Date: June 1, 2023

Roche Molecular Systems, Inc.
Caroline Sobek
Regulatory Affairs Project Manager
4300 Hacienda Drive
Pleasanton, California 94028

Re: K231306
Trade/Device Name: cobas SARS-CoV-2 Qualitative for use on the cobas 5800/6800/8800 Systems
Regulation Number: 21 CFR 866.3981
Regulation Name: Device To Detect And Identify Nucleic Acid Targets In Respiratory Specimens From Microbial Agents That Cause The SARS-Cov-2 Respiratory Infection And Other Microbial Agents When In A Multi-Target Test
Regulatory Class: Class II
Product Code: QQX
Dated: May 4, 2023
Received: May 5, 2023

Dear Caroline Sobek:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801 and Part 809); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803) for devices or postmarketing safety reporting (21 CFR 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance) and CDRH Learn (https://www.fda.gov/training-and-continuing-education/cdrh-learn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Himani Bisht -S

Himani Bisht, Ph.D.
Assistant Director
Viral Respiratory and HPV Branch
Division of Microbiology Devices
OHT7: Office of In Vitro Diagnostics
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: 06/30/2023
See PRA Statement below.

510(k) Number *(if known)*
K231306

Device Name
cobas® SARS-CoV-2 Qualitative for use on the cobas® 5800/6800/8800 Systems

Indications for Use *(Describe)*
cobas® SARS-CoV-2 Qualitative for use on the cobas® 5800/6800/8800 Systems is a real-time RT-PCR test intended for the qualitative detection of nucleic acids from SARS-CoV-2 in nasal and nasopharyngeal specimens collected from symptomatic individuals suspected of COVID-19 by their healthcare provider.
Results are for the detection of SARS-CoV-2 RNA. Positive results are indicative of the presence of SARS-CoV-2 RNA; clinical correlation with patient history and other diagnostic information is necessary to determine patient infection status. Positive results do not rule out bacterial infection or co-infection with other pathogens.
Negative results do not preclude SARS-CoV-2 infection and should not be used as the sole basis for patient management decisions. Results are meant to be used in conjunction with clinical observations, patient history, recent exposures and epidemiological information, and laboratory data, in accordance with the guidelines provided by the relevant public health authorities. cobas® SARS-CoV-2 Qualitative is intended for use by qualified clinical laboratory personnel specifically instructed and trained in the techniques of real-time PCR and on the use of the cobas® 5800/6800/8800 Systems.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

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cobas® SARS-CoV-2 Qualitative for use on the **cobas®** 5800/6800/8800 Systems 510(k) Summary

This summary of 510(k) safety and effectiveness information is being submitted in accordance with the requirements of 21 CFR 807.92.

Submitter Name	Roche Molecular Systems, Inc.
Address	4300 Hacienda Drive Pleasanton, CA 94588-2722
Contact	Caroline Sobek Phone: (925) 416-9705 Fax: (925) 225-0207 Email: caroline.sobek@roche.com
Date Prepared	May 4, 2023
Proprietary Name	**cobas®** SARS-CoV-2 Qualitative for use on **cobas®** 5800/6800/8800 Systems
Classification Name	Device to detect and identify nucleic acid targets in respiratory specimens from microbial agents that cause the SARS-CoV-2 respiratory infection and other microbial agents when in a multi-target test
Product Codes	21 CFR 866.3981
Predicate Devices	**cobas®** SARS-CoV-2 Qualitative for use on **cobas®** 5800/6800/8800 Systems (K213804)
Establishment Registration	Roche Molecular Systems, Inc. (2243471)

1. DEVICE DESCRIPTION

cobas® SARS-CoV-2 Qualitative is based on fully automated sample preparation (nucleic acid extraction and purification) followed by PCR amplification and detection. The **cobas®** 5800 System is designed as one integrated instrument. The **cobas®** 6800/8800 Systems consist of the sample supply module, the transfer module, the processing module, and the analytic module. Automated data management is performed by the **cobas®** 5800 or **cobas®** 6800/8800 Systems software(s), which assigns test results for all tests. Results can be reviewed directly on the system screen, and printed as a report.

Nucleic acid from patient samples and added internal control RNA (RNA IC) molecules are simultaneously extracted. Nucleic acid is released by addition of proteinase and lysis reagent to

the sample. The released nucleic acid binds to the silica surface of the added magnetic glass particles. Unbound substances and impurities, such as denatured protein, cellular debris and potential PCR inhibitors, are removed with subsequent wash steps and purified nucleic acid is eluted from the magnetic glass particles with elution buffer at elevated temperature. External controls (positive and negative) are processed in the same way.

Selective amplification of target nucleic acid from the sample is achieved by the use of target-specific forward and reverse primers for ORF1 a/b non-structural region that is unique to SARS-CoV-2. Additionally, a conserved region in the structural protein envelope E-gene were chosen for pan-Sarbecovirus detection. The pan-Sarbecovirus detection sets will also detect SARS-CoV-2 virus.

Selective amplification of RNA Internal Control is achieved by the use of non-competitive sequence specific forward and reverse primers which have no homology with the coronavirus genome. A thermostable DNA polymerase enzyme is used for amplification.

The **cobas®** SARS-CoV-2 Qualitative master mix contains detection probes which are specific for the coronavirus type SARS-CoV-2, members of the Sarbecovirus subgenus, and the RNA Internal Control nucleic acid. The coronavirus and RNA Internal Control detection probes are each labeled with unique fluorescent dyes that act as a reporter. Each probe also has a second dye which acts as a quencher. When not bound to the target sequence, the fluorescent signals of the intact probes are suppressed by the quencher dye. During the PCR amplification step, hybridization of the probes to the specific single-stranded DNA template results in cleavage of the probe by the 5' to 3' exonuclease activity of the DNA polymerase resulting in separation of the reporter and quencher dyes and the generation of a fluorescent signal. With each PCR cycle, increasing amounts of cleaved probes are generated and the cumulative signal of the reporter dye increases concomitantly. Each reporter dye is measured at defined wavelengths, which enables simultaneous detection and discrimination of the amplified coronavirus target and the RNA Internal Control. The master mix includes deoxyuridine triphosphate (dUTP), instead of deoxythimidine triphosphate (dTTP), which is incorporated into the newly synthesized DNA (amplicon). Any contaminating amplicons from previous PCR runs are destroyed by the AmpErase enzyme [uracil-N-glycosylase], which is included in the PCR mix, when heated in the first thermal cycling step. However, newly formed amplicons are not destroyed since the AmpErase enzyme is inactivated once exposed to temperatures above 55°C.

2. INDICATIONS FOR USE

cobas® SARS-CoV-2 Qualitative for use on the **cobas**® 5800/6800/8800 Systems is a real-time RT-PCR test intended for the qualitative detection of nucleic acids from SARS-CoV-2 in nasal and nasopharyngeal specimens collected from symptomatic individuals suspected of COVID-19 by their healthcare provider.

Results are for the detection of SARS-CoV-2 RNA. Positive results are indicative of the presence of SARS-CoV-2 RNA; clinical correlation with patient history and other diagnostic information is necessary to determine patient infection status. Positive results do not rule out bacterial infection or co-infection with other pathogens.

Negative results do not preclude SARS-CoV-2 infection and should not be used as the sole basis for patient management decisions. Results are meant to be used in conjunction with clinical observations, patient history, recent exposures and epidemiological information, and laboratory data, in accordance with the guidelines provided by the relevant public health authorities. **cobas**® SARS-CoV-2 Qualitative is intended for use by qualified clinical laboratory personnel specifically instructed and trained in the techniques of real-time PCR and on the use of the **cobas**® 5800/6800/8800 Systems.

3. TECHNOLOGICAL CHARACTERISTICS

The primary technological characteristics and intended use of the RMS **cobas**® SARS-CoV-2 Qualitative for use on the **cobas**® 5800/6800/8800 Systems are substantially equivalent to other legally marketed nucleic acid amplification tests intended for the qualitative detection of SARS-CoV-2 virus (SARS-CoV-2).

As indicated in Table 1, **cobas**® SARS-CoV-2 Qualitative for use on the **cobas**® 5800/6800/8800 Systems is substantially equivalent to significant characteristics of the identified predicate device, **cobas**® SARS-CoV-2 Qualitative for use on the **cobas**® 5800/6800/8800 Systems (K213804).

Table 1: Comparison of the cobas® SARS-CoV-2 Qualitative for use on the cobas® 5800/6800/8800 Systems with the Predicate Device

	Submitted Device: cobas® SARS-CoV-2 Qualitative	Predicate Device: cobas® SARS-CoV-2 Qualitative (K213804)
Regulation Number	21 CFR 866.3981	Same
Regulation Name	Device to detect and identify nucleic acid targets in respiratory specimens from microbial agents that cause the SARS-CoV-2 respiratory infection and other microbial agents when in a multi-target test	Same
Product Code	QQX	Same
Intended Use	**cobas®** SARS-CoV-2 Qualitative for use on the **cobas®** 5800/6800/8800 Systems is a real-time RT-PCR test intended for the qualitative detection of nucleic acids from SARS-CoV-2 in nasal and nasopharyngeal specimens collected from symptomatic individuals suspected of COVID-19 by their healthcare provider. Results are for the detection of SARS-CoV-2 RNA. Positive results are indicative of the presence of SARS-CoV-2 RNA; clinical correlation with patient history and other diagnostic information is necessary to determine patient infection status. Positive results do not rule out bacterial infection or co-infection with other pathogens. Negative results do not preclude SARS-CoV-2 infection and should not be used as the sole basis for patient management decisions. Results are meant to be used in conjunction with clinical observations, patient history, recent exposures and epidemiological information, and laboratory data, in accordance with the guidelines provided by the relevant public health authorities. **cobas®** SARS-CoV-2 Qualitative is intended for use by qualified clinical laboratory personnel specifically instructed and trained in the techniques of real-time PCR and on the use of the **cobas®** 5800/6800/8800 Systems.	Same
Conditions for use	For prescription use	Same
Sample Types	Nasopharyngeal swab specimen Nasal swab specimen	Same
Analyte Targets	SARS-CoV-2	Same
Sample Preparation Procedure	Automated by **cobas®** 5800/6800/8800 Systems	Same
Amplification Technology	Real-time PCR	Same
Detection Chemistry	Paired reporter and quencher fluorescence labeled probes (TaqMan Technology) using fluorescence resonance energy transfer (FRET)	Same
Controls used	Sample processing control (IC) Positive and negative control	Same
Result Analysis	Based on PCR cycle threshold analysis	Same

4. SPECIAL CONTROLS/STANDARDS/GUIDANCE REFERENCED

Class II Special Controls as per 21 CFR 866.3981.

5. DESCRIPTION OF CHANGE

The Assay Specific Analysis Packages (ASAPs) were updated to SW **cobas**® SCoV2-QL ASAP 12.4.1 and SW **cobas**® 5800 SCoV2-QL ASAP 1.3.1. These updates to ASAPs incorporate the following changes:

- Implementation of an additional Result Interpretation Logic to mitigate false positive due to spatial cross-talk
- Implementation of error flag in case sample is invalidated due to the additional result logic implemented

6. DESIGN AND DEVELOPMENT ACTIVITY SUMMARY

Roche Molecular Systems, Inc. (RMS) designed and developed the ASAPs for **cobas®** SARS-CoV-2 Qualitative. Roche Diagnostics International Ltd (RDI) in Rotkreuz, Switzerland coordinated the development and verification of SW **cobas**® SCoV2-QL ASAP 12.4.1 and SW **cobas**® 5800 SCoV2-QL ASAP 1.3.1 at the Product Requirements, Technical Requirements and Technical Requirement Specifications (Unit Specifications) level. These activities included risk management, requirements management, configuration management, verification testing, and regression analysis.

7. ASSAY PERFORMANCE

Performance of **cobas®** SARS-CoV-2 Qualitative with SW **cobas**® SCoV2-QL ASAP 12.4.1 and SW **cobas**® 5800 SCoV2-QL ASAP 1.3.1 was assessed, and it was determined that the overall **cobas®** SARS-CoV-2 Qualitative assay performance claims were not impacted by changes implemented in SW **cobas**® SCoV2-QL ASAP 12.4.1 and SW **cobas**® 5800 SCoV2-QL ASAP 1.3.1, when compared to the current commercially available version of the ASAPs SW **cobas**® SCoV2-QL ASAP 12.1.0 and SW **cobas**® 5800 SCoV2-QL ASAP 1.1.1.

8. CONCLUSIONS

Equivalent performance of the modified device and the current commercial device has been demonstrated, and analytical and clinical performance has not changed. The modified device is substantially equivalent to the predicate device, as cleared through K213804 and CLIA complexity-categorized through CR220463.