

**510(k) SUBSTANTIAL EQUIVALENCE DETERMINATION
DECISION SUMMARY**

A. 510(k) Number:

K162173

B. Purpose for Submission:

New Device

C. Measurand:

CYFRA 21-1 (soluble cytokeratin 19 fragments)

D. Type of Test:

Quality Control Material

E. Applicant:

Roche Diagnostics

F. Proprietary and Established Names:

Elecsys CYFRA 21-1 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. Panels:

Chemistry (75), Immunology (82)

H. Intended Use:

1. Intended use:

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

2. Indication for use:

Same as Intended Use

3. Special conditions for use statement:

Prescription Use only

4. Special instrument requirements:

Elecsys and cobas e immunoassay analyzers

I. Device Description:

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

J. Substantial Equivalence Information:

1. Predicate device name:

Elecsys Progesterone III CalCheck 5

2. Predicate 510(k) number:

K150955

3. Comparison with predicate:

Similarities		
Item	Device	Predicate
	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.
Number of Levels per Set	Five	same
Shelf Life	Store at 2–8°C until expiration date	same
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 to stand closed for 15 minutes, then mix gently by inversion to ensure homogeneity.	same
Sterile	No	same
Form	Lyophilized	same
Matrix	Human serum matrix	same

Differences		
Item	Device	Predicate
Analyte	Cytokeratin, human	Progesterone (plant material)
Assay measuring range	0.5–100 ng/mL	0.05–60 ng/mL
Target Ranges	Check 1: ≤ 1.0 ng/mL Check 2: 3.0 ng/mL Check 3: 50.0 ng/mL Check 4: 80.0 ng/mL Check 5: 100 ng/mL	Check 1: ≤ 0.15 ng/mL Check 2: 2.0 ng/mL Check 3: 30.0 ng/mL Check 4: 45.0 ng/mL Check 5: 60.0 ng/mL
Stability	Opened: 20–25°C for five hours	Opened: 20–25°C for four hours

K. Standard/Guidance Document Referenced:

None Referenced

L. Test Principle:

N/A

M. Performance Characteristics (if/when applicable):

1. Analytical performance:

a. *Precision/Reproducibility:*

N/A

b. *Linearity/assay reportable range:*

N/A

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

Traceability: There is no recognized reference standard for CYFRA 21-1. The Elecsys CYFRA 21-1 has been standardized against the Enzymun test CYFRA 21-1 method.

Stability:

Open-vial/On-board stability: One CYFRA 21-1 CalCheck 5 lot was evaluated on one cobas e 411 analyzer. The test and reference materials were tested in duplicate. The test material was reconstituted and stored on-board for six hours at 20–25°C. The reference material was a freshly reconstituted CalCheck 5. The recovery of test material was calculated as percentage of the reference value. The data support that the Elecsys CYFRA 21-1 CalCheck 5 is stable up to five hours on board (at 20–25°C).

Accelerated vial stability: The studies were performed using one lot of CYFRA 21-1 CalCheck 5. One kit of CYFRA 21-1 CalCheck 5 calibrators was stored lyophilized at 35°C (test material) for three weeks and then tested in duplicate along with a freshly reconstituted kit of CYFRA 21-1 CalCheck 5 calibrators stored at 2–8°C (reference material) on the cobas e 411 analyzer. Recovery of the stressed CYFRA 21-1 CalCheck 5 compared to the freshly reconstituted CYFRA 21-1 CalCheck 5 was calculated. The stress stability model employed supports an initial shelf-life claim of 12 months when the CYFRA 21-1 CalCheck 5 is stored under normal storage conditions of 2–8°C.

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 2–8°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. The recovery was calculated compared to the reference value at Day 0. The data support that the Elecsys CYFRA 21-1 is stable up to 29 months stored at 2–8°C. Testing was performed using PreciControl Tumor Marker 1 and 2 (stored at -20°C) to test the recovery of the controls after the calibration with CalSet. The Elecsys CYFRA 21-1 CalSet and Elecsys PreciControl Tumor Marker are cleared under K160915.

Value Assignment:

Value assignment testing was conducted and passed pre-defined acceptance criteria. For each Elecsys CYFRA 21-1 CalCheck 5 lot manufactured, the CalChecks are run in duplicate on at least three cobas e 601/MODULAR ANALYTICS E170 analyzers. The assigned value of each CalCheck is defined as the mean value obtained over at least six determinations (duplicate runs on at least three analyzers) of the respective CalCheck. The assigned range is calculated as $\pm 21\%$ of assigned value for level 2 through 5.

Target and Assigned Values and Ranges for Elecsys CYFRA 21-1 CalCheck 5 on Elecsys 2010/ cobas e 411

Level	Target Value ng/mL	Assigned Value ng/mL	Assigned Range ng/mL	Median value on cobas e 411 ng/mL	%Recovery
Check 1	≤ 1.0	<1.0	<1.0	0.365	---
Check 2	3.0	2.27	1.79–2.75	2.25	99.1
Check 3	50	47.5	37.5–57.5	47.4	99.8
Check 4	80	77.8	61.5–94.1	76.9	98.8
Check 5	100	95.8	75.7–116	96.3	100.5

d. Detection limit:

N/A

e. Analytical specificity:

N/A

f. Assay cut-off:

N/A

2. Comparison studies:

a. Method comparison with predicate device:

N/A

b. Matrix comparison:

N/A

3. Clinical studies:

a. Clinical Sensitivity:

N/A

b. Clinical specificity:

N/A

c. Other clinical supportive data:

N/A

4. Clinical cut-off:

N/A

5. Expected values/Reference range:

N/A

N. Proposed Labeling:

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

O. Conclusion:

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