# EMERGENCY USE AUTHORIZATION (EUA) SUMMARY

## Clinical Enterprise SARS-CoV-2 RT-PCR Assay DTC
## EUA210023

(Clinical Enterprise, Inc.)

For In vitro Diagnostic Use
For use under Emergency Use Authorization (EUA) only

**(Direct to consumer (DTC) home collected anterior nasal (nasal) swabs collected by individuals using the EmpowerDX COVID-19 Home Collection Kit DTC, consistent with its EUA, will be sent to laboratories designated by Clinical Enterprise, Inc. and tested with the Clinical Enterprise SARS-CoV-2 RT-PCR Assay DTC. Clinical Enterprise, Inc. designated laboratories are certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C. §263a and meet the requirements to perform high complexity tests, as described in the laboratory procedures reviewed by FDA under this EUA.)**

## INTENDED USE

The Clinical Enterprise SARS-CoV-2 RT-PCR Assay DTC (CE SARS-CoV-2 RT-PCR Assay DTC) is a direct-to-consumer product for testing of individual anterior nasal (nasal) swab specimens collected at home using the EmpowerDX COVID-19 Home Collection Kit DTC when used consistent with its authorization, by any individuals including individuals without symptoms or other reasons to suspect COVID-19.

Testing of collected nasal swab specimens is limited to laboratories designated by Clinical Enterprise, Inc., which are certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C. §263a, and meet the requirements to perform high complexity tests.

Results are for the qualitative detection of SARS-CoV-2 viral RNA. SARS-CoV-2 RNA is generally detectable in nasal swab specimens during the acute phase of infection. Positive results are indicative of the presence of SARS-CoV-2 RNA. Clinical correlation with medical history and other diagnostic information is necessary to determine infection status. Positive results 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 test 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.

The CE SARS-CoV-2 RT-PCR Assay DTC is not a substitute for visits to a healthcare provider. The information provided by this product should not be used to start, stop, or change any course of treatment unless advised by your healthcare provider.

The CE SARS-CoV-2 RT-PCR Assay DTC is only intended for use by qualified clinical laboratory personnel specifically instructed and trained in the techniques of real-time RT-PCR

assays and in vitro diagnostic procedures. The CE SARS-CoV-2 RT-PCR Assay DTC is only for use under the Food and Drug Administration's Emergency Use Authorization.

## DEVICE DESCRIPTION AND TEST PRINCIPLE

The CE SARS-CoV-2 RT-PCR Assay DTC is a high-throughput, real-time reverse transcription polymerase chain reaction (rRT -PCR). The SARS-CoV-2 primer and probe set(s) are designed to detect SARS-CoV-2 viral RNA from nasal swab specimens self-collected at home using the EmpowerDX COVID-19 Home Collection Kit DTC, when used consistent with its authorization.

Specimens received at the clinical laboratory for testing will undergo full accessioning by the laboratory prior to acceptance for testing.

Each primer/probe pair (refer to the table below) is constructed with a unique fluorescent reporter dye (e.g., VIC). The assay targets two regions of the SARS-CoV-2 Nucleocapsid gene (N1 and N2, both FAM labeled), the human RNase P (VIC) for self-collected samples, and the internal extraction standard MS2 (CY5) for all samples. The assay is performed in a single well with both N1 and N2 regions detected simultaneously using the FAM fluorophore. Presence of a target sequence in a sample causes the unique oligonucleotide probe to anneal to the target. During the extension phase of PCR, if a probe has annealed to the target sequence, cleavage of the probe occurs through the 5' nuclease activity of Taq polymerase. This reduces the effect of fluorescence resonance energy transfer (FRET) and increases the fluorescent signal. If the SARS-CoV-2 target sequences are present in a clinical sample, this signal will be detected by the instrument indicating whether a sample is positive or negative for SARS-CoV-2 RNA. Since both SARS-CoV-2 N1 and SARS-CoV-2 N2 assays use probes with the same fluorophore (FAM), a single SARS-CoV-2 Ct value is generated in each rRT-PCR reaction.

**Oligonucleotide Primers and Probes**

| Target | Primer/probe name | Sequence (5' – 3') | Position (GenBank NC_045512.2) | Final assay concentration |
|---|---|---|---|---|
| SARS CoV-2 | SARS CoV-2 N1 F1 | GCATTGGCATGGAAGTCACA | 29229 – 29248 | 600 nM |
| | SARS CoV-2 N1 P1 | [FAM]CGTGGTTGACCTACACAGGT GCCATCA[BHQ1] | 29259 – 29285 | 150 nM |
| | SARS CoV-2 N1 R1 | TTGATCTTTGAAATTTGGATCTTTG TC | 28294 – 29320 | 600 nM |
| | SARS CoV-2 N2 F1 | CAGTAGGGGAACTTCTCCTGCTAG | 28876 – 28899 | 300 nM |
| | SARS CoV-2 N2 P1 | [FAM]ATGGCTGGCAATGGCGGTGA TG[BHQ1] | 28901 – 28922 | 150 nM |
| | SARS CoV-2 N2 R1 | CAAGCTGGTTCAATCTGTCAAGC | 28942 – 28964 | 300 nM |
| MS2 | MS2-3 F | CGTTCACAGGCTTACAAAGTAACC | 1449 – 1472 | 100 nM |
| | MS2-3 P | [CY5]TCGTCAGAGCTCTGCGCAGAA TCG[BHQ2] | 1481 – 1504 | 200 nM |
| | MS2-3 R | GCACCTCGACTTTGATGGTGT | 1510 – 1530 | 100 nM |
| RNase P | RNase P Fwd | AGATTTGGACCTGCGAGCG | 28-46 | 100 nM |
| | RNase P Probe | [VIC] – TTCTGACCTGAAGGCTCTGCGCG – [TAM] | 49-71 | 100 nM |
| | RNase P Rev | GAGCGGCTGTCTCCACAAGT | 73-92 | 100 nM |

## INSTRUMENTS USED WITH TEST

The CE SARS-CoV-2 RT-PCR Assay DTC uses the ThermoFisher MagMax V2 Viral/Pathogen Nucleic Acid Isolation Kit and Hamilton STAR liquid handling system for high throughput automated nucleic acid extraction, and the Applied Biosystems QuantStudio5 384-Well Real-Time PCR System (Software V1.5.1) for nucleic acid amplification and detection.

## REAGENTS AND MATERIALS

| Item Name | Part Number | Manufacturer/Supplier |
|---|---|---|
| MagMAX™ Viral/Pathogen II Nucleic Acid Isolation Kit | A48383 | ThermoFisher Scientific |
| Ethanol, 100% Molecular Biology Grade | A4094 or equivalent | Fisher Scientific or MLS |
| MS2 Phage Control | 5728201701 | Eurofins Abraxis |
| Nuclease Free Molecular Grade Water | AM9932 | ThermoFisher Scientific or MLS |
| TaqPath™ 1-step RT-qPCR master mix, CG | A28523 | ThermoFisher |
| Nuclease Free Molecular Grade Water | AM9932 | ThermoFisher Scientific or MLS |
| SARS CoV-2 N1 F1 | CUST-COV-N1F1 | Eurofins Genomics |
| SARS CoV-2 N1 P1 | CUST-COV-N1P1+ | Eurofins Genomics |

| | | |
|---|---|---|
| SARS CoV-2 N1 R1 | CUST-COV-N1R1 | Eurofins Genomics |
| SARS CoV-2 N2 F1 | CUST-COV-N2F1 | Eurofins Genomics |
| SARS CoV-2 N2 P1 | CUST-COV-N2P1+ | Eurofins Genomics |
| SARS CoV-2 N2 R1 | CUST-COV-N2R1 | Eurofins Genomics |
| MS2-3 F | CUST-COV-MS2-3F | Eurofins Genomics |
| MS2-3 P | CUST-COV-MS2-3PROBE | Eurofins Genomics |
| MS2-3 R | CUST-COV-MS2-3R | Eurofins Genomics |
| RNase P Forward primer | 1330* | Eurofins Genomics |
| RNase P Probe | 450003 | ThermoFisher Scientific |
| RNase P Reverse primer | 1330* | Eurofins Genomics |
| Synthetic positive control (N-gene) for SARS-CoV-2 RT-PCR Assays | 5728201610 | Eurofins Abraxis |

* Custom oligo orders

**CONTROLS TO BE USED WITH THE TEST**

- **RT-PCR SARS-CoV-2 amplification control (PC):** The PC is used to monitor the RT-PCR reaction, two amplification controls are used. The two controls consist of one "High" and one "Low" amplification control at concentrations of 50,000 copies/mL (200X LoD) and 500 copies/mL (2X LoD) respectively, and are used to ensure that the RT-PCR reaction is correctly detecting the SARS-CoV-2 targets. Ct results for the SARS-CoV-2 N-gene target is tracked for each PCR plate. Material used for this control is a synthetic IVT with the regions of the SARS-CoV-2 N-Gene targeted by the test (Abraxis part# 5728201601).

- **MS2 Phage Control:** This control is used as an internal lysis, extraction, and amplification control (Abraxis #5728201701). It is added to each sample and control at the beginning of the extraction and serves as a full process internal standard to monitor the extraction, reverse transcription, and amplification reagents and processes. The CE SARS-CoV-2 RT-PCR Assay DTC oligonucleotides contain a specific primer/probe pair for this target. The expected Ct for the MS2 control is $\leq$35. For samples with no Ct for the SARS-CoV-2 targets, and MS2 Ct $\leq$35, it indicates proper nucleic acid extraction and RT-PCR.

- **RNase P Specimen Control:** This control assesses the quality of the clinical specimen. Oligonucleotide primers and probes for RNase P are included in the test to monitor the presence of sufficient quantity and quality of RNA in self-collected nasal specimens when using the EmpowerDX COVID-19 Home Collection Kit DTC. Each sample run for the CE SARS-CoV-2 RT-PCR Assay DTC should exhibit a positive signal for the RNase P target with a Ct $\leq$35.

- **Positive Extraction Control (PEC):** Two SARS-CoV-2 positive extraction controls (High and Low) are included in each extraction and are used to monitor the entire process and test reagents. The controls produce a specific N-gene and RNase P Ct range to ensure reproducibility of the test across the whole process on different days and instruments. Pooled positive clinical samples are used as the material for the PEC and are tested before use to establish the expected Ct range. The high positive extraction control has a mean SARS-CoV-

2 N-Gene Ct of 23-28, and the low positive extraction control has a mean SARS-CoV-2 N-Gene Ct of 31-35.

- **Negative Extraction Control (NEC):** This control is included in each batch of extracted samples. The NEC is used to monitor for carryover and contamination in the extraction reagents with amplifiable nucleic acid. Phosphate buffered Saline (PBS) or TE buffer matrix is used in place of patient samples and goes through the entire extraction and RT-PCR process. MS2 Phage control is added to these samples. The eluted sample is then added to the RT-PCR plate to simulate a patient sample. The only target that should be present in this sample is MS2.

- **No Template Control/Negative Amplification Control (NTC):** The NTC is added to every RT-PCR plate, the NTC is used to monitor for RT-PCR reagent contamination. The NTC includes DNase/RNase free water instead of extracted RNA along with the RT-PCR reagents.

## INTERPRETATION OF RESULTS

### 1) Control Interpretation

All test controls must be examined prior to interpretation of patient results. If a given control or control group does not meet the expected criteria, it is investigated for a root cause. The entire run and/or extraction may require repeat and the results cannot be interpreted or reported. The table below describes the parameters used for control results and interpretation.

**Interpretation of Control Results: Expected Results for Valid Controls**

| Control | Expected Result for Valid Controls | | |
|---|---|---|---|
| | **MS2**<br>POS: $C_t \leq 35$<br>NEG: ND or >35 | **RNaseP**<br>POS: $C_t \leq 35$<br>NEG: ND or >35 | **SARS-CoV-2 N-Gene**<br>POS: $C_t < 38$<br>NEG: ND or $\geq 38$ |
| No template control (NTC) | NEG | NEG | NEG |
| "High" RT-PCR SARS-CoV-2 amplification control (PC_HI) | NEG | NEG | POS<br>Ct within 2SD of current lot |
| "Low" RT-PCR SARS-CoV-2 amplification control (PC_LO) | NEG | NEG | POS[a]<br>Ct within 2SD of current lot |
| "High" Positive extraction control (PEC_HI) | POS | POS[a]<br>Ct within 2SD of current lot | POS[a]<br>Ct within 2SD of current lot |
| "Low" Positive extraction control (PEC_LO) | POS | POS[a]<br>Ct within 2SD of current lot | POS[a]<br>Ct within 2SD of current lot |
| Negative extraction control | POS | NEG | NEG |

[a] $C_t$ range may change for specific lot

## 2) Clinical Sample Interpretation

Clinical samples are assessed after the controls have been analyzed and determined to be valid and acceptable. For each clinical sample on the plate, amplification curves are analyzed, along with other characteristics of the data such as AmpStatus and Ct confidence. Result interpretation is performed on all patient samples passing the data review. Data is interpreted according to the conditions are shown below.

**Interpretation of Clinical Sample Results**

| **MS2**<br>POS: $C_t \leq 35$<br>NEG[b]: ND or >35 | **RNaseP**<br>POS: $C_t \leq 35$<br>NEG: ND or >35 | **N-Gene**<br>POS: $C_t < 38$<br>NEG: ND or $\geq 38$ | **Status** | **Reported Result**[a] | **Action** |
|---|---|---|---|---|---|
| POS[c] | POS[c] | POS[c] | Valid | Detected | Report results to the individual via the agreed upon process as authorized by the EmpowerDX COVID-19 Home Collection Kit DTC and appropriate public health authorities |
| POS | POS | NEG | Valid | Not Detected | Report results to the individual via the agreed upon process as authorized by the EmpowerDX COVID-19 Home Collection Kit DTC and appropriate public health authorities |
| NEG | NEG | NEG OR POS | Invalid | Inconclusive | Repeat test one time.<br><br>If the result is valid, report results to the individual via the agreed upon process as authorized by the EmpowerDX COVID-19 Home Collection Kit DTC appropriate public health authorities.<br><br>If the result is Invalid again, report results to the individual via the agreed upon process as authorized by the EmpowerDX COVID-19 Home Collection Kit DTC, and request a new sample from the individual for retesting |
| NEG | POS | | | | |
| POS | NEG | | | | |

[a] Reported result is the result reported in the LIS. Only samples with valid status have results reported

[b] ND=Not Detected or a false Ct. False Ct's have a signal above the threshold but no amplification curves.

[c] RNase P and/or MS2 may be NEG *only* if SARS-CoV-2 Ct is very strong positive (Ct<23). For all other positive SARS-CoV-2 results, MS2 *and* RNase P must be POS.

## PERFORMANCE EVALUATION

The CE SARS-CoV-2 RT-PCR Assay DTC is identical in reagents and processing steps with the CE SARS-CoV-2 RT-PCR Assay. Unless otherwise indicated, the performance data for the CE SARS-CoV-2 RT-PCR Assay DTC are identical to the ones described for CE SARS-CoV-2 RT-PCR Assay.

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

LoD experiments were performed using a residual patient sample quantified with an EUA authorized test using IVT standards. The stock material had an initial concentration of 1.0E+06 copies/mL. To determine the preliminary LoD, the positive sample was spiked into pooled nasopharyngeal swab matrix in VTM from specimens that tested negative for SARS-CoV2 using an EUA authorized assay. The preliminary LoD was the lowest concentration where 100% of replicates are positive (valid Ct <38). Results from the range-finding experiments are shown below and indicate a preliminary LoD of 250 copies/mL.

**Preliminary LoD Study in NP Swab Matrix**

| Target Level (Copies/mL) | Valid tested replicates | MS2 | | | N-Gene | | | RNaseP | | | Overall detection |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean Ct | SD | CV% | Mean Ct | SD | CV% | Mean Ct | SD | CV% | |
| 500 | 3 | 28.02 | 0.28 | 1.0% | 35.89 | 1.14 | 3.2% | 27.08 | 0.37 | 1.4% | 100% (3/3) |
| 250 | 3 | 27.92 | 0.43 | 1.6% | 36.46 | 1.04 | 2.9% | 27.22 | 0.07 | 0.3% | 100% (3/3) |
| 125 | 3 | 27.72 | 0.38 | 1.4% | 36.82 | 0.43 | 1.2% | 26.96 | 0.19 | 0.7% | 66.6% (2/3) |
| 62.5 | 3 | 28.02 | 0.26 | 0.9% | ND | -- | -- | 27.13 | 0.11 | 0.4% | 0% (0/3) |

Confirmation of the LoD was performed by testing 20 individual extraction/amplification replicates at the preliminary LoD value generated as described above. Results are shown below and demonstrate detection rates of ≥95% at 250 copies/mL in nasopharyngeal swab matrix. All replicates tested were valid based upon the results for the specimen control RNase P and extraction control MS2.

**Confirmatory LoD Study in NP Swab Matrix**

| Target Level (Copies/mL) | Valid tested replicates | MS2 | | | N-Gene | | | RNaseP | | | Overall detection |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean Ct | SD | CV% | Mean Ct | SD | CV% | Mean Ct | SD | CV% | |
| 250 | 20 | 28.30 | 0.34 | 1.21% | 36.32 | 1.12 | 3.09% | 25.01 | 1.03 | 4.10% | 95% (19/20) |

To confirm equivalent performance of the test in self-collected nasal swab matrix using the EmpowerDX COVID-19 Home Collection Kit DTC compared to NPS matrix, the same material used for the original LoD study described above was spiked into pooled, known SARS-CoV-2 negative nasal swab samples collected in 0.9% buffered saline. A confirmatory LoD study was

performed with 20 individually processed replicates. Results show ≥95% detection at 250 copies/mL which agrees with the LoD in NPS matrix.

**Confirmatory LoD Study in Nasal Swab Matrix**

| Target Level (Copies/mL) | Valid tested replicates | MS2 | | | N-Gene | | | RNaseP | | | Overall detection |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean Ct | SD | CV% | Mean Ct | SD | CV% | Mean Ct | SD | CV% | |
| 250 | 20 | 28.31 | 0.25 | 0.87% | 36.00 | 0.88 | 2.44% | 27.68 | 0.55 | 1.98% | 95% (19/20) |

The final claimed LoD is 250 copies/mL.

**2) Inclusivity (Analytical Sensitivity)**

The CE SARS-CoV-2 RT-PCR Assay DTC utilizes the same primer and probes as in the Viracor SARS-CoV-2 Assay. The inclusivity of the Viracor SARS-CoV-2 Assay has been demonstrated by Viracor Eurofins Clinical Diagnostics, Inc. in the EUA submission authorized on 02/26/2021. Details of the performance can be found here: https://www.fda.gov/media/143069/download. Viracor Eurofins Clinical Diagnostics, Inc. granted Right of Reference for the authorized Viracor SARS-CoV-2 Assay.

FDA internal analysis of the recently emerging variants indicates no significant risk of false negative results.

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

The CE SARS-CoV-2 RT-PCR Assay DTC utilizes the same primer and probes as in the Viracor SARS-CoV-2 Assay. The cross-reactivity of the Viracor SARS-CoV-2 Assay has been demonstrated by Viracor Eurofins Clinical Diagnostics, Inc. in the EUA submission authorized on 02/26/2021. Details of the performance can be found here: https://www.fda.gov/media/143069/download. Viracor Eurofins Clinical Diagnostics, Inc. granted Right of Reference for the authorized Viracor SARS-CoV-2 Assay.

**4) Clinical Evaluation**

***a) Study #1 - Evaluation of retrospective NP and nasal swab specimens***

To evaluate clinical performance, 35 positive and 35 negative natural clinical NP specimens as determined by a highly sensitive EUA authorized comparator test were tested using the CE SARS-CoV-2 RT-PCR Assay DTC. 4 of the 35 positive samples are low positive (11%)(within 3 Cts of the average Ct value at LoD concentration with the comparator test).

In addition, to demonstrate performance in low positive samples as defined by being within 3 Cts of the average Ct value at LoD concentration with the comparator test, 20 low positive clinical nasal specimens previously tested with an EUA authorized test were compared to the results using the CE SARS-CoV-2 RT-PCR Assay DTC. The percent positive and negative agreements between the EUA authorized comparator method and the CE SARS-CoV-2 RT-PCR Assay DTC was then evaluated.

Results demonstrate 100% (35/35) positive agreement and 100% (35/35) negative agreement for NP swabs, and 100% (20/20) positive agreement for Nasal swabs. Combined performance of the

upper respiratory specimens is shown below. For all comparator negative samples, there was no SARS-CoV-2 target signal using the CE SARS-CoV-2 RT-PCR Assay DTC. All samples had MS2 and RNaseP Ct values meeting the expected QC criteria.

**Summary of Clinical Study #1**

| **Retrospective Upper respiratory Specimens (NP and Nasal Swabs)** | | **FDA Authorized SARS-CoV-2 RT-PCR Test** | | |
|---|---|---|---|---|
| | | **Positive** | **Negative** | **Total** |
| **CE SARS-CoV-2 RT-PCR Assay** | **Positive** | 55 | 0 | 55 |
| | **Negative** | 0 | 35 | 35 |
| | **Total** | 55 | 35 | |
| **Positive Percent Agreement (95% CI[1])** | | 100% (55/55), 95%CI: (93.5-100%) | | |
| **Negative Percent Agreement (95% CI[1])** | | 100% (35/35), 95%CI: (90.1-100%) | | |

[1]Two-sided 95% confidence interval by a score method

***b) <u>Study #2 - Evaluation of a Boca Biolistics SARS-CoV-2 Reference Panel (retrospective NP Samples)</u>***

Clinical performance was also demonstrated using a Boca Biolistics SARS-CoV-2 Validation panel containing 60 fully characterized NP specimens that had been collected in April of 2020. All samples were originally tested using an EUA authorized test and stored at -80°C. A summary of results is shown below, which demonstrates 100% (30/30) positive agreement and 96.7% (29/30) negative agreement between the EUA authorized comparator test and the CE SARS-CoV-2 RT-PCR Assay DTC.

**Summary of Clinical Study #2**

| **Retrospective NP specimens** | | **FDA authorized SARS-CoV-2 test** | | |
|---|---|---|---|---|
| | | **Positive** | **Negative** | **Total** |
| **CE SARS-CoV-2 RT-PCR Assay DTC** | **Positive** | 30 | 1[2] | 31 |
| | **Negative** | 0 | 29 | 29 |
| | **Total** | 30 | 30 | |
| **Positive Percent Agreement (95% CI[1])** | | 100% (30/30), 95%CI: (88.7%-100%) | | |
| **Negative Percent Agreement (95% CI[1])** | | 96.7% (29/30), 95%CI: (83.3%-99.4%) | | |

[1]Two-sided 95% confidence interval by a score method

[2]Ct with the candidate test is 34.64; N-Gene Ct with a third independent assay is 32.96, indicative of a low positive sample

***c) <u>Study #3 – Evaluation of performance in asymptomatic individuals</u>***

The validation data provided below is in support of adding population screening of individuals without symptoms or other reasons to suspect COVID-19.

The samples used for this performance study were nasal swabs in 0.9% sterile saline collected from asymptomatic individuals during community screening events. A total of 321 samples were collected and tested initially using an EUA authorized high sensitivity test. Of the total, 22 consecutively collected positives and 110 consecutively collected negatives were re-tested with the same EUA authorized test and the results from this retesting were considered as the comparator results in this performance study. The samples were then shipped to CE on dry ice, stored at -70˚C, and tested using the CE SARS-CoV-2 RT-PCR test DTC. A results summary is shown in the table below**.** Two of the 22 comparator positive samples are low positives as determined by the comparator (within 3 Cts of the average Ct at LoD concentration with the comparator test).

**Summary of Clinical Study #3 (Asymptomatic Individuals)**

| **Retrospective Nasal specimens** | | **FDA authorized SARS-CoV-2 test** | | |
|---|---|---|---|---|
| | | **Positive** | **Negative** | **Total** |
| **CE SARS-CoV-2 RT-PCR test DTC** | **Positive** | 22 | 1[1] | 23 |
| | **Negative** | 0 | 109 | 109 |
| | **Total** | 22 | 110 | 132 |

[1] Ct 34.783 with investigational device; original result at the sample collection site using the comparator was N-Gene Ct 34.20

Performance of CE SARS-CoV-2 RT-PCR Assay DTC is presented below:

**Performance Estimates for Asymptomatic Individuals**

| | **Performance Estimate** | **95%CI** |
|---|---|---|
| **PPA** | 100% (22/22) | (85.1%; 100%) |
| **NPA** | 99.1% (109/110) | (95.0%; 99.8%) |

**WARNINGS:**

- For in vitro diagnostic use.
- For use under Emergency Use Authorization (EUA) only.
- This product has not been FDA cleared or approved, but has been authorized by FDA under an EUA for use by authorized laboratories;
- This product has been authorized only for the detection of nucleic acid from SARS- CoV-2, not for any other viruses or pathogens; and,
- The emergency use of this product is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of in vitro diagnostics for detection and/or diagnosis of COVID-19 under Section 564(b)(1) of the Federal Food, Drug and Cosmetic Act, 21 U.S.C. § 360bbb-3(b)(1), unless the declaration is terminated or authorization is revoked sooner.

- Samples and controls should always be treated as if infectious and/or biohazardous in accordance with safe laboratory procedures.
- Follow necessary precautions when handling specimens. Use personal protective equipment (PPE) consistent with current guidelines for the handling of potentially infectious samples.
- Always use pipette tips with aerosol barriers. Tips that are used must be free from DNases and RNases.
- Do not eat, drink, smoke, or apply cosmetic products in the work areas.
- Modifications to assay reagents, assay protocol, or instrumentation are not permitted, and are in violation of the product Emergency Use Authorization.
- Reagents must be stored and handled as specified and must not be used beyond their expiration date.
- Do not use the kit after the indicated expiry date.
- Dispose of waste in compliance with local, state, and federal regulations.
- Safety Data Sheets are available upon request.
- Laboratories within the United States and its territories are required to report all positive results to the appropriate public health authorities.
- Positive Results are indicative of the presence of SARS-CoV-2 RNA

**TEST LMITATIONS:**

- 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 impacts of vaccines, antiviral therapeutics, antibiotics, chemotherapeutic or immunosuppressant drugs have not been evaluated. The Clinical Enterprise SARS-CoV-2 RT-PCR test cannot rule out diseases caused by other bacterial or viral pathogens.
- The clinical performance has not been established in all circulating variants but is anticipated to be reflective of the prevalent variants in circulation at the time and location of the clinical evaluation. Performance at the time of testing may vary depending on the variants circulating, including newly emerging strains of SARS-CoV-2 and their prevalence, which change over time.
- **False Negative Results** may arise from:
  1. Degradation of the SARS-CoV-2 RNA during shipping/storage
  2. Improper sample collection
  3. Specimen collection after SARS-CoV-2 RNA can no longer be found in the specimen matrix
  4. Using unauthorized extraction or assay reagents
  5. The presence of RT-PCR inhibitors
  6. Mutation in the SARS-CoV-2 virus
  7. Failure to follow the standard operating procedure

- **False-Positive Results** may arise from:
  1. Cross contamination during wet bench processing
  2. Cross contamination between patient samples
  3. Specimen mix-up
  4. RNA contamination during product handling