is revoked by the FDA. Additional recommendations regarding Emergency Use Authorization may be communicated as additional information regarding COVID-19 emerges.
- This template must be completed and submitted within 15 business days following completion of assay validation and FDA notification in accordance with the Interim FDA Guidance available at <https://www.fda.gov/regulatory-information/search-fda-guidance-documents/policy-diagnostics-testing-laboratories-certified-perform-high-complexity-testing-under-clia-prior>.
- If you need additional information completing this EUA template, would like to know how to submit your Pre-EUA/EUA submission to FDA or wish to consider use an alternative specimen type, please contact the Division of Microbiology devices at (301) 348-1778 or email [CDRH-EUA-Templates@fda.hhs.gov](mailto:CDRH-EUA-Templates@fda.hhs.gov).

**A. PURPOSE FOR SUBMISSION**

Emergency Use Authorization (EUA) request for use of a SARS-CoV-2 molecular diagnostic test to be performed for the in vitro qualitative detection of RNA from the SARS-CoV-2 in respiratory samples from patients as recommended for testing by public health authority guidelines. The test will be performed in CLIA certified high-complexity laboratories. Additional testing and confirmation procedures should be performed in consultation with public health and/or other authorities to whom reporting is required.

Positive results should also be reported in accordance with local, state, and federal regulations.

## B. MEASURAND

Specific nucleic acid sequences from the genome of the SARS-CoV-2 **[please specify the targeted gene(s) of the pathogen; assays with more than one target are recommended]**.

## C. LABORATORY/SPONSOR

**[Official name, address and contact information of applicant and all locations where specimen testing will be performed]**

## D. REGULATORY INFORMATION

### *Approval/Clearance Status:*

The SARS-CoV-2 assay test is not cleared, CLIA waived, approved, or subject to an approved investigational device exemption.

## E. PROPOSED INTENDED USE

### *1) Intended Use:*

The SARS-CoV-2 assay is a **[specify test technology such as, real-time RT-PCR test]** intended for the **[presumptive]** qualitative detection of nucleic acid from the SARS-CoV-2 in **[list respiratory specimens]** from individuals suspected of COVID-19. Testing is limited to **[Name of Clinical Laboratory(s)]** that are Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C. §263a certified high-complexity laboratories.

Results are for the **[presumptive]** detection and identification of SARS-CoV-2 RNA. The SARS-CoV-2 RNA is generally detectable in respiratory specimens during the acute phase of infection. Positive results are indicative of active infection with SARS-CoV-2 but do not rule out bacterial infection or co-infection with other viruses. The agent detected may not be the definite cause of disease. Laboratories within the United States and its territories are required to report all positive results to the appropriate public health authorities.

Negative results do not preclude SARS-CoV-2 infection and should not be used as the sole basis for patient management decisions. Negative results must be combined with clinical observations, patient history, and epidemiological information.

The assay is intended for use by CLIA certified high-complexity laboratories with experience in developing molecular diagnostics and is only for use under the Food and Drug Administration's Emergency Use Authorization.

### *2) Instruments Used with Test:*

The **[test name]** test is to be used with the **[list all RT-PCR Instruments, software, automated extraction instruments]**.

## F. DEVICE DESCRIPTION AND TEST PRINCIPLE

*Example text has been added under each of the sub-headings below for a fluorescence based rRT-PCR test for detection of organism RNA. If a different test principle is used by the test for the detection of a specific analyte please modify the description accordingly to capture the salient points in each of the sub-headings below. Please note the accelerated template is intended for use only with existing, well-established technologies.*

### 1) Product Overview/Test Principle:

The assay is a real-time reverse transcription polymerase chain reaction (rRT -PCR) test. The SARS-CoV-2 primer and probe set(s) is designed to detect RNA from the SARS-CoV-2 in respiratory specimens from patients as recommended for testing by public health authority guidelines.

### 2) Description of Test Steps:

*[Please describe in abbreviated form the steps for performing your assay in sequential order as a numbered list, including extraction methods. This should include the names of the instruments used in your assay, e.g., ABI 7500. A copy of your laboratory procedure would be acceptable and can be appended to this form.]*

### 3) Control Material(s) to be Used:

*[Please describe the assay controls to be performed in the laboratory, including the following:*

- The positive and negative control; ideally the positive control will be used to confirm performance near the test LoD. If a template control is used, please describe in general terms the sequence used.*
- The extraction control.*
- The internal control, if present.*

*Your description should also include the frequency that controls will be performed.]*

### 4) Assay results and interpretation

*[Please describe the results of your assay procedure, e.g., reactive (positive/detected), non-reactive (negative/non-detected), or Invalid (no result reported)]*

## G. PRODUCT MANUFACTURING

Please note that Under the Emergency Use Authorization (EUA) most of the 21 CFR 820 Quality System Regulation (QSR) requirements can be waived for the duration of the EUA. FDA expects that the high-complexity laboratories performing these tests follow comparable practices as much as possible and may consider previous

compliance history when determining whether or not to waive certain QSR requirements for a specific product. Please note adverse events, as per 21 CFR Part 803, have to be reported for authorized devices.

## H. PERFORMANCE EVALUATION

The following validation studies should be performed during your assay development:

1) **Limit of Detection (LoD) -Analytical Sensitivity:**

*Laboratories should document the limit of detection (LoD) of their SARS-CoV-2 assay. It is acceptable to spike RNA or inactivated virus into artificial or real clinical matrix (e.g., BAL fluid, sputum, etc.) for LoD determination.*

*It is recommended that laboratories should test a 2-3 fold dilution series of three extraction replicates per concentration, and then confirm the final concentration with 20 replicates. FDA defines LoD as the lowest concentration at which 19/20 replicates are positive. If multiple clinical matrices are intended for clinical testing, laboratories should submit the results from the most challenging clinical matrix to FDA. For example, if testing respiratory specimens (e.g., sputum, BAL, nasopharyngeal (NP) swabs, etc.), only results from sputum need to be reported in the EUA application. If needed, we recommend that you follow the most current version of the CLSI standard, Evaluation of Detection Capability for Clinical Laboratory Measurement Procedures (CLSI EP17)*

**[Please describe in abbreviated form your LoD study, the specific material used (e.g., live or inactivated viral stocks, viral RNA, or in vitro transcripts), and the LoD (with appropriate units) for your assay]**

2) **Inclusivity (analytical sensitivity):**

*Laboratories should document the results of an inclusivity study that demonstrates the strains of SAR-CoV-2 that can be detected by the proposed molecular assay. It is acceptable to conduct an in silico analysis of published SARS-CoV-2 sequences using the assay's primers and probes. FDA anticipates that 100% of published SAR-CoV-2 sequences will be detectable with the selected primers and probes.*

**[Please describe in abbreviated form your Inclusivity study and confirm that there was 100% detection of all SARS-CoV-2 strains.]**

3) **Cross-reactivity (Analytical Specificity)**

*At a minimum, an in silico analysis of the assay primer and probes compared to common respiratory flora and other viral pathogens, listed in the table below, should be performed. FDA defines in silico cross-reactivity as greater than 80% homology between one of the primers/probes and any sequence present in the targeted microorganism. Laboratories should follow recognized laboratory procedures in the context of the sample types intended for testing for any additional cross-reactivity testing.*

**Recommended List of Organisms to be analyzed in silico  
 or by Wet Testing\***

Other high priority pathogens from the same genetic family	High priority organisms likely in circulating areas
Human coronavirus 229E	Adenovirus (e.g. C1 Ad. 71)
Human coronavirus OC43	Human Metapneumovirus (hMPV)
Human coronavirus HKU1	Parainfluenza virus 1-4
Human coronavirus NL63	Influenza A & B
SARS-coronavirus	Enterovirus (e.g. EV68)
MERS-coronavirus	Respiratory syncytial virus
	Rhinovirus
	<i>Chlamydia pneumoniae</i>
	<i>Haemophilus influenzae</i>
	<i>Legionella pneumophila</i>
	<i>Mycobacterium tuberculosis</i>
	<i>Streptococcus pneumoniae</i>
	<i>Streptococcus pyogenes</i>
	<i>Bordetella pertussis</i>
	<i>Mycoplasma pneumoniae</i>
	<i>Pneumocystis jirovecii</i> (PJP)
	Pooled human nasal wash – to represent diverse microbial flora in the human respiratory tract
	<i>Candida albicans</i>
	<i>Pseudomonas aeruginosa</i>
	<i>Staphylococcus epidermis</i>
	<i>Staphylococcus salivarius</i>

\* For wet testing, concentrations of 10<sup>6</sup> CFU/ml or higher for bacteria and 10<sup>5</sup> pfu/ml or higher for viruses is recommended.].

**[Please describe in abbreviated form your cross-reactivity study and list the microorganisms tested, indicating whether this was performed either in *in silico* or wet testing. Organisms recommended for testing are listed in the table above]**

**4) Clinical Evaluation:**

*In the absence of known positive samples available for testing, laboratories should confirm the performance of their assay with a series of contrived clinical specimens by testing a minimum of 30 contrived reactive specimens and 30 non-reactive specimens in a randomized blinded fashion. Contrived reactive specimens can be created by spiking RNA or inactivated virus into leftover individual clinical specimens representing unique patients; the majority of these specimens can be leftover respiratory specimens such as NP swabs, sputum, etc. Twenty of the contrived clinical specimens should be spiked at a concentration of 1x-2x LoD, with the remainder of specimens spanning the assay testing range. FDA defines the acceptance criteria for the performance as 95% agreement at 1x-2x LoD, and 100% agreement at all other concentrations and for negative specimens.*

**[Please describe in abbreviated form the procedure and results from clinical performance testing]**

**I. UNMET NEED ADDRESSED BY THE PRODUCT**

*This section will be completed by FDA.*

**J. APPROVED/CLEARED ALTERNATIVE PRODUCTS**

Currently no methods for the detection of the SARS-CoV-2 have been approved/ cleared by FDA.

**K. BENEFITS AND RISKS:**

*This section will be completed by FDA.*

**L. FACT SHEET FOR HEALTHCARE PROVIDERS AND PATIENTS:**

**Include proposed Fact Sheets for Patients and Healthcare Providers** - see examples for authorized EUA tests on our website and templates will be made available.

**M. INSTRUCTIONS FOR USE/ PROPOSED LABELING/PACKAGE INSERT:**

**In lieu of a package insert or labeling please include your Laboratory SOP/protocol.**

**N. RECORD KEEPING AND REPORTING INFORMATION TO FDA:**

The laboratory will track adverse events and report to FDA under 21 CFR Part 803. A website is available to report on adverse events, and this website is referenced in the Fact Sheet for Health Care providers. The laboratory will maintain will information on the performance of the test, and report to FDA any suspected change in performance of which they become aware. The laboratory will maintain records associated with this EUA and ensure these records are maintained until notified by FDA. Such records will be made available to FDA for inspection upon request.

#### **O. FDA ADMINISTRATIVE INFORMATION:**

**This section will be finalized by the FDA Reviewer upon completion of the review process. This will document any interactions of communications with the laboratory. the interactive review of this submission and any conclusions resulting from the interactive review.**

***Product Code:***

**QJR**