

**REF 800202 NeuMoDx HCV Calibrators**
**R 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.qiaagen.com/neumodx-ifu](http://www.qiaagen.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 HCV Quant Test Strip Instructions for Use; p/n 40600140

**INTENDED USE**

The NeuMoDx HCV Calibrators are a component of the NeuMoDx HCV Quant Assay, an *in vitro* diagnostic nucleic acid amplification test intended for the detection and quantitation of hepatitis C virus (HCV) RNA 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 HCV Calibrators are used to establish a calibration coefficient associated with the standard curve of a particular lot of the NeuMoDx HCV Quant Test Strip, allowing for the accurate quantitation of HCV RNA in human plasma specimens. The HCV target in these calibrators are traceable to the WHO 5<sup>th</sup> HCV International Standard.

**SUMMARY AND EXPLANATION**

The NeuMoDx HCV 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 HCV Quant Test Strips to establish a valid calibration of the NeuMoDx HCV Quant Assay. The HCV target in the calibrators is a non-infectious, replication-defective mammalian recombinant virus containing HCV genome sequences. The recombinant virus is diluted in Basematrix 53 Diluent (Basematrix) (Seracare Life Sciences, Inc., Milford, MA, USA) at final concentrations of 3.0 log<sub>10</sub> IU/mL and 5.0 log<sub>10</sub> IU/mL for the low and high calibrator, respectively.

The NeuMoDx HCV Quant Assay combines automated RNA extraction, amplification, and detection by real-time reverse transcriptase PCR (RT-PCR) to enable the quantitative detection of HCV RNA in human plasma specimens. The results attained from processing the NeuMoDx HCV 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 HCV RNA in the human clinical samples.

In addition, the traceability of these calibrators to the WHO 5<sup>th</sup> HCV International Standard enables laboratories to ensure that results obtained from the NeuMoDx HCV Quant Assay are consistent across reagent lots, systems, and operators.

**PRINCIPLES OF THE PROCEDURE**

The NeuMoDx HCV Calibrators have been formulated to mimic natural human plasma specimens containing HCV RNA. The encapsulated target material used in these calibrators allows for the verification of efficacious nucleic acid extraction and real-time RT-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 HCV Quant Test Strip lot. The NeuMoDx System will automatically process each calibrator in triplicate. Such routine processing of the NeuMoDx HCV 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 HCV 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 HCV 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
800202	<b>NeuMoDx HCV Calibrators</b> <i>Single use sets of HCV High and Low Calibrators to establish validity of standard curve (1 vial of each level = 1 set)</i>	1 set	3

**Materials Required but Not Provided (Available Separately from NeuMoDx)**

REF	Contents
300300	<b>NeuMoDx HCV Quant Test Strip</b> <i>Dried PCR reagents containing HCV and SPC2 specific TaqMan® probes and primers</i>
100200	<b>NeuMoDx Extraction Plate</b> <i>Dried paramagnetic particles, lytic enzyme, and sample process controls</i>
900202	<b>NeuMoDx HCV External Controls</b> <i>Single use sets of HCV Positive and Negative External Controls to establish daily validity of NeuMoDx HCV Quant Assay</i>
400600	<b>NeuMoDx Lysis Buffer 3</b>
400100	<b>NeuMoDx Wash Reagent</b>
400200	<b>NeuMoDx Release Reagent</b>
100100	<b>NeuMoDx Cartridge</b>
235903	<b>Hamilton CO-RE / CO-RE II Tips (300 µL) with Filters</b>
235905	<b>Hamilton CO-RE / CO-RE II Tips (1000 µL) with Filters</b>

**Instrumentation Required**

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

  **WARNINGS AND PRECAUTIONS**

- The NeuMoDx HCV Calibrators are for *in vitro* diagnostic use only with the NeuMoDx HCV Quant Test Strip, as implemented on the NeuMoDx System.
- Do not use NeuMoDx HCV Calibrators after the listed expiration date.
- Do not use the NeuMoDx HCV 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 <sup>1</sup> and in CLSI Document M29-A4.<sup>2</sup>
- 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](http://www.qiagen.com/neumodx-ifu)
- Do not reuse.

 **PRODUCT STORAGE, HANDLING AND STABILITY**

- The NeuMoDx HCV 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 HCV Calibrators be stored at -15 °C to -20 °C to ensure stability. NeuMoDx HCV Calibrators' shelf life is 24 months from the date of manufacture.
- 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 HCV 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 HCV 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 HCV 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 HCV Calibrators (1 high calibrator and 1 low calibrator):

NeuMoDx HCV Calibrator	Label Color Scheme
High Calibrator (HCHCV)	Green
Low Calibrator (LCHCV)	Blue

4. Retrieve a set of NeuMoDx HCV 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 3.0 log<sub>10</sub> IU/mL and the high calibrator nominal target is 5.0 log<sub>10</sub> IU/mL.

NeuMoDx HCV External Calibrator	HCV Result
High Calibrator (HCHCV)	2/3 Calibrators Valid
Low Calibrator (LCHCV)	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 HCV Calibrators can only be used in conjunction with the NeuMoDx HCV Quant Test Strips on the NeuMoDx System.
2. A valid calibration of the NeuMoDx HCV Quant Test Strip using the NeuMoDx HCV Calibrators is required *before* the NeuMoDx HCV 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, 5<sup>th</sup> 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

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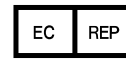
### SYMBOL KEY

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



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Patent: [www.neumodx.com/patents](http://www.neumodx.com/patents)