510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION
DECISION SUMMARY

A. 510(k) Number:

k122242

B. Purpose for Submission:

New Device

C. Measurand:

Calibration verification and assay range verification material for CA 15-3

D. Type of Test:

Not applicable

E. Applicant:

Roche Diagnostics

F. Proprietary and Established Names:

Elecsys CA 15-3 II CalCheck 5

G. Regulatory Information:

1. Regulation section:

   21 CFR §862.1660, Quality Control Material (assayed and unassayed)

2. Classification:

   Class I (Reserved)

3. Product code:

   JJX – Single (specified) analyte controls (assayed and unassayed)

4. Panel:

   Clinical Chemistry (75)

H. Intended Use:

1. Intended use(s):

   The Elecsys CA 15-3 II 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 CA 15-3 II reagent on the indicated Elecsys and cobas e immunoassay analyzers. For *in vitro* diagnostic use only.

2. Indication(s) for use:

   Same as intended use

3. Special conditions for use statement(s):

   - Not intended to be used as a primary calibrator or routine control material
   - For prescription use only

4. Special instrument requirements:

   For use with Elecsys CA 15-3 II assay reagent on the Elecsys 2010, MODULAR ANALYTICS E170, cobas e 411, cobas e 601, and cobas e 602 immunoassay analyzers. (Note: cobas e 411 share the same analytical core as Elecsys 2010; cobas e 601, and cobas e 602 share the same analytical core as E170).

I. Device Description:

Elecsys CA 15-3 II CalCheck 5 set contains one lyophilized level of human CA 15-3 in equine serum and four lyophilized levels of CA 15-3 antigen in human serum matrix. During manufacture, the analyte is spiked into the matrix at the target concentrations. Check level 2, 3 and 4 are for calibration verification only; and Check 1, 2, 3, 4 and 5 for verification of the assay range only or verification of the assay range and calibration verification. Target values and approximate concentration target ranges are listed below:

Level	Target Value [U/mL]	Approximate Target Range [U/mL]
Check 1	2.0	1.58 – 2.42
Check 2	25	19.8 – 30.3
Check 3	150	119 – 182
Check 4	240	190 – 290
Check 5	300	237 – ≥300

All human source materials were prepared exclusively from the blood of donors tested individually and found to be free from HBsAg, antibodies to HCV and HIV. The testing methods were FDA approved or cleared in compliance with the European

Directive 98/79/EC, Annex II, List A.

J. Substantial Equivalence Information:

1. Predicate device name(s) and predicate 510(k) number(s):

   Elecsys CA 19-9 CalCheck 5, k101365

2. Comparison with predicate:

Similarities		
Item	Device Elecsys CA 15-3 II CalCheck 5	Predicate Elecsys CA 19-9 CalCheck 5
Intended Use	The Elecsys CA analyte 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 CA analyte reagent on the indicated Elecsys and cobas e immunoassay analyzers. For in vitro diagnostics use only.	Same.
Analyzer	Elecsys 2010, MODULAR ANALYTICS 170, cobas e 411, cobas e 601, and cobas e 602	Same
Format	Lyophilized	Same
Handling	Reconstitute each level of CalCheck with exactly 1.0 mL distilled or deionized water. Allow to stand closed for 15 minutes, then mix gently by inversion	Same
Stability	Unopened: Store at 2-8°C until expiration date Reconstituted: 4 hours at 20-25°C	Same
Levels	Five	Same

Differences		
Item	Device Elecsys CA 15-3 II CalCheck 5	Predicate Elecsys CA 19-9 CalCheck 5
Analyte	CA 15-3	CA 19-9
Matrix	Level 1: Equine serum Level 2-5: Human serum matrix	Level 1-5: Human serum matrix

K. Standard/Guidance Document Referenced (if applicable):

Guidance for Industry and FDA Staff – Assayed and Unassayed Quality Control Material

L. Test Principle:

Not applicable

M. Performance Characteristics (if/when applicable):

1. Analytical performance:

a. Precision/Reproducibility:

Not applicable

b. Linearity/assay reportable range:

Not applicable

c. Traceability, Stability, Expected values (controls, calibrators, or methods):

Traceability:

There is no international standard available for CA 15-3. The Elecsys CA 15-3 II CalCheck 5 was initially standardized against the Elecsys CA 15-3 assay. This in turn was standardized against CA 15-3 RIA by Fujirebio Diagnostics.

Value assignment:

For each Elecsys CA 15-3 II CalCheck 5 kit manufactured, value assignment for each level was tested once a day on Modular Analytics E170 analyzers (with two modules and two measuring cells) for a total of eight runs on two days. The MODULAR ANALYTICS E170 master calibration curve was used to calculate U/mL from counts. The assigned target value of each CalCheck is the median of the observed values. The assigned range is ± 21% of assigned value, in which 8% was allotted for between-analyzer platform tolerance, 8% for stability tolerance and 5% for precision of the assay. The representative summary data for the value assignment process for lot that used in the submission on E170 are shown below:

Level	Target Value [U/mL]	Median Value [U/mL]	Assigned Value [U/mL]	Assigned Range
Check 1	2.0	1.65	≤ 2.5	≤2.5
Check 2	25	24.8	24.8	19.6 – 30.0
Check 3	150	159	159	126 – 192
Check 4	240	250	250	198 – 303
Check 5	300	306	306	242 – 370

For Elecsys 2010, the same value assignment procedure was performed. The assigned values obtained on this analyzer were compared to those obtained on the MODULAR ANALYTICS E170. The acceptance criterion for analyzer-to-analyzer variability is less than 10%. The results showed that the values assigned to the E170 (and cobas e 601, e 602) are valid for the Elecsys 2010 (and cobas e 411).

Stability:

Stability studies were performed on cobas e 411 in order to verify the stability claims for the Elecsys CA 15-3 II CalCheck 5. Because these studies are not analyzer-dependent, these results, in addition to real-time stability study results, can be applied to the Elecsys 2010, MODULAR ANALYTICS E170, cobas e 601 and cobas e 602.

Open vial (after reconstituted) stability:

The open-vial stability of Elecsys CA 15-3 II CalCheck 5 was performed by testing the on-test and reference materials in duplicate. The on-test material was reconstituted and stored for 5 hours at 25ºC (in an open vial). The reference material was a freshly reconstituted set of CalChecks. The recovery of test material was calculated as a percent of the reference value. The data support the claimed stability – reconstituted Elecsys CA 15-3 II CalCheck 5 is stable up to 4 hours at 20-25°C.

On-Board stability:

The CalCheck products are not stored on-board the analyzer. No on-board stability claims are made.

Closed vial stability:

The accelerated stability study was performed to verify the stability claims for the Elecsys CA 15-3 II CalCheck. The on-test material was stored lyophilized at 35°C for 3 weeks. The reference material was a freshly reconstituted set of CalChecks (stored at 4°C). After 3 weeks, the test and reference materials were tested in duplicate. The recovery of test material was calculated as a

percent of the reference value.

In addition, the real time stability is on-going. The test material is stored at 2-8°C. Sample at time-points 0, 10, 16, 19, 25, and 37 months will be tested in duplicate and the recovery value will be calculated by comparing to the unstressed reference value (stored at -20°C).

The results from the accelerated stability and on-going real time stability support an initial shelf-life claim of 18 months when the Elecsys CA 15-3 II CalCheck 5 is stored under normal storage conditions of 2-8°C.

d. Dilution Study:

A dilution study was performed to demonstrate that the values are within the assay's measuring range of 1.00 U/mL – 300 U/mL if CalCheck level 1 and 5 produce results that exceed the reportable measuring range of the assay, . Check 1&2 and Check 4&5 were mixed in a 1:1 ratio and measured in duplicates. Results are summarized in the following table and both CalCheck dilution values are within the assay's measuring range after dilution.

Sample	Value after 1:1 Dilution [U/mL]	Average 1:1 Dilution [U/mL]
E170/e 602		
Check 1 + Check 2 Check 1 + Check 2	13.2 13.2	13.2
Check 4 + Check 5 Check 4 + Check 5	277 276	277
Elecsys 2010/e 411		
Check 1 + Check 2 Check 1 + Check 2	13.6 13.2	13.4
Check 4 + Check 5 Check 4 + Check 5	266 262	264

e. Detection limit:

Not applicable

f. Analytical specificity:

Not applicable

g. Assay cut-off:

Not applicable

2. Comparison studies:

   a. Method comparison with predicate device:

   Not applicable

   b. Matrix comparison:

   Not applicable

3. Clinical studies:

   a. Clinical Sensitivity:

   Not applicable

   b. Clinical specificity:

   Not applicable

   c. Other clinical supportive data (when a. and b. are not applicable):

   Not applicable

4. Clinical cut-off:

   Not applicable

5. Expected values/Reference range:

   Not applicable

N. Proposed Labeling:

The labeling is sufficient and it satisfies the requirements of 21 CFR Part 809.10.

O. Conclusion:

The submitted information in this premarket notification is complete and supports a substantial equivalence decision.