November 03, 2025

Roche Molecular Systems, Inc.
Sun Austin
Senior Regulatory Affairs Manager
4300 Hacienda Drive
Pleasanton, California 94588

Re: K252481
Trade/Device Name: cobas CMV
Regulation Number: 21 CFR 866.3180
Regulation Name: Quantitative cytomegalovirus nucleic acid tests for transplant patient management
Regulatory Class: Class II
Product Code: PAB
Dated: August 6, 2025
Received: August 7, 2025

Dear Sun Austin:

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 (the 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 available 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.

Additional information about changes that may require a new premarket notification are provided in the FDA guidance documents entitled "Deciding When to Submit a 510(k) for a Change to an Existing Device" (https://www.fda.gov/media/99812/download) and "Deciding When to Submit a 510(k) for a Software Change to an Existing Device" (https://www.fda.gov/media/99785/download).

Your device is also subject to, among other requirements, the Quality System (QS) regulation (21 CFR Part 820), which includes, but is not limited to, 21 CFR 820.30, Design controls; 21 CFR 820.90, Nonconforming product; and 21 CFR 820.100, Corrective and preventive action. Please note that regardless of whether a change requires premarket review, the QS regulation requires device manufacturers to review and approve changes to device design and production (21 CFR 820.30 and 21 CFR 820.70) and document changes and approvals in the device master record (21 CFR 820.181).

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 Part 803) for devices or postmarketing safety reporting (21 CFR Part 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 Part 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR Parts 1000-1050.

All medical devices, including Class I and unclassified devices and combination product device constituent parts are required to be in compliance with the final Unique Device Identification System rule ("UDI Rule"). The UDI Rule requires, among other things, that a device bear a unique device identifier (UDI) on its label and package (21 CFR 801.20(a)) unless an exception or alternative applies (21 CFR 801.20(b)) and that the dates on the device label be formatted in accordance with 21 CFR 801.18. The UDI Rule (21 CFR 830.300(a) and 830.320(b)) also requires that certain information be submitted to the Global Unique Device Identification Database (GUDID) (21 CFR Part 830 Subpart E). For additional information on these requirements, please see the UDI System webpage at https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/unique-device-identification-system-udi-system.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 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,

Bhawna Poonia -S

for

Uwe Scherf, Ph.D.
Director
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: 07/31/2026
See PRA Statement below.

510(k) Number *(if known)*
K252481

Device Name
cobas CMV

Indications for Use *(Describe)*
cobas CMV is an in vitro nucleic acid amplification test for the quantitation of cytomegalovirus (CMV) DNA in human EDTA plasma.
cobas CMV is intended for use as an aid in the management of CMV in solid organ transplant patients and in hematopoietic stem cell transplant patients. In patients receiving anti-CMV therapy, serial DNA measurements can be used to assess viral response to treatment.
The results from cobas CMV must be interpreted within the context of all relevant clinical and laboratory findings.
cobas CMV is not intended for use as a screening test for blood or blood products.

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.

This section applies only to requirements of the Paperwork Reduction Act of 1995.

DO NOT SEND YOUR COMPLETED FORM TO THE PRA STAFF EMAIL ADDRESS BELOW.

The burden time for this collection of information is estimated to average 79 hours per response, including the time to review instructions, search existing data sources, gather and maintain the data needed and complete and review the collection of information. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden, to:

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"An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB number."

cobas® CMV
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	Sun Austin Phone: (925) 353-8532 Email: sun.austin@roche.com
Date Prepared	July 30, 2025
Proprietary Name	**cobas**® CMV Quantitative nucleic acid test for use on the **cobas**® 5800/6800/8800 systems
Common Name	**cobas**® CMV
Classification Name	Classification Name Quantitative cytomegalovirus nucleic acid tests for transplant patient management
Product Codes	PAB, 866.3180
Predicate Devices	**cobas**® CMV Quantitative nucleic acid test for use on the **cobas**® 5800/6800/8800 systems
Establishment Registration	Roche Molecular Systems, Inc. (2243471)

1. DEVICE DESCRIPTION

cobas® CMV 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 system software which assigns test results for all tests as either target not detected, CMV DNA detected < LLoQ (lower limit of quantitation), CMV DNA detected > ULoQ (upper limit of quantitation), or a value in the linear range LLoQ < x < ULoQ. Results can be reviewed directly on the system screen, exported, or printed as a report.

Nucleic acid from patient samples and added lambda DNA-QS molecules is simultaneously extracted. In summary, viral 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 reagent steps and purified nucleic acid is eluted from the glass particles with elution buffer at elevated temperature.

Selective amplification of target nucleic acid from the sample is achieved by the use of target virus-specific forward and reverse primers which are selected from highly-conserved regions of the CMV DNA polymerase (UL54) gene. Selective amplification of DNA-QS is achieved by the use of sequence-specific forward and reverse primers which are selected to have no homology with the CMV genome. A thermostable DNA polymerase enzyme is used for amplification. The target and DNA-QS sequences are amplified simultaneously utilizing a universal PCR amplification profile with predefined temperature steps and number of cycles. The master mix includes deoxyuridine triphosphate (dUTP), instead of deoxythimidine triphosphate (dTTP), which is incorporated into the newly synthesized DNA (amplicon).[1-3] Any contaminating amplicon from previous PCR runs is eliminated by the AmpErase enzyme, which is included in the PCR mix, when heated in the first thermal cycling step. However, newly formed amplicon are not eliminated since the AmpErase enzyme is inactivated once exposed to temperatures above 55°C.

The **cobas**® CMV master mix contains one detection probe specific for CMV target sequences and one for the DNA-QS. The probes are labeled with target-specific fluorescent reporter dyes

allowing simultaneous detection of CMV target and DNA-QS in two different target channels.[4,5] The fluorescent signal of the intact probes is suppressed by the quencher dye. During the PCR amplification step, hybridization of the probe to the specific single-stranded DNA templates results in cleavage by the 5'-to-3' nuclease 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 is concomitantly increased. Real-time detection and discrimination of PCR products is accomplished by measuring the fluorescence of the released reporter dyes for the viral targets and DNA-QS.

Provide a description of the device such as might be found in the labeling or promotional material for the device, including an explanation of how the device functions, the scientific concepts that form the basis for the device, and the significant physical and performance characteristics of the device, such as device design, material used, and physical properties.

2. INDICATIONS FOR USE

cobas® CMV is an in vitro nucleic acid amplification test for the quantitation of cytomegalovirus (CMV) DNA in human EDTA plasma.

cobas® CMV is intended for use as an aid in the management of CMV in solid organ transplant patients and in hematopoietic stem cell transplant patients. In patients receiving anti-CMV therapy, serial DNA measurements can be used to assess viral response to treatment.

The results from **cobas**® CMV must be interpreted within the context of all relevant clinical and laboratory findings.

cobas® CMV is not intended for use as a screening test for blood or blood products.

3. TECHNOLOGICAL CHARACTERISTICS

The primary technological characteristics and intended use of **cobas**® CMV are substantially equivalent to the existing assay for the quantitation of cytomegalovirus (CMV) DNA in human EDTA plasma.

As indicated in Table 1, **cobas**® CMV is substantially equivalent to significant characteristics of the identified predicate device, **cobas**® CMV Quantitative nucleic acid test for use on the **cobas**® 5800/6800/8800 systems (**cobas**® CMV) (P160041).

Table 1: Similarities and Differences between cobas® CMV and the Predicate Device

Comparator	Candidate Device: cobas® CMV	Predicate Device: cobas® CMV
Proprietary Name	**cobas**® CMV Quantitative nucleic acid test for use on the **cobas**® 5800/6800/8800 systems	Same
Regulation Number	21 CFR 866.3180	Same
Regulation Name	Quantitative cytomegalovirus nucleic acid tests for transplant patient management	Same
Regulatory Class	Class II	Same
Product Code	PAB	Same
Intended Use	**cobas**® CMV is an in vitro nucleic acid amplification test for the quantitation of cytomegalovirus (CMV) DNA in human EDTA plasma. **cobas**® CMV is intended for use as an aid in the management of CMV in solid organ transplant patients and in hematopoietic stem cell transplant patients. In patients receiving anti-CMV therapy, serial DNA measurements can be used to assess viral response to treatment. The results from **cobas**® CMV must be interpreted within the context of all relevant clinical and laboratory findings. **cobas**® CMV is not intended for use as a screening test for blood or blood products.	Same
Conditions for use	For Prescription Use	Same
Sample Type	Human EDTA Plasma	Same
Subject Status	Transplant patient, hematopoietic stem cell transplant patient, patients receiving anti-CMV therapy	Same
Sample Collection Devices	BD Vacutainer® PPT™ Plasma Preparation Tubes for Molecular Diagnostic Test Methods or in sterile tubes using EDTA as the anticoagulant.	Same
Analyte Targets	Cytomegalovirus	Same
Instrument Platform	**cobas**® 5800/6800/8800 systems	Same
Controls	DNA Quantitation Standard (DNA-QS) (internal control) **cobas**® CMV Control Kit (external positive control) **cobas**® NHP Negative Control Kit (external negative control)	Same

Comparator	Candidate Device: **cobas**® CMV	Predicate Device: **cobas**® CMV
Control Scheduling	Default setting will remain the same as the predicate device Additional setting possible for alternate control frequency based on lab requirements and local regulations Note: Controls will be required at least for each reagent lot change and every 72 hours.	Positive control and negative control included on every amplification/detection plate
Sample Preparation Procedure	Automated by **cobas**® 5800/6800/8800 systems	Same
Amplification Technology	Real-time PCR	Same
Assay Method	Automated by **cobas**® 5800/6800/8800 systems	Same
Detection Chemistry	Paired reporter and quencher fluorescence labeled probes (TaqMan Technology)	Same
Detection Method	Automated by **cobas**® 5800/6800/8800 systems	Same
Result Analysis	PCR Cycle threshold analysis	Same
Traceability/ Standardization	1st WHO International Standard for Human Cytomegalovirus DNA for Nucleic Acid Amplification Technology Assay	Same

4. NON-CLINICAL PERFORMANCE EVALUATION

4.1. Method Comparison

The purpose of this study was to demonstrate equivalency between the **cobas**® 6800/8800 systems 2.0 and **cobas**® 6800/8800 systems 1.4 for **cobas**® CMV in regard to Method Comparison.

30 archived, contrived or purchased anonymized, well-characterized clinical CMV positive specimens in EDTA plasma, and at least 30 individual CMV negative single donor specimens, were used to assess the performance equivalency. All specimens used for the study were from the transplant patient population.

The 30 individual CMV positive specimens were diluted, if necessary, to achieve approximately 10 specimens in one of the three targeted viral load ranges: 3.45E+01 – 2E+03 IU/mL, 2E+03 –

2E+05 IU/mL and 2E+05 – 1E+07 IU/mL. A minimum of 2 aliquots for each of the 30 specimens were prepared for testing.

Aliquots of each of the CMV positive and CMV negative specimens were distributed across three **cobas**® CMV kit lots and tested on one **cobas**® 6800/8800 systems 2.0 and one **cobas**® 6800/8800 systems 1.4.

Study results showed the difference in viral load measurement for positive samples on the **cobas**® 6800/8800 systems 2.0 and **cobas**® 6800/8800 systems 1.4 was less than 0.2 $\log_{10}$.

The Negative Percent Agreement for the 31 negative samples tested on the **cobas**® 6800/8800 systems 2.0 and **cobas**® 6800/8800 systems 1.4 was 100%.

The predefined acceptance criteria was met for the Method Comparison and supports the conclusion of substantial equivalence of **cobas**® CMV on the upgraded **cobas**® 6800/8800 systems and the current on-market **cobas**® 6800/8800 systems.

5. CLINICAL PERFORMANCE EVALUATION

Completed as part of P160041.

6. CONCLUSIONS

No changes have been made to the assay reagents.

Equivalent performance of the candidate device and the current approved device has been demonstrated. The device is substantially equivalent to the predicate device, as approved by P160041.

7. REFERENCES

1. Longo MC, Berninger MS, Hartley JL. Use of uracil DNA glycosylase to control carry-over contamination in polymerase chain reactions. Gene. 1990;93:125-8.
2. Savva R, McAuley-Hecht K, Brown T, Pearl L. The structural basis of specific base-excision repair by uracil-DNA glycosylase. Nature. 1995;373:487-93.
3. Mol CD, Arvai AS, Slupphaug G, et al. Crystal structure and mutational analysis of human uracil-DNA glycosylase: structural basis for specificity and catalysis. Cell. 1995;80:869-78.

4. Higuchi R, Dollinger G, Walsh PS, Griffith R. Simultaneous amplification and detection of specific DNA sequences. Biotechnology (N Y). 1992;10:413-7.

5. Heid CA, Stevens J, Livak KJ, Williams PM. Real time quantitative PCR. Genome Res. 1996;6:986-94.