English

Intended use

Immunaoassay for the in vitro quantitative determination of hepatitis B surface antigen (HBsAg) in confirmed HBsAg positive human serum and plasma. Assay results, in conjunction with HBV DNA quantification and clinical information, may be used as an aid to monitor treatment of individuals with chronic hepatitis B.

The electrochemiluminescence immunoassay "ECLIA" is intended for use on Elecsys and cobas e immunoassay analyzers.

Note

Please note that the catalogue number appearing on the package insert retains only the first 8 digits of the licensed 11-digit catalogue number: 07143737190 for the HBsAg II quant II. The last 3 digits -190 have been replaced by -119 for logistic purposes.

Summary

The hepatitis B surface antigen (HBsAg), a polypeptide of varying size, is a component of the external envelope of the hepatitis B virus (HBV) particle. In addition to the intact infectious viral particles, the blood of persons infected with HBV contains large amounts of non-infectious particles which consist only of an outer coat containing HBsAg. After infection, HBsAg is the first immunological marker detectable in serum and is usually present weeks to months before the onset of clinical symptoms and the appearance of other biochemical markers. In the case of acute HBV infection with recovery, HBsAg is detectable in serum for up to 6 months after its appearance. If HBsAg persists for more than 6 months after acute hepatitis, the presence of chronic hepatitis B (CHB) infection must be assumed.

Classifying the stage of CHB infection is essential for identifying patients who require treatment and monitoring, as well as assessing the likelihood of responding to treatment and risk of progression to more severe liver disease. A CHB patient with elevated aminotransferase levels, high HBV DNA viral load, and histological abnormalities will be considered for therapy and two different treatment strategies are applicable: treatment of finite duration with pegylated interferon alpha and long-term treatment with nucleoside/nucleotide analogs (NUCs). Monitoring HBsAg levels, in addition to HBV DNA, before and during pegylated interferon-based therapy can help physicians to predict the likely response and implement the response-guided therapy algorithms, as recommended in the guidelines, to achieve the optimal outcome, which is sustained HBsAg loss with or without seroconversion to anti-HBs. There is also some evidence suggesting that HBsAg quantification may have value for monitoring response to NUC therapy and identifying patients able to achieve a sustained response after terminating treatment. This is based on the suggestion that HBsAg levels decline during antiviral therapy with NUCs reflecting an improvement in the degree of host immune control of the virus, with lower HBsAg levels at end of treatment being associated with continued remission. However, further studies in larger cohorts are required.

For patients in the immune clearance phase of CHB, HBV DNA levels have traditionally been used to determine the disease progression risk. However, HBsAg monitoring can provide additional information and distinguish true inactive carriers (HBV DNA < 2000 IU/mL and HBsAg < 1000 IU/mL) who are at the lowest risk of progression from those at a higher risk of developing cirrhosis or hepatocellular carcinoma (HCC). An HBsAg level ≥1000 IU/mL in hepatitis B ‘e’ antigen negative patients with HBV DNA < 2000 IU/mL has been identified as an independent risk factor for progression to HCC.

Test principle

Sandwich principle. Total duration of assay: 18 minutes.

- 1st incubation: 50 μL of sample, two biotinylated monoclonal anti-HBsAg antibodies, and a mixture of monoclonal anti-HBsAg antibody and polyclonal anti-HBsAg antibodies labeled with a ruthenium complex 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.

- a) Tris(2,2'-bipyridyl)ruthenium(II)-complex (Ru (bpy) 3+)

Reagents – working solutions

The reagent rackpack (M, R1, R2) is labeled as HBSAGQN2.

M Streptavidin-coated microparticles (transparent cap), 1 bottle, 6.5 mL:
- Two biotinylated monoclonal anti-HBsAg antibodies (mouse) > 0.5 mg/L;
- phosphate buffer 100 mM, pH 7.5; preservative.

R1 Anti-HBsAg-Ab–biotin (gray cap), 1 bottle, 8 mL:
- Monoclonal anti-HBsAg antibodies (mouse), polyclonal anti-HBsAg antibodies (sheep) labeled with ruthenium complex > 1.5 mg/L;
- phosphate buffer 100 mM, pH 8.0; preservative.

HBSAGQN2 Cal1 Negative calibrator 1 (white cap), 2 bottles of 1.3 mL each:
- Human serum, buffered, pH 6.5; preservative.

HBSAGQN2 Cal2 Positive calibrator 2 (black cap), 2 bottles of 1.3 mL each:
- Human serum approximately 50 IU/mL in human serum, buffered, pH 6.5; preservative.

HBSAGQN2 Dil HepB 2 bottles of 36 mL each (white cap):
- Human serum negative for HBsAg and anti-HBs, buffered, pH 6.5; 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.

All human material should be considered potentially infectious.

The calibrators and HBSAGQN2 Dil HepB have been prepared exclusively from the blood of donors tested individually and shown to be free from HBsAg (HBSAGQN2 Cal1 and HBSAGQN2 Dil HepB only) and antibodies to HCV and HIV.

The testing methods applied were FDA-approved or cleared in compliance with the European Directive 98/79/EC, Annex II, List A.

The serum containing HBsAg (HBSAGQN2 Cal2) was inactivated using β-propiolactone and UV-radiation. However, as no inactivation or 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.

Avoid foam formation in all reagents and sample types (specimens, calibrators and controls).
HBsAg II quant II
Hepatitis B surface antigen quantitative determination

Pre-dilution of samples is mandatory according to the test algorithm (see "Dilution" section).

Reagent Handling

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

Elecsys 2010 and cobas e 411 analyzers: The calibrators should only be left on the analyzers 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.

MODULAR ANALYTICS E170, cobas e 601 and cobas e 602 analyzers: If 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: Both the vials, and the additional labels (if available) contain 2 different barcodes. The barcode between the yellow markers is for cobas 8000 systems only. If using a cobas 8000 system, please turn the vial cap 180° into the correct position so the barcode can be read by the system. Place the vial on the instrument 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.

<table>
<thead>
<tr>
<th>Stability of the reagent rackpack and HBsAgCON II Dil Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>unopened at 2-8 °C</td>
</tr>
<tr>
<td>after opening at 2-8 °C</td>
</tr>
<tr>
<td>on the analyzers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stability of the calibrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>unopened at 2-8 °C</td>
</tr>
<tr>
<td>after opening at 2-8 °C</td>
</tr>
<tr>
<td>on Elecsys 2010 and cobas e 411 at 20-25 °C</td>
</tr>
</tbody>
</table>

| on MODULAR ANALYTICS E 170, 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

Only the specimens listed below were tested in a sufficient number and found acceptable.

- Serum collected using standard sampling tubes or tubes containing separating gel.
- Li-heparin, Na-heparin, K2-EDTA- and sodium citrate plasma.
- Criterions: slope 1.00 ± 0.1 + intercept ≤ ± 0.5 IU/mL + coefficient of correlation > 0.95.
- Stable for 7 days at 2-8 °C, 3 months at -20 °C. The samples may be frozen 5 times.

The sample types listed were tested with a selection of sample collection tubes 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 manufacturer. Centrifuge samples containing precipitates before performing the assay. Do not use heat-inactivated samples.

Do not use samples and controls stabilized with azide.

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

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

Materials provided

See “Reagents – working solutions” section for reagents.

2 x 6 bottles labels

Materials required (but not provided)

- REF 07143745190, PreciControl HBsAg II quant II, for 5 x 1.3 mL each of PreciControl HBsAg II quant II 1, 2 and 3
- REF 11776576322, CalSet Vials, 2 x 56 empty snap-cap bottles
- General laboratory equipment
- Elecsys 2010, MODULAR ANALYTICS E170 or cobas e analyzer
- Accessories for Elecsys 2010 and cobas e 411 analyzers
- REF 11662988122, ProCell, 6 x 380 mL system buffer
- REF 11662970212, CleanCell, 6 x 380 mL measuring cell cleaning solution
- REF 11930346122, Elecsys SysWash, 1 x 500 mL washer additive
- REF 11933159001, Adapter for SysClean
- REF 11706802001, Elecsys 2010 Assay Cup, 60 x 60 reaction vessels
- REF 11706799001, Elecsys 2010 Assay Tip, 30 x 120 pipette tips
- Accessories for MODULAR ANALYTICS E170, cobas e 601 and cobas e 602 analyzers:
  - REF 04880340190, ProCell M, 2 x 2 L system buffer
  - REF 04880393190, 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/AccyCap Combimagazine M, 48 magazines x 84 reaction vessels or pipette tips, waste bags
  - REF 03032150001, WasteLiner, waste bags
  - REF 03027615001, SysClean Adapter M
- Accessories 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. Pre-dilution of samples is mandatory according to the test algorithm (see “Dilution” section). 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. 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.

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 (MODULAR ANALYTICS E170, cobas e 601 and cobas e 602 analyzers).

Calibration

Traceability: This method has been standardized against the NIBSC standard (code number: 00758; WHO Second International Standard for HBsAg, subtype adw2, genotype A; IU/mL).
Every Elecsys HBsAg II 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 HBSAGQN2 Cal1 and HBSAGQN2 Cal2. Calibration frequency: Calibration must be performed once per reagent lot using HBSAGQN2 Cal1, HBSAGQN2 Cal2 and fresh reagent (i.e. not more than 24 hours since the reagent kit was registered on the analyzer). Renewed calibration is recommended as follows: *β* after 1 month (28 days) when using the same reagent lot *β* after 7 days (when using the same reagent kit on the analyzer) *β* as required: e.g. quality control controls outside the defined limits

**Quality control**

For quality control, use PreciControl HBsAg II quant II. 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.

Note: The controls are not barcode-labeled and therefore have to be run like external controls. All values and ranges have to be entered manually. Please refer to the section “QC” in the operator's manual or to the online help of the instrument software.

Non-barcode labeled controls: Only one target value and range for each control level can be entered in the analyzer. The reagent lot-specific target values have to be re-entered each time a specific reagent lot with different control target values and ranges is used. Two reagent lots with different control target values and ranges cannot be used in parallel in the same run. The exact lot-specific target values and ranges are printed on the enclosed (or electronically available) value sheet in the reagent kit or PreciControl kit. Please make sure that the correct values are used.

**Calculation**

The analyzer automatically calculates the analyte concentration (IU/mL) based on the measurement of HBSAGQN2 Cal1 and HBSAGQN2 Cal2. In case of a manual pre-dilution, the dilution factor needs to be accounted for manually calculation of the final result.

**Limitations – interference**

The assay is unaffected by icterus (bilirubin ≤ 684 μmol/L or ≤ 40 mg/dL), hemolytic (HB ≤ 0.311 mmol/L or ≤ 0.550 g/dL), lipemia (triglycerides ≤ 22.8 mmol/L or ≤ 2000 mg/dL), and protein (≤ 104 mmol/L or ≤ 40 g/L).

Criterions: Recovery within ± 20 % of initial value.

Samples should not be taken from patients receiving therapy with high biotin doses (i.e. > 5 mg/day) until at least 8 hours following the last biotin administration.

No interference was observed from rheumatoid factors up to a concentration of 1200 IU/mL.

No high-dose hook effect was found with the Elecsys HBsAg II quant II assay up to a concentration of 8.7 x 10⁶ IU/mL when samples were analyzed according to instructions for use.

There is no indication for a significant loss in sensitivity or specificity with samples having elevated levels of albumin up to 14 g/dL.

No significant interfering effects of 22 commonly used therapeutic drugs could be detected (including lamivudine, peginterferon alpha-2a, entecavir, tebivudine and adefovir).

In rare cases, interference due to extremely high titters of antibodies to analyte-specific antibodies, streptavidin or ruthenium can occur. These effects are minimized by suitable test design.

**MODULAR ANALYTICS E170, cobas e 601 and cobas e 602 analyzers:**

Make sure that in the Special Wash List (Screen → Utility → Special Wash → Immune) the Elecsys HBsAg II quant II assay is combined with all assays performed on the analyzer - including the Elecsys HBsAg II quant II assay itself.

<table>
<thead>
<tr>
<th>From test</th>
<th>Step</th>
<th>To test</th>
<th>Step 0</th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBsAg II quant II</td>
<td>1</td>
<td>HBsAg II quant II</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>HBsAg II quant II</td>
<td>1</td>
<td>each other assay</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

If new tests are installed make sure that the Special Wash List is updated accordingly.

For the Elecsys Anti-HBs assay make sure that “Step 1” and “Step 2” are activated:

<table>
<thead>
<tr>
<th>From test</th>
<th>Step</th>
<th>To test</th>
<th>Step 0</th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-HBs</td>
<td>1</td>
<td>HBsAg II quant II</td>
<td>-</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

The described additions to the Special Wash List have to be entered manually. Please refer to the operator’s manual.

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**

*Measuring range for pre-diluted samples:*

5-13000 IU/mL for 100-fold diluted samples (Elecsys 2010 and cobas e 411 analyzers).

Values below the measuring range are reported as < 5 IU/mL.

Values above the measuring range are reported as > 13000 IU/mL.

20-52000 IU/mL for 400-fold diluted samples (cobas e 601, cobas e 602 and MODULAR ANALYTICS E170 analyzers).

Values below the measuring range are reported as < 20 IU/mL.

Values above the measuring range are reported as > 52000 IU/mL.

**Measuring range for undiluted samples:**

0.05-130 IU/mL (defined by the Limit of Detection (LoD) and the maximum of the master curve).

Values below the Limit of Detection are reported as < 0.05 IU/mL.

Values above the measuring range are reported as > 130 IU/mL.

**Lower limits of measurement**

Limit of Blank (LoB) and Limit of Detection (LoD)

Limit of Blank = 0.03 IU/mL

Limit of Detection = 0.05 IU/mL

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

The Limit of Blank is the 95th percentile value from ≥ 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**

Every sample has to be initially diluted with HBSAGQN2 Dil HepB (mandatory dilution to be ordered on the respective platform).

The dilution factor for dilution by the Elecsys 2010 and cobas e 411 analyzers is 1:100.

The dilution factor for dilution by the MODULAR ANALYTICS E170, cobas e 601 and cobas e 602 analyzers is 1:400.

After dilution by the analyzers, the MODULAR ANALYTICS E170, Elecsys 2010 and cobas e software automatically takes the dilution into account when calculating the sample concentration.

Due to different dilutions performed on the different instrument platforms, minor deviations between the measurements on Elecsys 2010/cobas e 411 analyzers and MODULAR ANALYTICS E170/cobas e 601/cobas e 602 analyzers might occur.

In highly concentrated patient samples, further manual dilution steps might be necessary to achieve results within the measuring range for pre-diluted samples.
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samples. After manual dilution, multiply the result by the dilution factor chosen for the respective dilution step.

Test algorithm for samples:

Initial onboard dilution is mandatory for every sample. Therefore every sample has to be run first with a dilution step ordered by the user and performed by the analyzer (1:100 on the Elecsys 2010 and cobas e 411 analyzers and 1:400 on the MODULAR ANALYTICS E170, cobas e 601 and cobas e 602 analyzers). If a result is found within 5-13000 IU/mL for 100-fold diluted samples or 20-52000 IU/mL for 400-fold diluted samples no further dilution is necessary and endpoint result is achieved.

If a result is found below the above mentioned lower ranges, the sample has to be run undiluted and should be found within 0.05-130 IU/mL. If a result is found > 13000 IU/mL for 100-fold diluted samples or > 52000 IU/mL for 400-fold diluted samples further manual dilution steps (e.g. additional 1:100 sample predilution prior to 1:100/1:400 instrument dilution to achieve a final 1:10000/1:40000 dilution) are recommended until result is found within the measuring range.

Expected values

Note: Where indicated, data have been generated using the Elecsys HBsAg II quant assay. Since the reagents (M, R1, R2) of the Elecsys HBsAg II quant assay are the same as those of the Elecsys HBsAg II quant II assay (only the controls and calibrators have been modified) the data generated with the Elecsys HBsAg II quant assay and no new data needed to be generated.

From 611 samples obtained from a multicenter evaluation the following values have been reported with the Elecsys HBsAg II quant assay.

<table>
<thead>
<tr>
<th>IU/mL</th>
<th>MCE (n = 611)</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1</td>
<td>17</td>
<td>2.78</td>
</tr>
<tr>
<td>1 &lt; 10</td>
<td>20</td>
<td>3.27</td>
</tr>
<tr>
<td>10 &lt; 100</td>
<td>35</td>
<td>5.73</td>
</tr>
<tr>
<td>100 &lt; 1000</td>
<td>127</td>
<td>20.8</td>
</tr>
<tr>
<td>1000 &lt; 10000</td>
<td>239</td>
<td>39.1</td>
</tr>
<tr>
<td>10000 &lt; 100000</td>
<td>147</td>
<td>24.1</td>
</tr>
<tr>
<td>100000 &lt; 1000000</td>
<td>26</td>
<td>4.26</td>
</tr>
</tbody>
</table>

The final result was determined from the first measurement in 70.0 % of the samples on the Elecsys 2010 and cobas e 411 analyzers (1:100 dilution) and 85.6 % of the samples on the MODULAR ANALYTICS E170, cobas e 601 and cobas e 602 analyzers (1:400 dilution).

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 HBsAg II quant II reagents, samples and controls in a protocol (EPS-A2) of the CLSI (Clinical and Laboratory Standards Institute): 2 runs per day in duplication each for at least 21 days (n = 84). The following results were obtained:

<table>
<thead>
<tr>
<th>Sample</th>
<th>Repeatability</th>
<th>Intermediate precision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean IU/mL</td>
<td>SD IU/mL</td>
</tr>
<tr>
<td>Human serum 1</td>
<td>0.170</td>
<td>0.006</td>
</tr>
<tr>
<td>Human serum 2</td>
<td>75.2</td>
<td>1.52</td>
</tr>
<tr>
<td>Human serum 3</td>
<td>292</td>
<td>8.19</td>
</tr>
<tr>
<td>PC HBsAGQN1</td>
<td>3.38</td>
<td>0.069</td>
</tr>
<tr>
<td>PC HBsAGQN2</td>
<td>74.1</td>
<td>1.25</td>
</tr>
<tr>
<td>PC HBsAGQN3</td>
<td>77.3</td>
<td>2.16</td>
</tr>
</tbody>
</table>

Repeatability = within-run precision
Intermediate precision = between-run

Method comparison
A comparison of the Elecsys HBsAg II quant II assay (y) with the Elecsys HBsAg II quant assay (x) using 288 serum samples gave the following correlations:

<table>
<thead>
<tr>
<th>Sample</th>
<th>Repeatability</th>
<th>Intermediate precision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean IU/mL</td>
<td>SD IU/mL</td>
</tr>
<tr>
<td>Human serum 1</td>
<td>0.164</td>
<td>0.005</td>
</tr>
<tr>
<td>Human serum 2</td>
<td>75.9</td>
<td>1.33</td>
</tr>
<tr>
<td>Human serum 3</td>
<td>286</td>
<td>9.09</td>
</tr>
<tr>
<td>PC HBsAGQN1</td>
<td>3.45</td>
<td>0.087</td>
</tr>
<tr>
<td>PC HBsAGQN2</td>
<td>80.4</td>
<td>1.47</td>
</tr>
<tr>
<td>PC HBsAGQN3</td>
<td>72.8</td>
<td>2.12</td>
</tr>
</tbody>
</table>
No results were found.

Quantitation of HBV mutants displayed. The Elecsys HBsAg II quant assay. Results of observed concentrations are presented as follows:

- A total of 50 samples comprising different HBsAg mutations were tested with the Elecsys HBsAg II quant assay comprising specimens:
  - containing antibodies against HAV, HCV, HIV, HTLV, CMV, EBV, HSV, Rubella, Parvo virus, VZV, Toxoplasma gondii, Treponema pallidum
  - containing autoantibodies (ANA, SLE), elevated titers of rheumatoid factor or HAMA antibodies
  - positive for Mumps, Measles, Malaria
  - after vaccination against HBV and influenza
  - from patients with monoclonal gammapathy and multiple myeloma/lymphoma, patients undergoing dialysis or patients suffering from alcoholic liver disease
  - from pregnant women

No results were found ≥ 0.05 IU/mL.

Quantitation of HBV mutants

A total of 50 samples comprising different HBsAg mutations were tested with the Elecsys HBsAg II quant assay. Results of observed concentrations are displayed.

<table>
<thead>
<tr>
<th>Mutant panel</th>
<th>Elecsys HBsAg II quant (IU/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native mutant panel (strains displaying amino acid substitutions either linked to vaccine resistance, resistance to therapy with human HB immunoglobulin or impaired HBsAg reactivity)</td>
<td>&lt; 0.05 (n = 2) 0.05-324 (n = 17)</td>
</tr>
<tr>
<td>Recombinant mutant panel</td>
<td>&gt; 0.05-6.9 (n = 31)</td>
</tr>
</tbody>
</table>

- Observed concentrations with HBV mutants might differ compared to competitor assays and are a characteristic of the individual assays.

Seroconversion panels

18 seroconversion panels were analyzed with the Elecsys HBsAg II quant assay. In all panels the Elecsys HBsAg II quant assay shows a significant increase in concentration upon seroconversion correlated to the shift as it is detectable in qualitative screening assays. Observed concentrations ranged from < LoD for negative samples draws, and 0.058-92300 IU/mL for conversion samples (confirmed positives).

References

2. Lee JM, Ahn SH. Quantification of HBsAg: basic virology for clinical practice. World J Gastroenterol 2011;17:283-289.
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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.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTENT</td>
<td>Contents of kit</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>Analyzers/Instruments on which reagents can be used</td>
</tr>
<tr>
<td>REAGENT</td>
<td>Reagent</td>
</tr>
<tr>
<td>CALIBRATOR</td>
<td>Calibrator</td>
</tr>
<tr>
<td>→</td>
<td>Volume after reconstitution or mixing</td>
</tr>
<tr>
<td>GTIN</td>
<td>Global Trade Item Number</td>
</tr>
</tbody>
</table>

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