

For Professional Use Only For Emergency Use Authorization (FUA) Only

REF Test strips and swabs L016000609024.L016000609048

REF Test strips no swabs L016000109012, L016000109024, L016000109048

IVD Rx Only

SPEC-32311 R8 ART-00570 R9

Date of Povision 2022/07

LumiraDx SARS-CoV-2 Aa Test

For In Vitro Diagnostic Use Only

The LumiraDx Severe Acute Respiratory Syndrome (SARS) CoV-2 Antigen (Ag) Test Strips (hereafter referred to as Test Strips) are to be used with the LumiraDy Platform The LumiraDy Platform is a point of care system for professional use which is used for in vitra diagnostic tests. It comprises a portable LumiraDx Instrument and a LumiraDx Te Strip for the required test. This test is for **HEALTHCARE PROFESSIONAL USE** ONLY and allows users to perform tests using small sample volumes and to view results quickly on the Instrument touchscreen.

The LumiraDx SARS-CoV-2 Ag Test is a rapid microfluidic immunofluorescence assay for use with the LumiraDx Platforn intended for the qualitative detection of the nucleocapsid protein antigen to SARS-CoV-2 directly from anterior nasal swab and nasopharynaeal swab specimens collected from individuals suspected of COVID-19 by their healthcare provider within the first twelve days of symptom onset or from individuals without symptoms or other epidemiological reasons to suspect COVID-19 when tested twice over three days with at least 24 hours (and no more than 48 hours) petween tests. Testing is limited to laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C 263a, that meet the requirements to perform moderate, high or waived complexity tests. This product is authorized for use at the Point of Care (POC) i.e. in national care settings operating under a CLIA Certificate of Waiver Certificate of Compliance or Certificate of Accreditation

The LumiraDx SARS-CoV-2 Ag Test does not differentiate between SARS-CoV and SARS-CoV-2

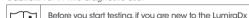
Results are for the identification of SARS-CoV-2 nucleocapsid protein antigen. Antigen is generally detectable in anterior nasal swab and nasonharvingeal swah specimens during the acute phase of infection Positive results indicate the presence of viral antigens but clinical correlation with patient history and other diagnostic information is necessary to determine infection status. Positive results do not rule out bacterial infection or co-infection with other viruses. Additional confirmatory testing with a molecular test for positive results may be necessary if there is a low likelihood of SARS-CoV-2 infection, such as in individuals without known exposures to SARS-CoV-2 or residing in communities with low prevalence of infection. The agent detected may not be the definite cause of disease. Laboratories within the United States and its territories are required to report all results to the appropriate public health authorities.

Negative results should be treated as presumptive and confirmation with a molecular assay if necessary for patient management may be performed. Negative results do not rule out SARS-CoV-2 infection and should not be used as the sole basis for treatment or patient management decisions, including infection control decisions. Negative results should be considered in the context of a patient's recent exposures, history and presence of clinical signs and symptoms consistent with COVID-19

For serial testing programs, additional confirmatory testing with a molecular test for negative results may be necessary if there is a high likelihood of SARS-CoV-2 infection, such as in an individual with a clos contact with COVID-19 or with suspected exposure to COVID-19 or in communities with high prevalence of infection, Individuals who test negative and continue to experience COVID-19 like symptoms of fever cough and/or shortness of breath may still have SARS-CoV-2 infection and should seek follow up care from their healthcare provider. The LumiraDx SARS-CoV-2 Ag Test is intended for use by trained clinical laboratory personnel and individuals trained in point of care settings,

and proficient in performing tests using the LumiraDx Instrument. The LumiraDx SARS-CoV-2 Ag Test is only for use under the Food and Drug Administration's Emergency Use Authorization

Caution: For in vitro diagnostic use.



Instrument and LumiraDx Platform, you must read the umiraDx Platform User Manual, the LumiraDx SARS-CoV-2 Aa Test Quick Reference Instructions and this entire luct Insert. In addition please watch the LumiraDx Platform Training Video available at lumiradx.com.

Summary and explanation of the Test:

The World Health Organisation (WHO) have named the disease caused by SARS-CoV-2 virus as coronavirus 2019 or COVID-191. The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion headache, conjunctivitis, sore throat, diarrhea, loss of taste or smell. or a rash on skin or discoloration of fingers or toes. These symptoms are usually mild and beain aradually. Some people become infected

but do not develop any symptoms and do not feel unwell. However,

the disease can develop rapidly and have high morbidity in certain nonulations especially those with underlying health conditions The disease can spread from person to person through small droplets from

the nose or mouth which are spread when a person with COVID-19 oughs or exhales Most estimates of the incubation period for COV -19 range from 2-14 days The use of a LumiraDy SAPS-CoV-2 Ag Test will enable the physician to verify infection quickly begin proper treatment and to initiate isolation

Principle of the assay: The LumiraDx SAR-CoV-2 Aa Test is a single use fluorescence

immunoassay device designed to detect the presence of the nucleocansid protein antigen directly from SARS-CoV-2 in either anterior nasal swab or nasopharynaeal swab samples, without The test procedure involves collecting an anterior nasal swab or

precautions beloing prevent further spread of infection

nasonharvnaeal swah sample usina a recommended swah which is eluted into a vial containing Extraction Buffer A single drop of the sample in Extraction Buffer is added to the Test Strip using the vial dropper can provided The LumiraDx Instrument is programmed t perform the test protocol using the dried reagents contained within the strip. The test result is determined from the amount of fluorescence the Instrument detects within the measurement zone of the Test Strin The concentration of the analyte in the sample is proportional to the fluorescence detected. The results are displayed on the Instrument. to uch screen within 12 minutes from the addition of the sample

Materials provided

- LumiraDx Test Strips packed individually in sealed desiccant foil
- LumiraDx Test Product Insert
- RFID (Radio frequency ID) Tag held inside the Test Strip carton Extraction Buffer Vials
- LumiraDx SARS-CoV-2 Ag Test Quick Reference Instructions Sterile Nasal Collection Swabs (Provided only with the following

product codes L016000609024, L016000609048 Materials required but not provided with the Test Strip carton:

- LumiraDx InstrumentStandard nasal swab collection equipment is required if using a LumiraDx SARS-CoV-2 Ag test kit which not include swabs. (L016000109012, L016000109024, L016000109048) Please visit lumiradx.com for information on alidated swabs for use with the LumiraDx SARS-CoV-2 Ag test. Standard nasopharyngeal swab collection equipment Please visit lumiradx.com for information on validated swabs for use
- LumiraDx SARS-CoV-2 Ag Quality Controls (as required to mee local and organisational compliance) LumiraDx Connect if connectivity required (refer to LumiraDx

with the LumiraDx SARS-CoV-2 Aa test

Connect User Manual)

Warnings and precautions For in vitro diagnostic use only

- For prescription use only.
- This product has not been FDA cleared or approved but has
- been authorized by FDA under an Emergency Use Authorization (EUA) for use by authorized laboratories; use by laboratories certified under the CHA that meet the requirements to perform moderate, high or waived complexity tests. This product is authorized for use at the Point of Care (POC) i.e. in patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation.
- 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 diagnostic tests for detection and/or diagnosis of COVID-19 under Section 64(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.
- This product has been authorized only for the detection of proteins from SARS-CoV-2, not for any other viruses or pathogens
- Do not open the test strip until ready for immediate use
- Discard and do not use any damaged or dropped Test Strips
- or other materialsCheck the integrity of the individual swab backaaina for damaae. If damaaed discard and do not use. iscard and do not use any damaged or dropped Nasal collection swabs
- Do not use supplied Nasal swabs for Nasopharyngeal sample
- To avoid sample contamination avoid touching the swab sampling head before and after sample collection.
- Inadequate or inappropriate sample collection, storage, and transport can result in incorrect results
- The test cannot be visually interpreted; the LumiraDx Instrument must be used to generate results Do not use the kit components beyond the expiration date
- Do not reuse any kit components.
- Do not mix components from different kit lots.
- Samples must be processed as indicated in the Sample Extraction and Performing a Test sections of this Product Insert. Failure to follow the instructions for use can result in inaccurate

- - Pofor to the product safety data shoot for risk and safety phrases and disposal information. The product safety data sheet is available via our website at https://lumiradv.com/us-en/whatwe-do/diagnostics/test-technology/antigen-test
 - Exercise the normal precautions required for handling all aboratory reagents. Wear protective clothing such as laboratory coats, disposable gloves, and eve protection when samples are collected and evaluated
 - Proper laboratory safety techniques should be followed at all times when working with SADS_CoV2 nations camples Patient swahs used Test Strins and used extraction buffer vials may be potentially infectious. Proper handling and disposal methods should be established by the laboratory in accordance with local, state and federal regulations.
 - Reagents encapsulated within the Test Strip are present in extremely small amounts and where any component is of animal origin the source is certified as free from infectious or contagious material - however should any reagent become exposed to human materials it should be treated as potentially Re careful to minimize the risks of cross-contamination when
 - sting patient specimens which can cause false positive results Insufficient cleaning of the workspace, insufficient disinfection of the instrument, or inappropriate use of protective equipment (for example, failing to change gloves between patients) can ncrease the risk of cross-contamination between specimens with subsequent false positive results. Consider the CDC guidance available at https://www.cdc.gov/coronavirus/2019ncov/lab/noint-of-care-testing.html for changing gloves and cleaning work area between specimen handling and The chemicals in the extraction buffer may be hazardous
 - to the skin and eye. Please see the table below for safety recommendations for skin and eve irritation. However as a precaution if the solution contacts the skin or eye, flush with copious amounts of water. If irritation persists, seek medical advice: https://www.poisonhelp.org.or.1-800-222-1222

Component	Concentration	GHS Code
Hydrochloric acid	< 0.01%	H302, H315, H320
Sodium azide	0.09%	H302, H315, H320

Storing the Test Strips:

Store the Test Strips in their original carton. You can store the Test Strips at a temperature between 2°C and 30°C (36°F and 86°F). Avoid freezing or storing in any area that could exceed 30°C. When stored properly, the Test Strips can be used until the expiration date printed on the Test Strip foil pouch and the Test Strip carton. Discard the Test Strips if they are passed the expiration date.

Handling the Test Strips:

When you are ready to perform a test, open the Test Strip carton, take a Test Strip, and remove it from the foil pouch. Hold the Test Strip gripping the blue label end with the label facing upward. Do not ich Test Strip Sample Application Area. Do not bend or fold the Test Strip. Do not touch Test Strip contacts. After removing the Test Strip from the foil pouch, it should be used immediately. Do not use the Test Strip if there are any visible signs of damage to the foil pouch such as tears

The following samples can be used with the LumiraDx SARS-CoV-2 Ag

Anterior Nasal Swab Sample (NS) Nasopharyngeal Swab Sample (NP)

The Test device contains:

Rabbit and mouse monoclonal antibodies

Preparing the Instrument to perform a Test:

- Fluorescent particles
- Magnetic particles
- Buffer and stabilizing agents

Power on the Instrument by pressing the power button at the rear of the Instrument. You will hear the Instrument powering on, and the display will be a blank black screen for several seconds before starting up. If the screen is just dimmed tap the touch-screen to wake up the

Refer to the section on Performing a Test in this Product Insert for information on how to test a Patient sample. The LumiraDx Quick Reference Instructions (QRI) provide an illustrated step-by-step procedure on how to run a Test. Operate the LumiraDx Platform at room temperature between 15°C and 30°C (59°F and 86°F) and 10% 75% relative humidity The Instrument will prompt to install the Lot Calibration File when nserting a new Test Strip Lot. Once installed, the Instrument will have all

the information required to process the test, and any future tests from

Do not open the kit contents until ready for use. Use within 60 Lot Calibration File installation

minutes of opening the pouch All components of this kit should be discarded as Biobazard waste according to Federal, State and local regulatory

Lot Calibration Files are required to provide the Instrument with information needed to perform diagnostic tests This only needs to be completed once for each Test Strip Lot. The Instrument will prompt to install the Lot Calibration File when inserting a new Test

PFID strip code reader

Touch back of Test Strip

Installation



e Instrument will sound nessage will he lishlaved

When indicated by the touchscreen onen the fail nauch just before use and insert the LumiraDx Test Strip into the LumiraDx Instrument The Instrument will indicate when it is ready for the sample to be applied The LumiraDx SARS-CoV-2 Aa Test results should be evaluated by a Healthcare Professional in the context of all available clinical and

Instructions for sample collection

LumiraDy SARS-CoV-2 Aa Test

When collecting any type of sample follow universal collection. precautions and guidelines according to your organization. For collection of nasal swabs and nasopharynaeal swabs, follow the Centers for Disease Control and Prevention (CDC) Swah Collection Guidelines and swab manufacturers' recommendations. Users should be trained in appropriate sample collection and handling procedures. The steps that follow apply to an anterior pasal swab and nasopharvnaeal swab. Swabs provided in the kit (L016000609024, L016000609048) For anterior

nasal sampling where swabs are provided please use the swabs within Swabs not provided in the kit (L016000109012, L016000109024,

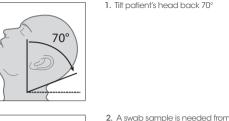
1016000109048) Where a swab is not provided within the kit, please visit lumiradx.com for information on swabs that have been validated for use with the

eavina it in place for severa seconds to absorb secretions. If a deviated septum or blockage creates difficulty in obtaining the sample from one nostril, use the same swab to obtain the sample from the other nostril.

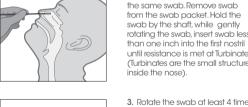


3 Slowly remove the swab while collected from both nostrils, but it is not necessary if the swab is saturated with fluid from the first nostril. Remove and then place the swab in the extraction vial. See

Sampling from an anterior nasal swab:

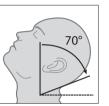


1. Remove the seal or blue screw cap from the top of the Extraction Vial containing the Extraction



3. Rotate the swab at least 4 times against the pasal wall for 10-15 seconds Pemove and repeat this process by using the same swab into the second nostril Then place the Swah into the Extraction Vial See instructions for Sample Extraction

Sampling from a nasopharyngeal swab:



Remove swab from the swab packet Hold the Swah by the shaft firmly between the fingers and gently and slowly insert Swab through the nostril parallel to the palate until resistance s encountered. The Swab should reach depth equal to distance from ostrils to outer opening of the ear.

2. Gently rub and roll the Swab.

1 Tilt natients head back 70°



rotatina it. Samples can be nstructions for Sample Extraction.

After nations swatching process the Swatch in the Extraction Vial as soon as possible. Do not place the swah back into the swah packaging sleeve after sample collection

both nostrils, and this is taken using

he same swah Remove swah

from the swab packet Hold the

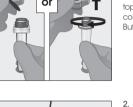
swab by the shaft, while gently

rotating the swab insert swab less

intil resistance is met at Turbinates

(Turbinates are the small structures

inside the nose).



Instructions for sample extraction:

2. Place and soak the Patient Swab in the Extraction Buffer for 10 seconds and then stir well ov rotating the swab against the side of the vial 5 times

or purple Dropper Lid to the

he extracted sample mus

orenaration when stored at

room temperature Extracted

samples may be frozen at

after freezing.

-80°C and used up to 5 days

5 Gently invert the Extraction

Vial five times just before

applying the sample to the

nasal or nasopharynaeal swab

top of the Extraction Vial.

be used within 5 hours of



or

temperature before testing

x5

Performing a Test (refer to the Quick Reference Instructions to

this step). If using a frozen sample, the sample must be at room

applying the sample to the Test Strip.

have 10 seconds only to close the door).

on the Instrument screen. (see Fig 1 and Fig 2).

ppropriate biohazard waste

remain wet for 1 minute and let air dry.

Dispose of the swab, Extraction Vial and Test Strip in the

once per day when in use. A list of approved disinfecting

surface of the Instrument is visibly wet. Allow the surface to

make sure that your Instrument has been prepared before starting

Gently invert the Extraction Vial five times (5x) just before

Apply the extracted sample from the Extraction Vial anto the

Sample Application Area of the inserted Test Strip. To do this

gently press the sides of the extraction vial until one whole drop

is visible and allow it to to uch the Sample Application Area of

the Test Strip The sample will then be drawn by capillary action

into the Test Strip. When the sample is detected the Instrument

will be displayed The touchscreen of the LumiraDx Instrument

Do not add more than one drop of sample. Do not open the

The result will appear on the Instrument touchscreen within 12

minutes of applying the sample and starting the test. The result

will be displayed as a positive or negative result SARS-CoV-2-Aq

will request the user to immediately close the door (Note: you

door while the test is in progress. The touch screen will indicate

will sound (if sounds are enabled) and a confirmation message

NOTE: Individuals without symptoms that test negative should be tested again with at least 24 hours and no more than 48 hours between tests. A negative test does not rule out COVID-19. All negative results should be treated as presumptive and confirmation with a molecular assay if necessary for patient management may

If you need to retest you will use a new Test Strin Use the same

he used within 5 hours of preparation when stored at room

samples may be frozen at -80°C and used up to 5 days after

Potiont Tost

POSITIVE +

SARS-CoV-2 Ag

Fig 2: Positive result for

▲ Test Operation Error

A Do not apply sam

SAR-CoV-2 Ac

SARS-CoV-2 Ag

temperature Extracted pasal and pasapharynaeal swab

The results will be displayed on the Instrument screen - examples of

extraction vial and repeat the test The extracted sample must

Invalid test results:

Pesult interpretation:

result screen display:

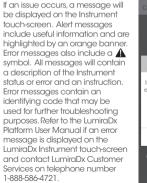
SARS-CoV-2 Ag

NEGATIVE

SARS-CoV-2 Ag

Fig 1: Negative result for

SARS-CoV-2 Aa



Example of an error screen: If the On Board Control (OBC) fails.

an error message will be shown and no test result will be returned. Follow the on screen instructions to dispose of the Test Strip and start a new test. If the problem persists, contact Customer Services.

The Instrument reads the 2D bar code on each Test Strip and can identify if the strip has exceeded the expiry date for use, and if the strip Lot Calibration file has not yet been loaded, at which point it will The LumiraDx Instrument and LumiraDx SARS-CoV-2 Aa Test Strips have

several quality control functions integrated to ensure validity of each test run. These checks ensure that the volume of sample added is sufficient and the assay sequence of the Test Strip is as expected. The checks also ensure that the Test Strip has not been damaged or used previously. If these checks are not verified, the test run will be rejected and an error message displayed on the Instrument touchscreen. The LumiraDx Instrument ensures the quality of test results obtained through the following features:

- Automated checks of the correct functioning of the Instrument at power on and during operation. Disinfection of the Instrument with LumiraDx approved materials This includes electrical component operation, heater operation
- is recommended if contamination is suspected and at least battery charge state, mechanical actuators and sensors and naterials is available at lumiradx.com. Use the wipe until the Monitoring of Test Strip performance and controls during test
 - Ability to perform Quality Control Tests using LumiraDx Quality Control solutions to meet regulatory compliance

External Quality Controls: External liquid Quality Controls for SARS-CoV-2 Ag are available from

LumiraDx and may be used to demonstrate that the Test is functioning properly by demonstrating the expected Quality Control results and correct test performance by the operator External Quality Control requirements should be established in accordance with local state and federal regulations or accreditations requirements. It is recommended that external control testing be performed with each new operator and before using a new lot or shipment of the LumiraDx SARS-CoV-2 Ag Test. Refer to the LumiraDx SARS-CoV-2 Ag Quality Controls pack insert available at lumirady com for detailed instructions

LumiraDx SARS-CoV-2 Aa Quality Controls are purchased separately. If the LumiraDx SARS-CoV-2 Aa Quality Controls do not perform as

expected, repeat the QC Test and if the problems persists, do not report patient results and contact LumiraDx Customer Services on telephone. number 1-888-586-4721

Cleaning and disinfection Cleaning and disinfection of the Instrument should follow and be

performed according to established site protocols and schedules. To clean the Instrument wine the external surfaces with a soft slightly damp cloth when it appears visibly dirty It is recommended to disinfect the Instrument if contamination is

suspected and at least once per day when in use with LumiraDx approved materials Details of LumiraDx approved disinfectant Authorized laboratories¹ using your product must include with materials can be found at LumiraDx com. Use the material until the test result reports all authorized Fact Sheets. Under exigent surface of the Instrument is visibly wet. Allow the surface to remain we for 1 minute and let air dry Avoid USB ports and power inlet. Do not spray or pour solution directly onto the Instrument Do not put any objects or cleaning materials into the Test Strip slot.

This test detects both viable (live) and non-viable, SARS-CoV

virus (antigen) in the sample and may or may not correlate with viral culture results performed on the same sample. Failure to follow the instructions for use may adversely affect test performance and/or invalidate the test result.

Test results should be considered in the context of all available clinical and diagnostic information, including patient history

and SARS-CoV-2 Test performance depends on the amount of

- Positive test results do not differentiate between SARS-CoV and SARS-CoV-2 Negative test results are not intended to rule in other non-SARS
- Negative results should be treated as presumptive and confirmation with a molecular assay if necessary for patient

viral or bacterial infections

management, may be performed

- The performance of this test was established based on the evaluation of a limited number of clinical specimens collected between June 2020 and March 2021. The clinical erformance has not been established in all circulating variant 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 testina may vary depending on the variants circulating, including newly emerging strains of SARS-CoV-2 and their prevalence, which change over time.
- If the differentiation of specific SARS viruses and strains is needed, additional testing, in consultation with state or local public health departments, is required.
- Clinical performance was established on frozen samples and performance may be different with fresh clinical samples.

Users should test samples as quickly as possible after sample

- collection Extracted anterior nasal samples or nasopharynaeal samples
- may be frozen at -80°C and used up to 5 days after freezing. Swab samples and Extraction Buffer must be at room

temperature before testina.

- Positive test results do not rule out co-infection with other
- A false negative result may occur if the level of viral antigen in a sample is below the detection limit of the test or if the sample was collected inappropriately, therefore a negative test result does not rule out the possibility of SARS-CoV-2 infection.
- The amount of antiaen in a sample may decrease as the duration of illness increases. Samples collected after 12 days are more likely to be negative compared to RT-PCR
- The contents of this kit are for qualitative detection of SARS-CoV-2 antigens from nasal swab and nasopharyngeal samples only.
 - the LumiraDx SARS-CoV-2 Ag Test please visit lumiradx.com.

For information on swabs that have been validated for use with

- Testing for asymptomatic individuals should be performed at least twice over three days with at least 24 hours and no more than 18 hours between tests You may need to nurchase additional tests to perform this serial (repeat) testing
- Serial testing (i.e., testing every day or every other day) is more likely to detect COVID-19, especially in individuals that do not have any symptoms
- There is a higher chance of false negative results with antigen tests than with laboratory-based molecular tests. This means that there is a higher chance this test will give a negative result in an individual with COVID-19 as compared to a molecular test.

Conditions of Authorization for the Laboratory The LumiraDx SARS-CoV-2 Ag Test Letter of Authorization, along with the

authorized East Sheet for Healthcare Providers the authorized East Sheet for Patients, and authorized labeling are available on the FDA https://www.fda.gov/medical-devices/coronavirus-disease-2019-

covid-19-emergency-use-authorizations-medical-devices/in-vitrodiaanostics-euas However, to assist clinical laboratories using the LumiraDx SARS-

CoV-2 Aa Test ("vour product" in the conditions below), the relevant Conditions of Authorization are listed below:

- circumstances, other appropriate methods for disseminating this labeling may be used, which may include mass media Authorized laboratories using your product must use your product as outlined in the authorized labeling. Deviations from the authorized procedures, including the authorized
- instruments, authorized clinical specimen types, authorized control materials, authorized ancillary reagents and authorized materials required to use your product are not permitted. Authorized laboratories that receive your product must notify the relevant public health authorities of their intent to run your
- product prior to initiating testing. Authorized laboratories using your product must have a process in place for reporting test results to healthcare providers and
- relevant public health authorities, as appropriate. Authorized laboratories must collect information on the ormance of your product and report to DMD/OHT7-OIR OPEQ/CDRH (via email: CDRH-EUA-Reporting@fda.hhs.gov) and you (via email: customerservices.US@lumiradx.com) any suspected occurrence of false positive or false negative results and significant deviations from the established performance
- All operators using your product must be appropriately trained in performing and interpreting the results of your product, use appropriate personal protective equipment when handling this kit, and use your product in accordance with the authorized
- You, authorized distributors, and authorized laboratories using your product must ensure that any records associated with this EUA are maintained until otherwise notified by FDA. Such records will be made available to FDA for inspection upon

characteristics of your product of which they become aware.

¹ The letter of authorization refers to, "Laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C. 263a that meet the requirements to perform moderate high or waived mplexity tests. This product is authorized for use at the Point of Care. (POC), i.e., in patient care settings operating under a CLIA Certificate of Waiver, Certificate of Compliance, or Certificate of Accreditation," as 'authorized laboratories.'

The performance of the LumiraDx SARS-CoV-2 Ag Test was established

Clinical performance - Anterior Nasal Swab

with 257 direct nasal swabs prospectively collected from individual subjects between June 2020 and July 2020 during the 2020 COVID-19 pandemic Samples were collected from sequentially enrolled subjects who presented with symptoms of COVID-19 (159) or key workers (98) at increased risk of infection. No positive results were observed from patients without symptoms or beyond 12 days of symptom onset. Dual nasal swabs were simultaneously collected and then randomly allocated to testing with the LumiraDx test or an EUA RT-PCR assay. Samples were collected from 6 sites across the United States (5) and United Kinadom (1), including four sites in which minimally trained operators collected and tested fresh samples

Swabs were collected and extracted into the LumiraDx extraction buffer without transport media. Samples were tested fresh or frozen within 1h of collection and stored until tested. Samples were thawed and sequentially tested according to the Product Insert, with operators olinded to the RT-PCR result. The performance of the LumiraDx SARS-V-2 Ag Test was compared to the results from anterior nasal swabs collected into 3ml universal transport medium (UTM) and tested with an EUA RT-PCR method.

Patient demographics

Patient demographics (age, time elapsed since onset of symptoms) are available for the 257 samples used in the study. The table below shows the positive results broken down by gae of the patient:

Age	LumiraDx SARS-CoV-2 Ag (n = 81)				
	Total #	Positive	Prevalence		
≤ 5 years	13	0	N/A		
6 to 21 years	29	6	20.7%		
22 to 59 years	200	70	35.0%		
≥ 60 years	15	5	33.3%		

Positive results broken down by days since symptom onset:

Days since symptom onset	Cumulative RT-PCR Positive(+)	Cumulative LumiraDx Positive(+)	PPA	95% Confidence interval		
0	6	6	100.0%	61.0%	100.0%	
1	12	12	100.0%	75.8%	100.0%	
2	28	28	100.0%	87.9%	100.0%	
3	37	37	100.0%	90.6%	100.0%	
4	55	54	98.2%	90.4%	99.7%	
5	61	60	98.4%	91.3%	99.7%	
6	67	66	98.5%	92.0%	99.7%	
7	73	72	98.6%	92.6%	99.8%	
8	75	74	98.7%	92.8%	99.8%	
9	75	74	98.7%	92.8%	99.8%	
10	77	76	98.7%	93.0%	99.8%	
11	80	79	98.8%	93.3%	99.8%	
12	83	81	97.6%	91.6%	99.3%	

Final data analysis is presented below

Reference	e RT-PCR	Assay					95% Wilson Score CI		
							LCI	UCI	
LumiraDx SARS-CoV-2 Ag Test		POS	NEG	Total	PPA	97.6%	91.6%	99.3%	
SAKS-COV-2 AG IESI	POS	81	6	87	NPA	96.6%	92.7%	98.4%	
	NEG	2	168	170	Prevalence	32.3%	26.9%	38.2%	
	TOTAL	83	174	257					

PPA - Positive Percent Agreement (Sensitivity)

NPA - Negative Percent Agreement (Specificity)

CI - Confidence Interval LCI - Lower Confidence Interval

UCI - Upper Confidence Interval

Clinical Performance - Nasopharynaeal Swabs The performance of the SARS-CoV-2 Ag Test was established with 255 nasopharyngeal swabs prospectively collected from individual sub-

jects between August 2020 and September 2020 during the 2020 COVID pandemic. Subjects were presenting with symptoms of COVID-19 being screened for infection. Samples were collected from 6 sites across the United States. Swabs were collected and extracted into the LumiraDx Extraction Buffer. Sample's were tested fresh within 1h of collection and tested according to the Product Insert. The performance of the LumiraDx SARS-COV-2 Ag Test was compared to the results from nasopharyngeal samples collected into 3ml universal transport medium (UTM) and tested with an EUA authorized PCR method.

Patient demographics (age, time elapsed since onset of symptoms) are available for the 255 samples used in the study. The table below shows the positive results broken down by age of the patient:

Age	LumiraDx SARS-CoV-2 Ag (n = 39)				
	Total #	Positive	Prevalence		
≤ 5 years	22	0	0.0%		
6 to 21 years	59	9	15.3%		
22 to 59 years	150	28	18.7%		
≥ 60 years	24	2	8.3%		

Positive and negative results broken down by days since symptom onset:

Days since symptom onset	Cumulative PCR Positive (+)	LumiraDx Positive (+)	PPA	LCI	UCI	NPA	LCI	UCI
0	2	2	100.0%	34.2%	100.0%	100.0%	75.8%	100.0%
1	6	6	100.0%	61.0%	100.0%	100.0%	93.4%	100.0%
2	9	9	100.0%	70.1%	100.0%	100.0%	96.2%	100.0%
3	17	17	100.0%	81.6%	100.0%	98.6%	94.9%	99.6%
4	22	22	100.0%	85.1%	100.0%	98.8%	95.7%	99.7%
5	23	23	100.0%	85.7%	100.0%	98.4%	95.3%	99.4%
6	26	26	100.0%	87.1%	100.0%	98.5%	95.6%	99.5%
7	34	34	100.0%	89.8%	100.0%	98.5%	95.7%	99.5%
8	36	36	100.0%	90.4%	100.0%	98.6%	95.8%	99.5%
9	36	36	100.0%	90.4%	100.0%	98.6%	95.9%	99.5%
10	39	38	97.4%	86.8%	99.5%	98.1%	95.2%	99.3%
11	40	39	97.5%	87.1%	99.6%	97.7%	94.6%	99.0%
12	40	39	97.5%	87.1%	99.6%	97.7%	94.7%	99.0%

Final data analysis is presented below:

Reference RT-PCR Assay						95% Wilson Score CI		
						LCI	UCI	
	POS	NEG	Total	PPA	97.5%	87.1%	99.6%	
POS	39	5	44	NPA	97.7%	94.7%	99.0%	
NEG	1	210	211	Prevalence	15.7%	11.7%	20.7%	
TOTAL	40	215	255					
	POS NEG	POS 39 NEG 1	POS NEG POS 39 5 NEG 1 210	POS NEG Total POS 39 5 44 NEG 1 210 211	POS NEG Total PPA POS 39 5 44 NPA NEG 1 210 211 Prevalence	POS NEG Total PPA 97.5% POS 39 5 44 NPA 97.7% NEG 1 210 211 Prevalence 15.7%	CI POS NEG Total PPA 97.5% 87.1%	

Analytical performance

Limit of Detection - LOD (analytical sensitivity):

Limit of Detection (LoD) studies determined the lowest detectable concentration of SARS-CoV-2 at which 100% of all (true positive) replicates test positive. The LoD for the LumiraDx SARS-CoV-2 Ag Test was established using limiting dilutions of gamma-irradiated SARS-CoV-2 (BEIResources NR-52287). The NR-52287 is a preparation of SARS-Related Coronavirus 2 (SARS-CoV2), isolate USA WA1/2020, that has been inactivated by gamma-irradiation at 5 x 10⁶ RADs. The material was supplied frozen at a concentration of 2.8 x 10⁵ TCID_{so}/mL.

Limit of Detection (LoD) screening

An initial LoD screening study was performed using a 5-fold serial dilutions (six dilutions in total) of the gamma-irradiated virus made in pooled negative human nasal matrix starting at a test concentration of 2 x 10⁴ TCID_{so}/mL (as shown in table below) and processed for each study as described above. These dilutions were tested in triplicate. The lowest concentration at which all (3 out of 3 replicates) were positive was chosen for LoD Range finding. This was 32 TCID₅₀/mL.

Test result
3/3 positive
0/3 positive

Using the 32 TCID_{so}/mL concentration, the LoD was further refined using a 2-fold dilution series (four dilutions in total) of the gammarradiated SARS-CoV-2 virus made in pooled negative human nasal matrix. These dilutions were tested in triplicate. The lowest concentration at which all (3 out of 3 replicates) were positive was treated as the tentative LoD for the LumiraDx SARS-CoV-2 Ag Test. This was 32 TCID_{sn}/mL.

SARS-CoV-2 tested (TCID50/mL)	Test result
32	3/3 positive
16	0/3 positive
8	1/3 positive
4	0/3 positive

Limit of Detection (LoD) confirmation

The LoD of the LumiraDx SARS-CoV-2 Ag Test was then confirmed by testing 20 replicates with concentrations at the tentative Limit of Detection. The final LoD of the LumiraDx SARS-CoV-2 Ag Test was determined to be the lowest concentration resulting in positive detection of twenty (20) out of twenty (20) replicates. Based on this testing the LoD for nasal swab samples was confirmed as: 32 TCID_{sn}/mL.

Starting Material Concentration	Estimated LOD	No. Positive/Total	% Positive
2.8 x 105 TCID50/mL	32 TCID50/mL	20/20	100

Omicron Testina

evaluated in a comparative performance study using a dilution series of clinical specimens containing live virus, which were positive for the Omicron variant (BA.1.1.529) of SARS-CoV-2. This comparative testing was conducted by the National Institutes of Health (NIH) as a component of the Rapid Acceleration of Diagnostics (RADx®) initiative. Compared to an EUA-authorized RT-PCR method, this SARS-CoV-2 Ag test detected 100% of live virus Omicron samples at a Ct-value of 23.6 (n=5), Less than 50% of Omicron dilutions at Ct-values of 24.0 and 24.8 were detected (n=5). Omicron dilutions at lower yiral concentrations (Ct-values greater than 24.6 for live virus) were not detected by this similar LumiraDx SARS-CoV-2 Aa Test in this study. See summary data table below. Omicron Pool 2 - Live Dilution Assay #1 Assay #2 LumiraDx SARS-CoV-2 Aa Test

The performance of a multiplex SARS-CoV-2 Aq test device, which utilizes the same anti-SARS-CoV-2 antibodies as this device, was

		,		
	Ct-N2 Ave.	Percent Positive (n=5)	Percent Positive (n=5)	Percent Positive (n=5)
Dilution 1	19.8	100	100	100
Dilution 2	20.8	100	100	100
Dilution 3	21.5	100	100	100
Dilution 4	22.7	100	100	100
Dilution 5	23.6	100	0	100
Dilution 6	24.0	60	0	40
Dilution 7	24.8	0	0	20
Dilution 8	25.8	0	0	0
Dilution 9	27.4	0	0	0
Dilution 10	28.1	0	0	0
Dilution 11	29.1	0	0	0

Cross-reactivity (analytical specificity) and microbial interference studies

Cross-reactivity and inteference of the LumiraDx SARS-CoV-2 Ag Test was evaluated by testing a panel of related pathogens, high prevalence disease agents and normal or pathogenic flora including various microorganisms and viruses and negative matrix that are reasonably likely to be encountered in the clinical sample and could potentially cross-react or interfere with the LumiraDx SARS CoV-2 Aa Test. Each organism and virus were tested in the absence or presence of heat inactivated SARS-CoV-2 at 3 x LoD.

Concentration Cross-Reactivity (Yes/No) Interference (Yes/No)

Human coronavirus 229E	Zeptometrix	1 x 10⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Human coronavirus OC43	Zeptometrix	1 x 10 ⁵ PFU/mL	No (3/3 negative)	No (19/20 positive)
Human coronavirus NL63	Zeptometrix	9.87 x 10 ³ PFU/mL	No (3/3 negative)	No (3/3 positive)
MERS coronavirus	Zeptometrix	7930 PFU/mL	No (2/2 negative)	No (3/3 positive)
Adenovirus (e.g. C1 Ad. 71)	Zeptometrix	1 x 10⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Human Metapneumovirus (hMPV)	Zeptometrix	1 x 10⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Parainfluenza virus Type 1	Zeptometrix	1 x 10 ⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Parainfluenza virus Type 2	Zeptometrix	1 x 10 ⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Parainfluenza virus Type 3	Zeptometrix	1 x 10⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Parainfluenza virus Type 4a	Zeptometrix	1 x 10⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Influenza A H3N2 (Wisconsin/67/05)	Zeptometrix	8.82 x 10 ⁴ PFU/mL	No (3/3 negative)	No (3/3 positive)
Influenza A H1N1	Zeptometrix	1 x 10 ⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Influenza B (Malaysia/2506/04)	Zeptometrix	2.92 x 10 ⁴ PFU/mL	No (3/3 negative)	No (19/20 positive)
Enterovirus	Zeptometrix	1 x 10⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Respiratory syncytial virus	Zeptometrix	1 x 10⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Rhinovirus	Zeptometrix	4.17 x 10 ⁵ PFU/mL	No (3/3 negative)	No (3/3 positive)
Haemophilus influenzae	Zeptometrix	1 x 106 CFU/mL	No (3/3 negative)	No (3/3 positive)
Streptococcus pneumoniae	Zeptometrix	1 x 106 CFU/mL	No (3/3 negative)	No (3/3 positive)
Streptococcus pyogenes	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Candida albicans	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Pooled human nasal wash	LumiraDx	14% v/v	No (3/3 negative)	No (3/3 positive)
Bordetella pertussis	Zeptometrix	1 x 106 CFU/mL	No (3/3 negative)	No (3/3 positive)
Mycoplasma pneumoniae	ATCC	1 x 106 CFU/mL	No (3/3 negative)	No (3/3 positive)
Chlamydia pneumoniae	ATCC	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Legionella pneumophila	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Mycobacterium tuberculosis	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Pneumocystis jirovecii	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Pseudomonas Aeruginosa	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Staphylococcus Epidermidis	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Streptococcus Salivarius	Zeptometrix	1 x 10° CFU/mL	No (3/3 negative)	No (3/3 positive)
Staphylococcus aureus	ATCC	1 x 106 CFU/mL	No (3/3 negative)	No (3/3 positive)

To estimate the likelihood of cross-reactivity with SARS-CoV-2 of organisms that were not available for wet testing, in silico analysis using the Basic Local Alignment Search Tool (BLAST) managed by the National Center for Biotechnology Information (NCBI) was used to assess the degree of protein sequence homology

- For Human Coronavirus HKU1, homology exists between the SARS-CoV-2 nucleocapsid protein and Human Coronavirus HKU1. BLAST results showed 30 sequence IDs, all nucleocapsid protein, showing homology. Sequence ID AGW27840.1 had the highest alignment score and was found to be 39.1% homologous across 76% of the sequences, this is relatively low but cross-reactivity cannot be fully
- For SARS-Coronavirus, high homology exists between the SARS-CoV-2 nucleocapsid protein and SARS-Coronavirus. BLAST results showed 68 sequence IDs, mostly nucleocapsid protein, showing homology. Sequence ID AAR87518,1, had the highest alignment score isolated from a human patient and was found to be 90.76% homologous across 100% of the sequence. This is high and cross-
- For MERS-Coronavirus, high homology exists between the SARS-CoV-2 nucleocapsid protein and MERS-Coronavirus. BLAST results showed at least 114 sequence IDs. mostly nucleocapsid protein, showing homology, Sequence IDs AHY61344,1 and AWH65950.1 had the highest alignment scores isolated from a human patient and were found to be 49.4% and 50.3% homologous across 88% of the sequence. Whilst this potentially represents moderate cross-reactivity testing of the MERS virus at 7930 PFU/mL showed no

Endogenous interference studies

Interfering substance

A study was performed to demonstrate that potentially interfering substances that may be found in the upper respiratory tract in symptomatic subjects (including over the counter medications) do not pross-react or interfere with the detection of SAPS-COV-2 in the LumiraDx SARS-CoV-2 Ag Test Fach substance was tested in triplicate in the absence or presence of SARS-CoV-2 at 3 x LoD Substances for testing were selected based on the respiratory samples auidance in http://www.accessdata.fda.gov/cdrh.docs/reviews/K112177.pdf. The final concentration of the substances tested are documented in the Table below

Concentration

150 ma/dl

bei izoculi ie	130 Hig/aL	NO (3/3 Negative, 3/3 Positive)
Blood (human)	5%	No (3/3 Negative, 3/3 Positive)
Mucin	5 mg/mL	No (3/3 Negative, 3/3 Positive)
Naso GEL (NeilMed)	5% v/v	No (3/3 Negative, 3/3 Positive)
CVS Nasal Drops (phenylephrine)	15% v/v	No (3/3 Negative, 3/3 Positive)
Afrin (Oxymetazoline)	15% v/v	No (3/3 Negative, 3/3 Positive)
CVS Nasal Spray (Cromolyn)	15% v/v	No (3/3 Negative, 3/3 Positive)
Zicam Cold Remedy	5% v/v	No (3/3 Negative, 3/3 Positive)
Homeopathic (Alkalol)	10 % v/v	No (3/3 Negative, 3/3 Positive)
Sore Throat Phenol Spray	15% v/v	No (3/3 Negative, 3/3 Positive)
Tobramycin	3.3 mg/dL	No (3/3 Negative, 3/3 Positive)
Mupirocin	0.15 mg/dL	No (3/3 Negative, 3/3 Positive)
Fluticasone	0.000126 mg/dL	No (5/5 Negative, 4/4 Positive)
Tamiflu (Oseltamivir phosphate)	500 mg/dL	No (3/3 Negative, 3/3 Positive)
Budesonide	0.00063 mg/dL	No (3/3 Negative, 3/3 Positive)
Biotin	0.35 mg/dL	No (3/3 Negative, 3/3 Positive)
Methanol	150 mg/dL	No (19/20 Negative, 3/3 Positive)
Acetylsalicylic Acid	3 mg/dL	No (3/3 Negative, 3/3 Positive)
Diphenhydramine	0.0774 mg/dL	No (3/3 Negative, 3/3 Positive)
Dextromethorphan	0.00156 mg/dL	No (19/20 Negative, 3/3 Positive)
Dexamethasone	1.2 mg/dL	No (3/3 Negative, 3/3 Positive)
Mucinex	5%	No (3/3 Negative, 3/3 Positive)

High dose hook effect

High Dose Hook Effect studies determine the level at which false negative results can be seen when very high levels of target are present in a tested sample. To determine if the LumiraDx SARS-CoV-2 Ag Test suffers from any high dose hook effect, increasing concentrations of gamma-irradiated SARS CoV-2 virus (BEI Resources NR-52287) were tested up to a concentration of 1.4 x 10⁵ TCID_{so}/mL. In this study, the starting material was spiked into a volume of pooled human nasal matrix obtained from healthy donors and confirm CoV-2. At each dilution, 50 µL samples were added to swabs and the swabs processed for testing on the LumiraDx SARS-CoV-2 Ag Test as per the Product Insert using the procedure appropriate for patient nasal swab samples.

No impact on test performance or high dose hook effect was observed up to 1.4 x 105 TCID_{x0}/mL of gamma-irradiated SARS-CoV-2 with the

Test dilution	Concentration (TCID50/mL)	Mean signal (ADC Units)
1	0	495
2	62.5	26100.6
3	250	63013.8
4	1000	83451.8
5	1.4 x 10 ⁵	86220

Point of care use

The LumiraDx SARS-CoV-2 Ag Test was used by 8 untrained users in 4 sites across the United States. Untrained users tested 132 patients and ran 148 tests.

- World Health Organisation www.who.int
- 2. Centers for Disease Control and Prevention www.cdc.gov

REF Catalogue Number

LOT Batch code/Lot Number

IVD In Vitro Diagnostic Medical Device

Temperature limitation



Consult Instructions for Use





Rx Only Prescription Use Only



Do not re-sterilize



((e)) Indicates the presence of the Radio Frequency)) Identification (RFID) reader/tag.

STERILE EO Indicates a medical device that has been sterilized using ethylene oxide



Interference (Yes/No)

No. (3/3 Negative 3/3 Positive)

Indicates that a medical device that should not be used if the package has been damaged or opened and that the user should consult the instructions for



umiraDx customer services: For product inquiries and technical support please contact LumiraDx Customer Services by email:

customerservices.US@lumiradx.com, telephone 1-888-586-4721 or Lumiradx.com

If there is a problem with the LumiraDx SARS-CoV-2 Aa Test Strips you may be asked to return them. Before returning tests please obtain a return authorization number from LumiraDx Customer Services. This return authorization number must be on the shipping carton for return. For ordinary returns following purchase, please contact LumiraDx Customer Services for terms and conditions: customerservices.US@lumiradx.com

Limited warranty

LumiraDx SARS-CoV-2 Ag Test Strips - As per shelf life.

Unused strips and nasal collection swabs must be stored according to the required storage conditions as printed in this product insert and they can be used only up to the expiry date printed on the Test Strip pouch, Test Strip box and swab packaging. For the applicable warranty period, LumiraDx warrants that each product shall be (i) of good quality and free of material defects, (ii) function in accordance with the material specifications referenced in the product insert, and (iii) approved by the proper governmental agencies required for the sale of products for their intended use (the "limited warranty"). If the product fails to meet the requirements of the limited warranty, then as sustomer's sole remedy, LumiraDx shall either repair or replace, at LumiraDx's discretion, the Test Strips. Except for the limited warranty stated n this section, LumiraDx disclaims any and all warranties, express or implied, including but not limited to, any warranty of merchantability, itness for a particular purpose and non-infringement regarding the product. LumiraDx's maximum liability with any customer claim shall not exceed the net product price paid by the customer. Neither party shall be liable to the other party for special, incidental or onsequential damages, including, without limitation, loss of business, profits, data or revenue, even if a party receives notice in advance hat these kinds of damages might result. The Limited Warranty above shall not apply if the customer has subjected the LumiraDx SARS-CoV-2 Ag Test to physical abuse, misuse, abnormal use, use inconsistent with the LumiraDx Platform User Manual or Product Insert, fraud, tampering, unusual physical stress, negligence or accidents. Any warranty claim by Customer pursuant to the Limited Warranty shall be made in writing within the applicable Limited Warranty period.

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