REF 800102 NeuMoDx™ HBV Calibrators

℞ only

CAUTION: For US Export Only

IVD For *in vitro* diagnostic use with the NeuMoDx 288 and NeuMoDx 96 Molecular System

For insert updates, go to: www.qiagen.com/neumodx-ifu
For detailed instructions, refer to the NeuMoDx 288 Molecular System Operator's Manual; p/n 40600108
For detailed instructions, refer to the NeuMoDx 96 Molecular System Operator's Manual; p/n 40600317
See also the NeuMoDx HBV Quant Test Strip Instructions for Use; p/n 40600136

INTENDED USE

The NeuMoDx HBV Calibrators are a component of the NeuMoDx HBV Quant Assay, an *in vitro* diagnostic nucleic acid amplification test intended for the detection and quantitation of hepatitis B virus (HBV) DNA in human plasma and serum. As implemented on the fully automated NeuMoDx 288 Molecular System or NeuMoDx 96 Molecular System (NeuMoDx System(s)), the NeuMoDx HBV Calibrators are used to establish a calibration coefficient associated with the standard curve of a particular lot of the NeuMoDx HBV Quant Test Strip, allowing for the accurate quantitation of HBV DNA in human plasma and serum specimens. The HBV target in these calibrators are traceable to the WHO 4th HBV International Standard.

SUMMARY AND EXPLANATION

The NeuMoDx HBV Calibrators are provided in three paired sets of low positive and high positive calibrators. One low positive and one high positive calibrator (1 set) is processed every 90 days or with every new lot of NeuMoDx HBV Quant Test Strips to establish a valid calibration of the NeuMoDx HBV Quant Assay. Both HBV calibrators contain a non-infectious, encapsulated HBV target diluted in Basematrix 53 Diluent (Basematrix) (Seracare Life Sciences, Inc., Milford, MA, USA).

The NeuMoDx HBV Quant Assay combines automated DNA extraction, amplification, and detection by real-time PCR to enable the quantitative detection of HBV DNA in human plasma and serum specimens. The results attained from processing the NeuMoDx HBV Calibrators are applied to the stored standard curve and used to generate a calibration coefficient, which is used to automatically adjust the standard curve for slight variations across systems or test strip lots. Use of both the standard curve and the system/lot specific calibration coefficient allows for the accurate quantitation of the HBV DNA in the human clinical samples.

In addition, the traceability of these calibrators to the WHO 4th HBV International Standard enables laboratories to ensure that results obtained from the NeuMoDx HBV Quant Assay are consistent across reagent lots, systems, and operators.

PRINCIPLES OF THE PROCEDURE

The NeuMoDx HBV Calibrators have been formulated to mimic natural human plasma and serum specimens containing HBV DNA. The encapsulated target material used in these calibrators allows for the verification of efficacious nucleic acid extraction and real-time PCR amplification and detection, enabling calibration of the entire testing process. One set of calibrators is processed every 90 days or with a change in NeuMoDx System, software, or NeuMoDx HBV Quant Test Strip lot. The NeuMoDx System will automatically process each calibrator in triplicate. Such routine processing of the NeuMoDx HBV Calibrators enables laboratories to ensure accuracy of test results for human clinical specimens processed within the validity period. These calibrators are processed in a manner identical to the processing of the human clinical specimens intended for quantitative HBV testing.

Software on the NeuMoDx System automatically alerts the operator when a calibration is required. During processing, criteria for acceptance of the calibrator are automatically verified by the NeuMoDx System software. If fewer than two of the calibrator replicates is valid, the software automatically invalidates the run. Samples in an invalidated run must be retested using a new set of calibrators and controls.

Upon successful processing of the NeuMoDx HBV Calibrators, the system software automatically records the validity of the processed calibrators for a period of 90 days, unless there is a change to the system that causes the validity period to expire. The NeuMoDx System software will automatically notify the user to process new calibrators when the previously processed calibrator validity period has expired and will not allow the processing of patient samples until a new period is established.

REAGENTS / CONSUMABLES

Material Provided

REF	Contents	Tests per unit	Total tests per kit
800102	**NeuMoDx HBV Calibrators** *Single use sets of HBV High and Low Calibrators to establish validity of standard curve* *(1 vial of each level = 1 set)*	1 set	3

Materials Required but Not Provided (Available Separately from NeuMoDx)

REF	Contents
201300	**NeuMoDx HBV Quant Test Strip** *Dried PCR reagents containing HBV and SPC1 specific TaqMan® probes and primers*
100200	**NeuMoDx Extraction Plate** *Dried paramagnetic particles, lytic enzyme, and sample process controls*
900102	**NeuMoDx HBV External Controls** *Single use sets of HBV Positive and Negative External Controls to establish daily validity of NeuMoDx HBV Quant Assay*
400400	**NeuMoDx Lysis Buffer 1**
400100	**NeuMoDx Wash Reagent**
400200	**NeuMoDx Release Reagent**
100100	**NeuMoDx Cartridge**
235903	**Hamilton CO-RE/CO-RE II Tips (300 µL) with Filters**
235905	**Hamilton CO-RE/CO-RE II Tips (1000 µL) with Filters**

Instrumentation Required

NeuMoDx 288 Molecular System [REF 500100] or **NeuMoDx 96 Molecular System** [REF 500200]

WARNINGS AND PRECAUTIONS

- The NeuMoDx HBV Calibrators are for *in vitro* diagnostic use only with the NeuMoDx HBV Quant Test Strip, as implemented on the NeuMoDx System.
- Do not use NeuMoDx HBV Calibrators after the listed expiration date.
- Do not use the NeuMoDx HBV Calibrators if the packaging is damaged or the contents are not frozen upon arrival.
- Always handle specimens as if they are infectious and in accordance with safe laboratory procedures such as those described in Biosafety in Microbiological and Biomedical Laboratories [1] and in CLSI Document M29-A4.[2]
- Do not pipette by mouth. Do not smoke, drink, or eat in areas where specimens or reagents are being handled.
- Dispose of unused reagents and waste in accordance with country, federal, provincial, state and local regulations.
- Clean, powder-free, nitrile gloves should be worn when handling all NeuMoDx reagents and consumables.
- Wash hands thoroughly after performing the test.
- Safety Data Sheets (SDS) are provided for each reagent (as applicable) at www.qiagen.com/neumodx-ifu
- Do not reuse.

PRODUCT STORAGE, HANDLING AND STABILITY

- The NeuMoDx HBV Calibrators are shipped with dry ice to maintain a frozen state; do not use if contents are not frozen upon receipt.
- It is recommended that the NeuMoDx HBV Calibrators be stored at -15 °C to -20 °C to ensure stability.
- Calibrator vials are intended for single use only. Thawed calibrators may be stored at 4 °C for no longer than 24 hours.
- Refreezing after a first thaw is not recommended.
- Although the NeuMoDx HBV Calibrators are non-infectious, any unused material should be discarded after use as biohazard waste to reduce risk of contamination by the target nucleic acid contained.
- Discard any calibrators that appear cloudy or contain large precipitates after thawing.

INSTRUCTIONS FOR USE

1. NeuMoDx HBV Calibrators must be processed under the following scenarios:
    a. Validity of previously established calibration has expired (past 90 days)
    b. Calibration validity has not been established on the NeuMoDx System(s)
    c. Calibration validity has not been established for a given lot of NeuMoDx HBV Quant Test Strips
    d. The NeuMoDx System software has been modified

2. If a valid calibration does not exist, the NeuMoDx System will prompt the user to process calibrators (and external controls) before sample results can be reported.
3. If calibrators are required, process the NeuMoDx HBV Calibrators (1 high calibrator and 1 low calibrator):

NeuMoDx HBV Calibrator	Label Color Scheme
High Calibrator (HCHBV)	Green
Low Calibrator (LCHBV)	Blue

4. Retrieve a set of NeuMoDx HBV Calibrators from freezer and place at room temperature (15-30 °C) until completely thawed.
5. Vortex gently to ensure homogeneity.
6. Load the calibrator vials into a standard 32-tube Specimen Tube Carrier, and ensure caps are removed from all tubes.
7. Place the Specimen Tube Carrier on the Autoloader shelf and use the touchscreen to load carrier onto the NeuMoDx System worktable.
8. The NeuMoDx System will recognize the barcode and start processing the specimen tubes unless reagents or consumables required for testing are not available.
9. To generate valid results, at least 2 out of the 3 replicates must yield results within predefined parameters. The low calibrator nominal target is 3.7 $\log_{10}$ IU/mL and the high calibrator nominal target is 5.7 $\log_{10}$ IU/mL.

NeuMoDx HBV External Calibrator	HBV Result
High Calibrator (HCHBV)	2/3 Calibrators Valid
Low Calibrator (LCHBV)	2/3 Calibrators Valid

10. Discrepant result handling for external calibrators should be performed as follows:
    a. If one or both the calibrators fails the validity check, repeat processing of the failed calibrator(s) using new vial(s). In the event one calibrator fails validity, it is possible to only repeat the failed calibrator as the NeuMoDx System does not require the user to run both calibrators.
    b. If problem persists, contact NeuMoDx Molecular, Inc.
11. External controls must be processed *after* calibrator validity has been established and prior to obtaining test results from samples.

LIMITATIONS

1. The NeuMoDx HBV Calibrators can only be used in conjunction with the NeuMoDx HBV Quant Test Strips on the NeuMoDx System**.**
2. A valid calibration of the NeuMoDx HBV Quant Test Strip using the NeuMoDx HBV Calibrators is required *before* the NeuMoDx HBV External Controls can be processed.
3. Erroneous results could occur from improper handling, storage, or other technical error.
4. Operation of the NeuMoDx System is limited to use by personnel trained on the use of the NeuMoDx System**.**

REFERENCES

1. Biosafety in Microbiological and Biomedical Laboratories, 5th edition. HHS Publication No. (CDC) 21-1112, Revised December 2009.
2. Clinical and Laboratory Standards Institute (CLSI). Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline – Fourth Edition. CLSI document M29-A4; May 2014.

TRADEMARKS

SYMBOL KEY

℞ only	Prescription use only		Temperature limit
	Manufacturer		Do not re-use
IVD	*In vitro* diagnostic medical device		Contains sufficient for <*n*> tests
EC REP	Authorized representative in the European Community		Consult instructions for use
REF	Catalog number		Caution
LOT	Batch code		Biological risks
	Use-by date	CE	CE Mark

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