09118543500V1.0

Elecsys CMV IgG

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REF	📖	∑	SYSTEM
			cobas e 411
09118543190	09118543500	100	**cobas e** 601
			cobas e 602

English

System information

For **cobas e** 411 analyzer: test number 2430
For **cobas e** 601 and **cobas e** 602 analyzers: Application Code Number 493

Please note

> The measured CMV IgG value of a patient's sample can vary depending on the testing procedure used. The laboratory finding must therefore always contain a statement on the CMV IgG assay method used. CMV IgG values determined on patient samples by different testing procedures cannot be directly compared with one another and could be the cause of erroneous medical interpretations. Therefore, the results reported by the laboratory to the physician should include: "The following results were obtained with the Elecsys CMV IgG assay. Results from assays of other manufacturers cannot be used interchangeably."

Intended use

Immunoassay for the in vitro quantitative determination of IgG antibodies to cytomegalovirus in human serum and plasma.

Results with this assay are used to indicate past or recent infection with CMV.

The **e**lectro**c**hemi**l**umineoscence **i**mmuno**a**ssay "ECLIA" is intended for use on **cobas e** immunoassay analyzers.

Regulatory status

This assay has been CE marked according to Directive 98/79/EC. Test performance has been established for diagnostic use and for testing of blood donations and, according to Paul-Ehrlich-Institut (PEI) recommendation[1], for use of cadaveric blood specimens (specimens collected post-mortem, non-heart-beating).

Summary

Cytomegalovirus (CMV), a member of the herpes virus family, is ubiquitous in all human populations, causing infections which are followed by life-long latency in the host with occasional reactivations.[2,3] The seroprevalence of antibodies in adults ranges from 40-100 % with inverse correlation to socioeconomic status.[2,3,4] CMV is transmitted through body fluids, including blood, genital secretions and breast milk. Saliva and urine of infected individuals also represent a prominent source of infection, and children, especially those attending day care facilities, are a major vector for viral spread.[3,4,5,6,7] In immunocompetent individuals primary CMV infection is usually mild or asymptomatic.[3,6] Patients commonly present with a mononucleosis-like syndrome, including fever, sore throat, cervical lymphadenopathy, malaise, headache, muscle ache and joint pains.[3,4,5,6,8] During pregnancy, CMV can cause congenital infection which may result in permanent physical and/or neurological sequelae in the child.[6] CMV infection can be primary, i.e. newly acquired, or secondary, i.e. due to reactivation of the latent virus or re-infection with a different viral strain.[4,6] Primary CMV infection is reported in 1-4 % of seronegative women during pregnancy and the risk of transmission to the fetus is estimated to be about 30-40 %.[4,5] Reactivation of CMV infection during pregnancy is reported in 10-30 % of seropositive women and, in this circumstance, the risk of transmission of the virus is about 1-3 %.[4,5,6] Overall, prenatal CMV infection occurs in 0.6-0.7 % of all life births in the developed world.[5,6,9] The majority of babies born with congenital CMV infection are asymptomatic at birth.[9,10,11] Of these 5-15 % still develop irreversible impairments, most frequently hearing loss, that can occur several months or even years after birth.[6,9,10,11] For babies symptomatic at birth prognosis is very poor as they are likely to develop severe mental impairment and/or hearing loss.[6,9,10,11] Different studies have shown that the risk of symptomatic congenital disease in the fetus or newborn infant is high, when maternal primary infection takes place in early pregnancy before week 20 of gestation, and lower thereafter.[5,6] The congenital CMV infection caused by recurrent maternal infection seldom leads to symptomatic disease at birth.[5,6]

At risk for CMV infection and disease are also immunocompromised patients such as transplant recipients and HIV infected patients where the virus can cause life-threatening diseases.[12,13] The CMV status of transplant donors and recipients is very important, as it will determine prophylactic and pre-emptive treatment strategies against CMV. CMV-negative transplant recipients should receive donations from CMV-negative individuals or leukocyte depleted blood products. During latency, CMV resides in infected cells and the free viral DNA load is usually low. The CMV status can still be determined by testing for CMV IgG antibodies.

Within the appropriate clinical context, the first step in diagnosing acute primary CMV infection is most commonly made by the detection of anti-CMV-specific IgG and IgM antibodies.[6] Samples being reactive for IgM antibodies indicate an acute, recent or reactivated infection.[3,5,6,13] For further analysis of a primary CMV infection the determination of the CMV IgG avidity is used as an aid.[3,5,6,13] A positive IgM result in combination with a low avidity index for IgG is a strong indication of a recent primary CMV infection.[5,6,13] Seroconversion to CMV IgM and IgG may also indicate a recent CMV infection.[3,4,5,6,13]

Test principle

Sandwich principle. Total duration of assay: 18 minutes.

- 1st incubation: 20 μL of sample, biotinylated recombinant CMV-specific antigens, and CMV-specific recombinant antigens labeled with a ruthenium complex[a] form a sandwich complex.

- 2nd incubation: After addition of streptavidin-coated microparticles, the complex becomes bound to the solid phase via interaction of biotin and streptavidin.

- The reaction mixture is aspirated into the measuring cell where the microparticles are magnetically captured onto the surface of the electrode. Unbound substances are then removed with ProCell/ProCell M. Application of a voltage to the electrode then induces chemiluminescent emission which is measured by a photomultiplier.

- Results are determined via a calibration curve which is instrument-specifically generated by 2-point calibration and a master curve provided via the reagent barcode or e-barcode.

a) Tris(2,2'-bipyridyl)ruthenium(II)-complex ($Ru(bpy)_3^{2+}$)

Reagents - working solutions

The reagent rackpack (M, R1, R2) is labeled as CMVIGG.

M   Streptavidin-coated microparticles (transparent cap), 1 bottle, 6.5 mL:
Streptavidin-coated microparticles 0.72 mg/mL; preservative.

R1   CMV-Ag~biotin (gray cap), 1 bottle, 9 mL:
Biotinylated CMV-specific antigen (recombinant, E. coli), > 400 μg/L, MES[b] buffer 50 mmol/L, pH 6.5; preservative.

R2   CMV-Ag~$Ru(bpy)_3^{2+}$ (black cap), 1 bottle, 9 mL:
CMV-specific antigen (recombinant, E. coli) labeled with ruthenium complex > 400 μg/L; MES buffer 50 mmol/L, pH 6.5; preservative.

b) MES = 2-morpholino-ethane sulfonic acid

CMVIGG Cal1   Negative calibrator 1 (white cap), 2 bottles of 1.0 mL each:
Human serum, non-reactive for anti-CMV IgG; buffer; preservative.

CMVIGG Cal2   Positive calibrator 2 (black cap), 2 bottles of 1.0 mL each:
Human serum, reactive for anti-CMV IgG, approximately 40 U/mL; buffer; preservative.

Precautions and warnings

For in vitro diagnostic use.
Exercise the normal precautions required for handling all laboratory reagents.
Disposal of all waste material should be in accordance with local guidelines.
Safety data sheet available for professional user on request.

Elecsys CMV IgG

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This kit contains components classified as follows in accordance with the Regulation (EC) No. 1272/2008:

Warning

| H317 | May cause an allergic skin reaction. |

Prevention:

| P261 | Avoid breathing dust/fume/gas/mist/vapours/spray. |

| P272 | Contaminated work clothing should not be allowed out of the workplace. |

| P280 | Wear protective gloves. |

Response:

| P333 + P313 | If skin irritation or rash occurs: Get medical advice/attention. |

| P362 + P364 | Take off contaminated clothing and wash it before reuse. |

Disposal:

| P501 | Dispose of contents/container to an approved waste disposal plant. |

Product safety labeling follows EU GHS guidance.

Contact phone: all countries: +49-621-7590

All human material should be considered potentially infectious.

The calibrators (CMVIGG Cal1, CMVIGG Cal2) have been prepared exclusively from the blood of donors tested individually and shown to be free from HBsAg and antibodies to HCV and HIV.

The serum containing anti-CMV IgG (CMVIGG Cal2) was 0.2 micron filtrated.

The testing methods used assays approved by the FDA or cleared in compliance with the European Directive 98/79/EC, Annex II, List A.

However, as no testing method can rule out the potential risk of infection with absolute certainty, the material should be handled with the same level of care as a patient specimen. In the event of exposure, the directives of the responsible health authorities should be followed.[14,15]

Avoid foam formation in all reagents and sample types (specimens, calibrators and controls).

Reagent handling
The reagents in the kit are ready-for-use and are supplied in bottles compatible with the system.

cobas e 411 analyzer: The calibrators should only be left on the analyzer during calibration at 20-25 °C. After use, close the bottles as soon as possible and store upright at 2-8 °C.

Due to possible evaporation effects, not more than 5 calibration procedures per bottle set should be performed.

cobas e 601 and **cobas e** 602 analyzers: Unless the entire volume is necessary for calibration on the analyzers, transfer aliquots of the ready-for-use calibrators into empty snap-cap bottles (CalSet Vials). Attach the supplied labels to these additional bottles. Store the aliquots at 2-8 °C for later use.

Perform **only one** calibration procedure per aliquot.

All information required for correct operation is read in from the respective reagent barcodes.

Please note for **cobas e** 602 analyzers: Both the vial labels, and the additional labels (if available) contain 2 different barcodes. Please turn the vial cap 180° into the correct position so that the barcode between the yellow markers can be read by the system. Place the vial on the analyzer as usual.

Storage and stability
Store at 2-8 °C.

Do not freeze.

Store the Elecsys reagent kit **upright** in order to ensure complete availability of the microparticles during automatic mixing prior to use.

Stability of the reagent rackpack	
unopened at 2-8 °C	up to the stated expiration date
after opening at 2-8 °C	12 weeks
on the analyzers	3 weeks

Stability of the calibrators	
unopened at 2-8 °C	up to the stated expiration date
after opening at 2-8 °C	8 weeks
on **cobas e** 411 at 20-25 °C	up to 5 hours
on **cobas e** 601 and **cobas e** 602 at 20-25 °C	use only once

Store calibrators **upright** in order to prevent the calibrator solution from adhering to the snap-cap.

Specimen collection and preparation
Specimen collected from living patients, blood donors, or individual organ, tissue or cell donors may be used, including donor samples obtained while the donor's heart is still beating.
Performance for the use of cadaveric blood specimens (specimens collected post-mortem, non-heart-beating) was established according to Paul-Ehrlich-Institut recommendation[1] with samples obtained within 24 hours after death.[16] Qualitative differences of neat (non-reactive) or spiked (reactive) specimens from cadaveric compared to living donors were not observed.

Criterion: Mean value of cadaveric specimens compared to specimens from living donors within a recovery of 75-125 %.

Only the specimens listed below were tested and found acceptable.

Serum collected using standard sampling tubes or tubes containing separating gel.

Li-heparin, Na-heparin, K_2-EDTA, K_3-EDTA, ACD, CPD, CP2D, CPDA and Na-citrate plasma.

Criterion: Mean recovery of serum value: negative/borderline samples ± 0.2 U/mL; reactive samples: 80-120 % for samples containing solid anticoagulants and 55-95 % for samples containing liquid anticoagulants.

Sampling devices containing liquid anticoagulants have a dilution effect resulting in lower values (U/mL) for individual patient specimens.
In order to minimize dilution effects it is essential that respective sampling devices are filled completely according to manufacturer's instructions.

Stability:
For living patients and donor specimens obtained while the donor's heart is still beating: Stable for 7 days at 20-25 °C, 28 days at 2-8 °C, 6 months at -20 °C (± 5 °C). The samples may be frozen 5 times.
For cadaveric specimens: Stable for 2 days at 20-25 °C, 7 days at 2-8 °C. The samples may be frozen 3 times.

The sample types listed were tested with a selection of sample collection tubes or systems that were commercially available at the time of testing, i.e. not all available tubes of all manufacturers were tested. Sample collection systems from various manufacturers may contain differing materials which could affect the test results in some cases. When processing samples in primary tubes (sample collection systems), follow the instructions of the tube/collection system manufacturer.

Specimens should not be subsequently altered with additives (e.g. biocides, anti-oxidants or substances that could possibly change the pH or ionic strength of the sample) in order to avoid erroneous findings.

Pooled samples and other artificial material may have different effects on different assays and thus may lead to discrepant findings.

Centrifuge samples containing precipitates and thawed samples before performing the assay.

If derived from living donors, heat-inactivated and reconstituted lyophilized samples can be used.

Ensure the samples, calibrators and controls are at 20-25 °C prior to measurement.

Elecsys CMV IgG

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Due to possible evaporation effects, samples, calibrators and controls on the analyzers should be analyzed/measured within 2 hours.

The performance of the Elecsys CMV IgG assay has not been established with body fluids other than serum and plasma.

Materials provided

See "Reagents – working solutions" section for reagents.

Materials required (but not provided)

- ▪ REF 04784600190, PreciControl CMV IgG, 16 x 1.0 mL
- ▪ REF 05192943190, Diluent Universal 2, 2 x 36 mL sample diluent
- ▪ REF 11776576322, CalSet Vials, 2 x 56 empty snap-cap bottles
- ▪ General laboratory equipment
- ▪ **cobas e** analyzer

Additional materials for the **cobas e** 411 analyzer:

- ▪ REF 11662988122, ProCell, 6 x 380 mL system buffer
- ▪ REF 11662970122, CleanCell, 6 x 380 mL measuring cell cleaning solution
- ▪ REF 11930346122, Elecsys SysWash, 1 x 500 mL washwater additive
- ▪ REF 11933159001, Adapter for SysClean
- ▪ REF 11706802001, AssayCup, 60 x 60 reaction cups
- ▪ REF 11706799001, AssayTip, 30 x 120 pipette tips
- ▪ REF 11800507001, Clean-Liner

Additional materials for **cobas e** 601 and **cobas e** 602 analyzers:

- ▪ REF 04880340190, ProCell M, 2 x 2 L system buffer
- ▪ REF 04880293190, CleanCell M, 2 x 2 L measuring cell cleaning solution
- ▪ REF 03023141001, PC/CC-Cups, 12 cups to prewarm ProCell M and CleanCell M before use
- ▪ REF 03005712190, ProbeWash M, 12 x 70 mL cleaning solution for run finalization and rinsing during reagent change
- ▪ REF 12102137001, AssayTip/AssayCup, 48 magazines x 84 reaction cups or pipette tips, waste bags
- ▪ REF 03023150001, WasteLiner, waste bags
- ▪ REF 03027651001, SysClean Adapter M

Additional materials for all analyzers:

- ▪ REF 11298500316, ISE Cleaning Solution/Elecsys SysClean, 5 x 100 mL system cleaning solution

Assay

For optimum performance of the assay follow the directions given in this document for the analyzer concerned. Refer to the appropriate operator's manual for analyzer-specific assay instructions.

Resuspension of the microparticles takes place automatically prior to use. Read in the test-specific parameters via the reagent barcode. If in exceptional cases the barcode cannot be read, enter the 15-digit sequence of numbers.

Bring the cooled reagents to approximately 20 °C and place on the reagent disk (20 °C) of the analyzer. Avoid foam formation. The system automatically regulates the temperature of the reagents and the opening/closing of the bottles.

Calibrators:

Place the calibrators in the sample zone.

All the information necessary for calibrating the assay is automatically read into the analyzer.

After calibration has been performed, store the calibrators at 2-8 °C or discard (**cobas e** 601 and **cobas e** 602 analyzers).

Calibration

Traceability: This method has been standardized against the internal Roche standard for CMV IgG.

Every Elecsys CMV IgG reagent set has a barcoded label containing specific information for calibration of the particular reagent lot. The predefined master curve is adapted to the analyzer using CMVIGG Cal1 and CMVIGG Cal2.

Calibration frequency: Calibration must be performed once per reagent lot using CMVIGG Cal1, CMVIGG Cal2 and fresh reagent (i.e. not more than 24 hours since the reagent kit was registered on the analyzer).

Calibration interval may be extended based on acceptable verification of calibration by the laboratory.

Renewed calibration is recommended as follows:

- ▪ after 1 month (28 days) when using the same reagent lot
- ▪ after 7 days (when using the same reagent kit on the analyzer)
- ▪ as required: e.g. quality control findings outside the defined limits

Quality control

For quality control, use PreciControl CMV IgG.

Controls for the various concentration ranges should be run individually at least once every 24 hours when the test is in use, once per reagent kit, and following each calibration.

The control intervals and limits should be adapted to each laboratory's individual requirements. Values obtained should fall within the defined limits. Each laboratory should establish corrective measures to be taken if values fall outside the defined limits.

If necessary, repeat the measurement of the samples concerned.

Follow the applicable government regulations and local guidelines for quality control.

Calculation

The analyzer automatically calculates the analyte concentration of each sample in U/mL.

Interpretation of the results

Numeric result	Result message	Interpretation/further steps
< 0.5 U/mL	Non-reactive	Not infected with CMV and therefore susceptible to primary infection.
≥ 0.5 to < 1.0 U/mL	Borderline	Samples should be retested. In case the result is still borderline, a second sample should be collected (e.g. within 2 weeks) and testing should be repeated.
≥ 1.0 U/mL	Reactive	Positive for CMV IgG-specific antibodies indicating either acute or past infection. Such individuals are potentially at risk of transmitting the virus (e.g. mother to fetus) but are at current not necessarily contagious.*

* For the diagnosis of acute CMV infection further tests have to be performed e.g. CMV IgM and CMV IgG avidity. A positive IgM result in combination with a low avidity index for IgG is a strong indication of a primary CMV infection within the last 4 months.

The diagnosis may be supported by a significant increase of the CMV IgG antibody titer from a first to a second sample taken e.g. within 3-4 weeks. Note: A borderline or low positive result may already indicate an early acute CMV infection (also if the sample is non-reactive for CMV IgM antibodies).

The anti-CMV IgG results in a given specimen, as determined by assays from different manufacturers, can vary due to differences in assay and reagent methods. Therefore, the results reported by the laboratory to the physician should include: "The following results were obtained with the Elecsys CMV IgG assay. Results from assays of other manufacturers cannot be used interchangeably."

Limitations - interference

The effect of the following endogenous substances and pharmaceutical compounds on assay performance was tested. Interferences were tested up to the listed concentrations and no impact on results was observed.

Elecsys CMV IgG

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Endogenous substances

Compound	Concentration tested
Bilirubin	≤ 1129 µmol/L or ≤ 66 mg/dL
Hemoglobin	≤ 0.310 mmol/L or ≤ 500 mg/dL
Intralipid	≤ 2000 mg/dL
Biotin	≤ 4912 nmol/L or ≤ 1200 ng/mL
Rheumatoid factors	≤ 1500 IU/mL

Criterion: Recovery of positive samples within ± 20 % of serum value.

A negative test result does not completely rule out the possibility of an infection with CMV. Individuals may not exhibit any detectable IgG antibodies at the early stage of acute infection.

The detection of CMV-specific IgG antibodies in a single sample indicates a previous exposure to CMV but is not always sufficient to distinguish between an acute or latent infection (irrespective of the level of the IgG antibody titer).

In rare cases of primary CMV infection IgG antibody may be present before a specific IgM antibody response is detected. It is recommended that a follow-up sample be tested after 2 weeks. If the CMV IgG antibody titer remains stable, a primary infection can be excluded.[17,18]

Elecsys CMV IgG results should be used in conjunction with the patient's medical history, clinical symptoms and other laboratory tests, e.g. CMV-specific IgM results, CMV IgG avidity results.

The results in HIV patients, in patients undergoing immunosuppressive therapy, or in patients with other disorders leading to immune suppression, should be interpreted with caution.

Specimens from neonates, cord blood, pretransplant patients or body fluids other than serum and plasma, such as urine, saliva or amniotic fluid have not been tested.

Among a panel of 142 positive samples within the measuring range no high-dose hook effect was observed (no increasing signals upon dilution). However, the occurrence of a high-dose hook effect cannot be excluded in other cohorts.

Pharmaceutical substances
In vitro tests were performed on 17 commonly used pharmaceuticals. No interference with the assay was found.

In addition, the following special anti-viral drugs were tested. No interference with the assay was found.

Special anti-viral drugs

Drug	Concentration tested
Ganciclovir	≤ 800 mg/L
Valganciclovir	≤ 900 mg/L

In rare cases, interference due to extremely high titers of antibodies to immunological components, streptavidin or ruthenium can occur. These effects are minimized by suitable test design.

For diagnostic purposes, the results should always be assessed in conjunction with the patient's medical history, clinical examination and other findings.

Limits and ranges
Measuring range

0.25-500 U/mL (defined by the Limit of Detection and the maximum of the master curve). Values below the Limit of Blank are reported as < 0.15 U/mL. Values above the Limit of Blank but below the Limit of Detection will not be flagged by the instrument. Values above the measuring range are reported as > 500 U/mL (or up to 10000 U/mL for 20-fold diluted samples).

Lower limits of measurement

Limit of Blank, Limit of Detection

Limit of Blank = 0.15 U/mL

Limit of Detection = 0.25 U/mL

The Limit of Blank and Limit of Detection were determined in accordance with the CLSI (Clinical and Laboratory Standards Institute) EP17-A2 requirements.

The Limit of Blank is the 95th percentile value from n ≥ 60 measurements of analyte-free samples over several independent series. The Limit of Blank corresponds to the concentration below which analyte-free samples are found with a probability of 95 %.

The Limit of Detection is determined based on the Limit of Blank and the standard deviation of low concentration samples. The Limit of Detection corresponds to the lowest analyte concentration which can be detected (value above the Limit of Blank with a probability of 95 %).

Dilution

Samples with anti-CMV IgG concentrations above the measuring range can be diluted with Diluent Universal 2. The recommended dilution is 1:20 (either automatically by the analyzers or manually). The concentration of the diluted sample must be ≥ 15 U/mL.

After manual dilution, multiply the result by the dilution factor.

After dilution by the analyzers, the software automatically takes the dilution into account when calculating the sample concentration.

Manual dilution can also be made with human serum negative for CMV IgG.

Note: Antibodies to CMV are heterogeneous. This may lead to non-linear dilution behavior.

Expected values

The prevalence of IgG antibodies to CMV varies considerably depending upon geographical location and socioeconomic status of the population studied.

The Elecsys CMV IgG assay was used to test 616 samples from clinical routine in Germany (site 1) and 520 samples from clinical routine in Israel (site 2). Out of these 334 (54.2 %, Germany) and 415 samples (79.8 %, Israel) were found positive or indeterminate with the Elecsys CMV IgG assay.

A distribution of these values is given in the following table:

	Site 1, Germany, n = 616		Site 2, Israel, n = 520	
U/mL	N	% of total	N	% of total
< 0.5	282	45.8	105	20.2
0.5-< 1	4	0.6	2	0.4
≥ 1-< 10	15	2.4	2	0.4
10-< 100	62	10.1	71	13.7
100-< 300	91	14.8	114	21.9
300-< 500	65	10.6	84	16.2
≥ 500	97	15.7	142	27.3

Each laboratory should investigate the transferability of the expected values to its own patient population and if necessary determine its own reference ranges.

Specific performance data

Representative performance data on the analyzers are given below. Results obtained in individual laboratories may differ.

Precision

Precision was determined using Elecsys reagents, samples and controls in a protocol (EP05-A3) of the CLSI (Clinical and Laboratory Standards Institute): 2 runs per day in duplicate each for 21 days (n = 84). The following results were obtained:

cobas e 411 analyzer					
		Repeatability		Intermediate precision	
Sample	Mean U/mL	SD U/mL	CV %	SD U/mL	CV %
HS[c], low positive	1.11	0.016	1.5	0.031	2.8
HS, medium positive	240	6.41	2.7	9.42	3.9
HS, high positive	366	5.60	1.5	11.3	3.1
PC[d] CMV IgG 1	1.35	0.016	1.2	0.042	3.1
PC CMV IgG 2	23.6	0.246	1.0	0.685	2.9

Elecsys CMV IgG

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c) HS = human serum

d) PC = PreciControl

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		Repeatability		Intermediate precision	
Sample	Mean U/mL	SD U/mL	CV %	SD U/mL	CV %
HS, low positive	1.12	0.022	2.0	0.052	4.6
HS, medium positive	248	2.24	0.9	2.72	1.1
HS, high positive	370	4.96	1.3	5.78	1.6
PC CMV IgG 1	1.33	0.018	1.4	0.022	1.7
PC CMV IgG 2	23.4	0.266	1.1	0.365	1.6

Method comparison

A comparison of the Elecsys CMV IgG assay, REF 09118543190 (**cobas e** 601 analyzer; y), with the Elecsys CMV IgG assay, REF 04784596190 (**cobas e** 601 analyzer; x), gave the following correlations (U/mL):

Number of samples measured: 207

Passing/Bablok[19]	Linear regression
y = 0.966x - 0.0000	y = 0.915x + 0.242
τ = 0.962	r = 0.997

The sample concentrations were between 0 and 405 U/mL.

A total of 1668 fresh samples obtained from clinical routine (blood donors and pregnancy testing) were tested with the Elecsys CMV IgG assay at 3 different sites in comparison to commercially available CMV IgG assays.

Agreement to comparative assays

Site	N	Agreement[e] %	Concordant reactive	Concordant non-reactive	Discrepant
1[f]	532	98.9	206	320	6
2[g]	616	96.8	317	279	20
3[h]	520	99.4	414	103	3

e) All indeterminate samples counted positive.

f) 4 samples were found indeterminate with the Elecsys CMV IgG assay and negative with the comparison assay; 2 samples were found discrepant negative with the Elecsys CMV IgG assay.

g) 13 samples were found discrepant positive with the Elecsys CMV IgG assay; 4 samples were found indeterminate with the Elecsys CMV IgG assay and negative with the comparison assay; 2 samples were found discrepant negative with the Elecsys CMV IgG assay; 1 sample was found negative with the Elecsys CMV IgG assay and indeterminate with the comparison assay.

h) 1 sample was found indeterminate with the Elecsys CMV IgG assay and negative with the comparison assay; 2 samples were found discrepant negative with the Elecsys CMV IgG assay.

Analytical specificity

439 potentially cross reacting samples were tested with the Elecsys CMV IgG assay and a comparison CMV IgG assay comprising the following specimens:

- containing antibodies against HBV**, HAV, HCV*, HIV, HTLV, EBV**, HSV*, VZV**, Parvo B19***, Rubella, Treponema pallidum**, Toxoplasma gondii**

- containing autoantibodies*** (ANA, anti-tissue, RF)

An overall agreement of 96.6 % (422/437) was found in these specimens with the Elecsys CMV IgG assay and the comparison test. 110 samples were found concordantly negative and 312 samples were found positive. 2 samples were found indeterminate either with the Elecsys CMV IgG assay or the comparison test.

* HSV, HCV: 2 discordant samples were found in each group.

** HBV, EBV, VZV, Treponema pallidum, Toxoplasma gondii: 1 discordant sample was found in each group.

*** Parvo B19, autoantibodies: 3 discordant samples were found in each group.

Agreement in primary infections

A total of 368 frozen samples from pregnant women (acute, recent and late phase) including sequential and single samples analyzed by commercially available CMV IgG assays were tested with the Elecsys CMV IgG assay at 4 different sites.

Agreement to comparative assays

Site	N	Agreement[i] %	Concordant reactive	Concordant non-reactive	Discrepant
1[j]	181	96.1	172	2	7
2[k]	57	96.5	52	3	2
3	40[l]	97.5	39	0	1
	36[m]	94.4	34	0	2
4[n]	54	90.7	43	6	5

i) All indeterminate samples counted positive.

j) 6 samples were found discordant positive with the Elecsys CMV IgG assay; 1 sample was found discordant negative with the Elecsys CMV IgG assay.

k) 1 sample was found discordant positive with the Elecsys CMV IgG assay; 1 sample was found discordant negative with the Elecsys CMV IgG assay.

l) 1 sample was found discordant negative with the Elecsys CMV IgG assay.

m) 1 sample was found discordant negative with the Elecsys CMV IgG assay and indeterminate with the comparison assay.

n) 4 samples were found discordant negative with the Elecsys CMV IgG assay; 1 sample was found discordant indeterminate with the Elecsys CMV IgG assay; the comparison assay was negative.

Agreement in past infection

A total of 158 frozen samples from pregnant women with past CMV infection analyzed by commercially available CMV IgG assays were tested with the Elecsys CMV IgG assay at 4 different sites. A 100 % agreement for the Elecsys CMV IgG assay was found with the competitor assays.

Agreement in pre-selected negative samples

A total of 161 frozen samples from pregnant women in which a CMV infection was excluded and analyzed by commercially available CMV IgG assays were tested with the Elecsys CMV IgG assay at 4 different sites. In 3 sites a 100 % agreement of the Elecsys CMV IgG assay was found with the competitor assays, whereas at site 4 the Elecsys CMV IgG assay showed 1 discrepant positive and 1 discrepant indeterminate result (agreement 96 %).

References

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3 Johnson J, Anderson B, Pass RF. Prevention of maternal and congenital cytomegalovirus infection. Clin Obstet Gynecol 2012;55:521-530.

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For further information, please refer to the appropriate operator's manual for the analyzer concerned, the respective application sheets, the product information and the Method Sheets of all necessary components (if available in your country).

A point (period/stop) is always used in this Method Sheet as the decimal separator to mark the border between the integral and the fractional parts of a decimal numeral. Separators for thousands are not used.

Symbols
Roche Diagnostics uses the following symbols and signs in addition to those listed in the ISO 15223-1 standard (for USA: see dialog.roche.com for definition of symbols used):

CONTENT	Contents of kit
SYSTEM	Analyzers/Instruments on which reagents can be used
REAGENT	Reagent
CALIBRATOR	Calibrator
→	Volume for reconstitution
GTIN	Global Trade Item Number

CE 0123

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