AccuPlex™ SARS-CoV-2
Molecular Controls Kit

CE

EC REP

SeraCare Life Sciences, Inc. | 37 Birch Street, Milford, MA 01757 USA
Phone: +1 508.244.6400 | info@seracare.com

MEDIMARK® Europe
11, rue Émile Zola BP 2332
38033 Grenoble Cedex 2 – France
+ 33 (0) 4 76 86 43 22
info@medimark-europe.com

13674US-01 June 2020

Explanation of symbols used in SeraCare product labeling

Upper limit of temperature

Temperature limitation

EC REP

Authorized Representative in the European Community

Biological risks

Use By

IVD

In Vitro Diagnostic Medical Device

CONTROL -

Negative control

REF

Catalogue number

Consult instructions for use

CONTROL +

Positive control

LOT

Batch code

Manufacturer

CONTROL

Control

US | THESE REAGENTS MUST NOT BE SUBSTITUTED FOR THE MANDATORY POSITIVE AND NEGATIVE CONTROL REAGENTS PROVIDED WITH MANUFACTURED TEST KITS.

AccuPlex™ SARS-CoV-2 Molecular Controls Kit

NAME AND INTENDED USE

AccuPlex™ SARS-CoV-2 Molecular Controls Kit is formulated for use with *in vitro* diagnostic test methods that detect the SARS-CoV-2 virus, the causative agent of COVID-19 disease. The controls are intended to estimate laboratory testing precision and can be used to detect errors in laboratory testing procedures. AccuPlex controls contain non-replicative recombinant viruses that are intended to assess the performance of the full process of a molecular test. AccuPlex can be used to evaluate test proficiency and accuracy through the full process because they are encapsulated viruses which require extraction and amplification. *For In Vitro Diagnostic Use.*

SUMMARY

Frequent testing of independent quality control samples provides the analyst with a means of monitoring the performance of laboratory assays. Routine use of controls enables laboratories to monitor day-to-day test variation, lot-to-lot performance of test kits, and operator variation, and can assist in identifying increases in random or systematic error. A well designed quality control program can provide added confidence in the reliability of results obtained for unknown specimens. The use of low-reactive samples as independent controls may provide valuable information concerning laboratory proficiency and kit lot variation that may affect assay sensitivity[1].

PRINCIPLES OF THE PROCEDURE

AccuPlex SARS-CoV-2 Molecular Controls Kit has been designed for use with in vitro assay procedures for purposes of monitoring test performance. This product contains recombinant Alphavirus. There are 5 vials of positive controls that contain recombinant virus particles with sequences from SARS-CoV-2 genome. The sequences are based on the Genbank accession number NC_045512.2 and are detailed in Table 1.

Table 1: Sequences contained in positive controls

Region*	Included Nucleotides
ORF1a	417..1899
	3094..3360
RdRp	13291..13560
	14700..15950
	18577..19051
S (Spike Gene)	21363.. 26001
E (Envelope)	25801..28200
N (Nucleocapsid)	27952..29873

* May contain additional genes within the region.

There are also 5 vials of negative controls that contain recombinant virus particles with sequences from human RNase P gene (RP). This material must go through extraction, similar to the patient sample.

AccuPlex SARS-CoV-2 Molecular Controls do not have assigned values. The controls have been formulated at a targeted formulation of 5000 copies/mL as measured using reverse transcription digital PCR to perform as positive and negative controls in assays that detect SARS-CoV-2 RNA. Representative data is presented for reference only in Table 2. Specific performance will vary among different manufacturers' assays, different procedures, different lot numbers, and different laboratories.

REAGENTS

Item No. 0505-0133

Positive: 5 x 1.5 mL vials
Negative: 5 x 1.5 mL vials

The product is formulated in viral transport media that consists of Tris-buffered saline, with added glycerol, anti-microbial agents, and human plasma proteins.

WARNINGS AND PRECAUTIONS

For In Vitro Diagnostic Use.

CAUTION: The recombinant viruses used to produce the AccuPlex SARS-CoV-2 Molecular Controls are replication defective and heat-treated. However, handle AccuPlex products and all human blood products as though they can transmit infectious agents.

Safety Precautions

Use the Centers for Disease Control (CDC) recommended universal precautions for handling AccuPlex controls[2]. Do not pipette by mouth; do not eat or drink in areas where specimens are being handled. Clean any spillage by immediately wiping up with 0.5% sodium hypochlorite solution. Dispose of all specimens, controls and materials used in testing as though they contain infectious agents.

Handling Precautions

Do not use AccuPlex SARS-CoV-2 Molecular Controls beyond the expiration date. Avoid microbial contamination of the controls when opening and closing the vials.

STORAGE INSTRUCTIONS

Store the AccuPlex SARS-CoV-2 Molecular Controls Kit refrigerated at 2-8°C. The product may be initially stored at -20°C, but once thawed, maintain at 2-8°C. Do not expose to multiple freeze thaw cycles. Each vial can be used up to 10 times within 30 days of opening. To prevent leakage, store vials upright.

INDICATIONS OF REAGENT INSTABILITY OR DETERIORATION

Alterations in physical appearance may indicate instability or deterioration of AccuPlex controls. Solutions that are visibly turbid should be discarded.

PROCEDURE

Materials Provided

AccuPlex SARS-CoV-2 Molecular Controls Kit is manufactured from recombinant virus particles in viral transport media. See REAGENTS for package size.

Materials Required but not Provided

Refer to instructions supplied by manufacturers of the test kits to be used.

Instructions for Use

Allow the product vial to come to room temperature before use. Mix by vortexing to ensure a homogeneous suspension. AccuPlex SARS-CoV-2 Molecular Controls should be added to a test run using the same procedure provided by the manufacturer for unknown specimens. AccuPlex SARS-CoV-2 Molecular Controls must go through an extraction process prior to detection by PCR. Process the product according to the instructions for unknown samples provided by the test kit or the laboratory's standard operating procedures. AccuPlex SARS-CoV-2 Molecular Controls must NOT be substituted for the positive and negative control reagents provided with the manufactured test kits.

Quality Control

Since AccuPlex SARS-CoV-2 Molecular Controls do not have assigned values, it is recommended that each laboratory validate the use of each lot of AccuPlex SARS-CoV-2 Molecular Controls with each specific assay system prior to its routine use in the laboratory.

INTERPRETATION OF RESULTS

Levels of reactivity for the AccuPlex SARS-CoV-2 Molecular Controls may vary with different manufacturers' tests and different test kit lots. This product contains a targeted formulation of 5000 copies/mL as measured using reverse transcription digital PCR. This concentration is roughly five times the lower limit of detection of published real time quantitative PCR assays[3]. Each batch is tested using 2019-nCoVprimers/probes described in the US CDC Assay publication and using testing protocols similar to that described in CDC published instructions for use[3]: positive controls give positive results when using the US CDC testing protocol; negative controls gives negative results when using the US CDC testing protocol. Note that the positive controls may contain traces of RNase P and therefore generate a positive RNase P result due to the presence of a human plasma component in the product matrix; it is not designed or intended to be used as an RNase P control.

If AccuPlex SARS-CoV-2 Molecular Controls do not perform as expected, compare the sequences detected in the assay being run with the sequences contained within the control to ensure that there is compatibility. If the control is compatible, unexpected performance may be an indication of unsatisfactory test performance. Possible sources of discrepancy are: deterioration of test kit reagents, operator error, faulty performance of equipment, or contamination of reagents.

LIMITATIONS OF THE PROCEDURE

AccuPlex SARS-CoV-2 Molecular Controls MUST NOT BE SUBSTITUTED FOR THE POSITIVE AND NEGATIVE CONTROL REAGENTS PROVIDED WITH MANUFACTURED TEST KITS.

TEST PROCEDURES and *INTERPRETATION OF RESULTS* provided by manufacturers of test kits must be followed closely. Deviations from procedures recommended by test kit manufacturers may produce unreliable results. AccuPlex SARS-CoV-2 Molecular Controls are provided for quality assurance purposes and must not be used for calibration or as a primary reference preparation in any test procedure. Performance characteristics for AccuPlex SARS-CoV-2 controls have been established only for amplified nucleic acid tests for RNA only. Adverse shipping and/or storage conditions or use of outdated controls may produce erroneous results.

EXPECTED RESULTS

AccuPlex SARS-CoV-2 Molecular Controls DO NOT HAVE ASSIGNED VALUES. Specific levels of reactivity will vary among different manufacturers' assays, different procedures, different lot numbers, and different laboratories. Procedures for implementing a quality assurance program and monitoring test performance on a routine basis must be established by each individual laboratory. Each laboratory should establish its own range of acceptable values, as appropriate. For example, the acceptable range might include all values within 2 standard deviations of the mean of 20 data points obtained in 20 runs over a period of 30 days[4].

SPECIFIC PERFORMANCE CHARACTERISTICS

AccuPlex SARS-CoV-2 Molecular Controls have been designed for use with *in vitro* assay procedures for purposes of monitoring assay performance. The control is intended for use with nucleic acid based detection assays only. AccuPlex SARS-CoV-2 Molecular Controls Kit is manufactured from recombinant virus particles in viral transport media. AccuPlex SARS-CoV-2 Molecular Controls do not have assigned values. Specific levels of reactivity will vary among different manufacturers' assays, different procedures, different reagent lot numbers, and different laboratories. Procedures for implementing a quality assurance program and monitoring test performance on a routine basis must be established by each individual laboratory.

REFERENCES

1. Green IV GA, Carey RN, Westgard JO, Carten T, Shablesky LA, Achord D, Page E, and Le AV. Quality control for qualitative assays: quantitative QC procedure designed to assure analytical quality required for an ELISA for hepatitis B surface antigen. Clin. Chem. 43:9 1618-1621, 1997.
2. Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.
3. CDC 2019-Novel Coronavirus (2019-nCoV) Real Time RT-PCR Diagnostic Panel Instructions for use. CDC-006-00019 Revision: 01. Effective 2/4/2020.
4. Statistical Quality Control for Quantitative Measurements: Principles and Definitions; Approved Guideline – Second Edition. NCCLS document C24-A2, 1999.

Table 2. Representative data for AccuPlex SARS-CoV-2 Controls Kit. For reference only.

Product Component	Assay Manufacturer/Test Name	Result
AccuPlex SARS-CoV-2 Molecular Controls Positive Vial	Laboratory Developed Test using US CDC 2019 nCoV Real Time PCR Primers and Probes	Positive
AccuPlex SARS-CoV-2 Molecular Controls Negative Vial	Laboratory Developed Test using US CDC 2019 nCoV Real Time PCR Primers and Probes	Not Detected

For assistance, contact SeraCare Technical Support at +1 508.244.6400.

Any serious incident that has occurred in relation to the device shall be reported to SeraCare Technical Support and, if in use in the EU, the competent authority of the Member State in which the incident occurred.

13674US-01 June 2020

Phone: +1 508.244.6400 | Toll Free (US Only) 800.676.1881
Fax: +1.508.634.3334 | SeraCare.com