DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Document Control Center – WO66-G609
Silver Spring, MD 20993-0002

Roche Diagnostics
Mr. Adam Clark
Regulatory Affairs Consultant
9115 Hague Road
Indianapolis, IN 46250

January 12, 2017

Re: K162173
Trade/Device Name: Elecsys CYFRA 21-1 CalCheck 5
Regulation Number: 21 CFR 862.1660
Regulation Name: Quality Control Material (Assayed and Unassayed)
Regulatory Class: I, Reserved
Product Code: JJX
Dated: December 15, 2016
Received: December 16, 2016

Dear Mr. Clark:

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. 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 Parts 801 and 809); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulations (21 CFR Parts 801 and 809), please contact the Division of Industry and Consumer Education at its toll-free number (800) 638 2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm. 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 http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Industry and Consumer Education at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours,

Kelly Oliner
-S

FOR
Leonthena R. Carrington, MS, MBA, MT(ASCP)
Director
Division of Immunology and Hematology Devices
Office of In Vitro Diagnostics
and Radiological Health
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: January 31, 2017
*See PRA Statement below.*

510(k) Number *(if known)*
K162173

Device Name
Elecsys CYFRA 21-1 CalCheck 5

Indications for Use *(Describe)*
The Elecsys CYFRA 21-1 CalCheck 5 is an assayed control for use in calibration verification and for use in the verification of the assay range established by the Elecsys CYFRA 21-1 reagent on the indicated Elecsys and cobas e immunoassay analyzers.

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:

Department of Health and Human Services
Food and Drug Administration
Office of Chief Information Officer
Paperwork Reduction Act (PRA) Staff
*PRAStaff@fda.hhs.gov*

*"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."*

# 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 Diagnostics |
| **Address** | 9115 Hague Road<br>Indianapolis, IN 46250 |
| **Contact** | Adam Clark<br>Phone: (317) 521-4371<br>FAX: (317) 521-2324<br>Email: adam.clark@roche.com |
| **Date Prepared** | June 30, 2016 |
| **Proprietary Name** | 1) Elecsys CYFRA 21-1 CalCheck 5 |
| **Common Name** | 1) CYFRA 21-1 CalCheck 5 |
| **Classification Name** | 1) Single (specified) analyte Controls (assayed and unassayed) |
| **Product Codes** | 1) JJX; 862.1660 |
| **Predicate Devices** | 1) Elecsys Progesterone III CalCheck 5 |
| **Establishment Registration** | Roche Diagnostics GmbH in Mannheim, Germany: 9610126<br>Roche Diagnostics GmbH in Penzberg, Germany: 9610529<br>Roche Diagnostics in the United States: 1823260 |

# 1. DEVICE DESCRIPTION

The Elecsys CYFRA 21-1 CalCheck 5 is a lyophilized product consisting of cytokeratin in a human serum matrix. During manufacture, the analyte is spiked into the matrix at the desired concentration levels.

## 1.1. CalCheck

CYFRA 21-1 CalCheck 5 is a lyophilized human serum matrix with added cytokeratin in five concentration ranges. The CalCheck includes:

- CYFRA 21-1 CalCheck 1: approximately <1.0 ng/mL
- CYFRA 21-1 CalCheck 2: approximately 3.0 ng/mL
- CYFRA 21-1 CalCheck 3: approximately 50.0 ng/mL
- CYFRA 21-1 CalCheck 4: approximately 80.0 ng/mL
- CYFRA 21-1 CalCheck 5: approximately 100 ng/mL

# 2. INDICATIONS FOR USE

The Elecsys CYFRA 21-1 CalCheck 5 is an assayed control for use in calibration verification and for use in the verification of the assay range established by the Elecsys CYFRA 21-1 reagent on the indicated Elecsys and **cobas e** immunoassay analyzers.

# 3. DISCUSSION OF ANALYZER PLATFORMS

The following summary of the Elecsys platforms is provided.

The **cobas e** 411 analyzer is an updated version of the Elecsys 2010 analyzer. Roche Diagnostics pursued a conservative course and submitted a 510(k) for the analyzer under K062279. The submission was closed out under ‘exempt’ since the submission was only for the analyzer and the ‘Joint Risk Assessment’ performed internally identified no potential impact on reagent performance. However, to be on the conservative side, Roche Diagnostics conducted recovery and reproducibility testing with representative Elecsys assays, and those data are documented internally. The modifications did not alter the measurement components of the analyzer or the means by which results are calculated. The systems are analytically identical. The majority of the hardware changes, outside of the obvious name change, were cosmetic (*e.g.*, change to color

scheme, an external PC versus an internal PC) or related to safety (*e.g.*, protective shields added over moving parts), or were made to improve customer satisfaction (*e.g.*, a larger external waste container, flash drive replacement of floppy drive). The user-interface changes were made for aesthetics, customer satisfaction, or to bring the 'old' 2010 analyzer up to parity with those features already designed into the cobas 6000 series system.

The **cobas e** 601 analyzer is an updated version of the MODULAR ANALYTICS E170 analyzer. The MODULAR ANALYTICS E170 analyzer was acknowledged by FDA under Add-to-File K961481/A003 on May 23, 2001. The **cobas e** 601 analyzer was reviewed and cleared as a component of the cobas 6000 series system submission K060373. The submission was required to introduce the other component of the cobas 6000 series system: the **cobas c** 501 analyzer, a new clinical-chemistry analyzer.

The **cobas e** 602 analyzer, part of the cobas 8000 analyzer series, was cleared via Internal Documentation, in keeping with the Reagent Replacement and Instrument Family Policy, as a new member of the Roche/Elecsys family of analyzers. The **cobas e** 602 is analytically identical to the **cobas e** 601 analyzer, part of the cobas 6000 analyzer series cleared in K060373.

## 4. TECHNOLOGICAL CHARACTERISTICS

### Table 4.1.1: CalCheck Comparison

| Characteristic | Candidate Device: Elecsys CYFRA 21-1 CalCheck 5 | Predicate Device: Elecsys Progesterone III CalCheck 5 (K150955) |
|---|---|---|
| **Intended Use** | The Elecsys CYFRA 21-1 CalCheck 5 is an assayed control for use in calibration verification and for use in the verification of the assay range established by the Elecsys CYFRA 21-1 reagent on the indicated Elecsys and **cobas e** immunoassay analyzers. | The Elecsys Progesterone III CalCheck 5 is an assayed control for use in calibration verification and for use in the verification of the assay range established by the Elecsys Progesterone III reagent on the indicated Elecsys and **cobas** e immunoassay analyzers. |
| **Analyte** | Cytokeratin, human | Progesterone (plant material) |
| **Matrix** | Human serum matrix | Human serum matrix |
| **Levels** | Five | Five |
| **Assay measuring range** | 0.5 – 100 ng/mL | 0.05 – 60 ng/mL |
| **Target Ranges** | Check 1: ≤ 1.0 ng/mL<br>Check 2: 3.0 ng/mL<br>Check 3: 50.0 ng/mL<br>Check 4: 80.0 ng/mL<br>Check 5: 100 ng/mL | Check 1: ≤ 0.15 ng/mL<br>Check 2: 2.0 ng/mL<br>Check 3: 30.0 ng/mL<br>Check 4: 45.0 ng/mL<br>Check 5: 60.0 ng/mL |
| **Format** | Lyophilized | Lyophilized |
| **Handling** | Reconstitute the contents of Check 1, Check 2, Check 3, Check 4 and Check 5 with exactly 1.0 mL distilled or deionized water. Allow the bottles to stand closed for 15 minutes. | Reconstitute Check 1, Check 2, Check 3, Check 4, and Check 5 with exactly 1.0mL distilled or deionized water. Allow to stand closed for 15 minutes, then mix gently by inversion to ensure |

| | | |
|---|---|---|
| | Mix gently by inversion to ensure homogeneity. | homogeneity. |
| **Stability** | Unopened:<br>· Store at 2-8°C until expiration date<br>Opened:<br>· 20-25°C: 5 hours | Unopened:<br>· Store at 2-8°C until expiration date<br>Opened:<br>· 20-25°C: 4 hours |

# 5. NON-CLINICAL PERFORMANCE EVALUATION

## 5.1. CYFRA 21-1 CalCheck 5 Stability

CYFRA 21-1 CalCheck 5 was evaluated for value assignment and stability; three studies were executed.

### 5.1.1. CYFRA 21-1 CalCheck 5 Value Assignment

Value assignment testing was conducted and passed pre-defined acceptance criteria. For each Elecsys CYFRA 21-1 CalCheck 5 lot manufactured, each CalCheck is run in duplicate on at least three **cobas e** 601/MODULAR ANALYTICS E170 analyzers. The assigned valued of each CalCheck level is defined as the mean value obtained over at least six determinations (duplicate runs on at least three analyzers) of the respective CalCheck level.

The assigned range is calculated as ±21% of the assigned value for levels two through five. The label states that each laboratory should establish appropriate acceptance criteria when using this product for its intended use.

The same value assignment procedure is performed on the cobas e 411 analyzer. The assigned values obtained are compared to those obtained on the cobas e 601 analyzer. The mean value obtained on the additional analyzer must be within 10% of the master platform assigned value. After this acceptance criterion is met, the assigned values from the master platform are deemed valid for the Elecsys 2010, MODULAR ANALYTICS E170, cobas e 411, cobas e 601, and cobas e 602 immunoassay analyzers.

### 5.1.2. Study 1. CYFRA 21-1 CalCheck 5 Accelerated Stability

One CYFRA 21-1 CalCheck 5 lot was evaluated on one cobas e 411 analyzer. A set of CYFRA 21-1 CalCheck 5 was stored for 3 weeks at 35°C. After the three week period the test material and reference materials were tested in duplicate.

The reference material used was a freshly reconstituted set of CYFRA 21-1 CalCheck 5. Recovery of the stressed CYFRA 21-1 CalCheck 5 compared to the freshly reconstituted CYFRA 21-1 CalCheck 5 was calculated.

### 5.1.3. Study 2. CYFRA 21-1 CalCheck 5 Stability (On-board)

One CYFRA 21-1 CalCheck 5 lot was evaluated on one **cobas e** 411 analyzer. A set of CYFRA 21-1 CalCheck 5 was reconstituted and stored on-board for 6 hours at 20-25°C. Test CYFRA 21-1 CalCheck 5 was compared as a % to the freshly reconstituted CYFRA 21-1 CalCheck 5 reference.

Samples tested in duplicate include five CalCheck levels.

### 5.1.4. Study 3. CYFRA 21-1 CalCheck 5 Stability (Real-Time Stability)

Accelerated Stability testing was done to support the current shelf life claim of 12 months.

Additional testing was done to support the shelf-life of the CalCheck material. CalChecks and CalSets contain the same analyte, are identical in composition and are handled the same for testing. Real time stability was done on the CYFRA 21-1 CalSet material and is transferable to the CalCheck material. In the real-time stability study, the CYFRA 21-1 CalSet material was stored at 2 to 8°C. The stored CalSet reagents were tested at time point T=0 and at specified intervals over the shelf life of the device up to the planned shelf life plus one month. Testing was performed using PreciControl Tumor Marker 1 and 2 (stored at -20°C).

## 6. CONCLUSIONS

The information provided in this 510(k) Premarket Notification will support a determination of substantial equivalence for the CYFRA 21-1 CalCheck 5. The data supports a safe, effective device which performs as well as or better than the predicate device.