NEPHROCHECK® Calibration Verification Kit Package Insert

Manufactured for
Astute Medical, Inc.
3550 General Atomics Ct.
Building 2
San Diego, CA 92121
USA

Intended Use

The NEPHROCHECK® Calibration Verification (Cal Vers) Materials are to verify calibration of the NEPHROCHECK® Test System.

Reagents

The NEPHROCHECK® Calibration Verification Kit includes five levels of lyophilized material prepared from human urine (collected from apparently healthy donors), as well as human TIMP-2 (Tissue Inhibitor of Metalloproteinase 2) and human IGFBP-7 (Insulin-like Growth Factor Binding Protein 7) proteins with protein stabilizers. TIMP-2 and IGFBP-7 proteins have been added to the urine to achieve specified target concentration levels that evenly span the reportable ranges. The expected concentrations and standard deviations are printed on the NEPHROCHECK® Expected Values Card enclosed with the NEPHROCHECK® Calibration Verification Kit.

Warnings and Precautions

- The operator should use Standard Precautions when performing the NEPHROCHECK® Test or operating the ASTUTE140® Meter.
- All human source material used to manufacture this product was non-reactive for antigens to Hepatitis B (HBsAg), negative by tests for antibodies to HIV (HIV-1/HIV-s) and Hepatitis C (HCV), non-reactive for HIV-1 RNA and HCV RNA by licensed NAT, and non-reactive to Serological Test for Syphilis (STS) using FDA-approved testing methods.
- For *in vitro* diagnostic use.
- Do not use the kit beyond the expiration date printed on the outside of the box.
- The NEPHROCHECK® Calibration Verification Kit contains materials of human origin (urine). Handle these materials as if they are potentially infectious. Proper handling and disposal methods in compliance with federal and local regulations should be established.
- The NEPHROCHECK® Calibration Verification Kit is to be used only with the NEPHROCHECK® Test and ASTUTE140® Meter.
- Use only NEPHROCHECK® Calibration Verification Kits with the NEPHROCHECK® Test System.

- The NEPHROCHECK® Calibration Verification Kit requires the use of calibrated precision pipette(s). It is recommended that the users review the proper procedures for the use of these devices in order to ensure accurate dispensing of volumes.

Storage and Stability

- The NEPHROCHECK® Calibration Verification material is lyophilized.
- Prior to opening the NEPHROCHECK® Calibration Verification Kit, inspect the vials for cracks, chips or broken seals. Do not use any vials if you encounter any damage.
- Prior to opening the NEPHROCHECK® Calibration Verification Kit, verify that the contents within each vial appear dry. Do not use any Calibration and Verification kit vial if the contents appear to be wet.
- Ensure the reconstituted NEPHROCHECK® Calibration Verification Material is completely dissolved prior to use. Do not use if contents do not appear to be fully dissolved.
- Once opened and reconstituted, each NEPHROCHECK® Calibration Verification Kit Vial is stable for 8 hours when stored capped at room temperature 20–25°C (68–77°F).
- Each NEPHROCHECK® Calibration Verification Kit Vial is intended for single use only. Each NephroCheck® Calibration and Verification Kit Vial should not be stored after opening or use.
- Each unopened NEPHROCHECK® Calibration Verification Kit Vial is stable until the expiration date printed on the box when stored refrigerated or frozen between -20°C – 4°C (-4°F – 39.2°F).

Materials Provided

NEPHROCHECK® Calibration and Verification Kit (part number 500009) containing:

- NEPHROCHECK® Calibration Verification Vial Level 1 CAL VERS 1 .....1 x 500 µL (lyophilized)
- NEPHROCHECK® Calibration Verification Vial Level 2 CAL VERS 2 ..... 1 X 500 µL (lyophilized)
- NEPHROCHECK® Calibration Verification Vial Level 3 CAL VERS 3 ..... 1 X 500 µL (lyophilized)
- NEPHROCHECK® Calibration Verification Vial Level 4 CAL VERS 4 ..... 1 X 500 µL (lyophilized)
- NEPHROCHECK® Calibration Verification Vial Level 5 CAL VERS 5 ..... 1 X 500 µL (lyophilized)
- NEPHROCHECK® Calibration Verification Kit Package Insert 1
- NEPHROCHECK® Calibration Verification Expected Values Card 1

Materials Required But Not Provided

- ASTUTE140® Meter Kit (PN 500017)
- NEPHROCHECK® Test Kit (PN 500011)
- NEPHROCHECK® Test Buffer Solution (included in the NEPHROCHECK® Test Kit)
- Calibrated precision pipette, capable of dispensing 100 µL and 500 µL

Quality Control Considerations

Good Laboratory Practice suggests that the NEPHROCHECK® Calibration Verification Kit should be tested:

- At least once every 6 months
- After ASTUTE140® Meter maintenance or servicing
- In accordance with local, state, and/or federal regulations or accreditation requirements

Calibration and Verification Procedure

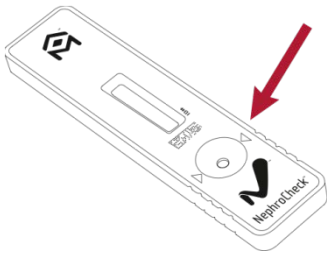
NOTE: THE NEPHROCHECK® Calibration Verification vials should be prepared following the procedures for preparing and testing patient samples with the NEPHROCHECK® Test. (For more details, see the NEPHROCHECK® Test Package Insert)

Prepare each NEPHROCHECK® Calibration Verification Kit Vial as follows:

1. Configure the ASTUTE140® Meter to test the Calibration Verification vial (See “Testing a Patient Sample” in the ASTUTE140® Meter User Manual for detailed instructions).

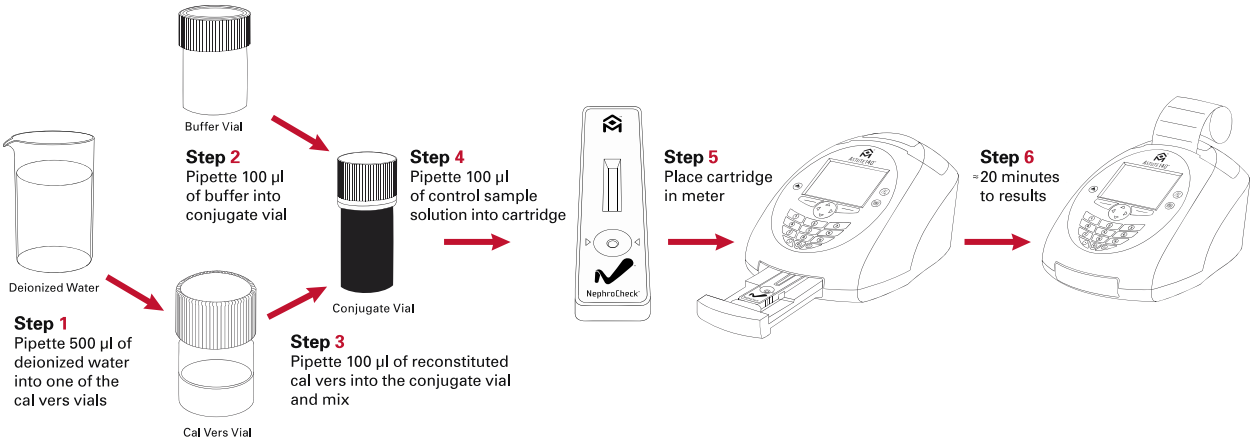
   NOTE: When prompted for Patient ID, enter 001, 002, 003, 004, or 005 corresponding to each NEPHROCHECK® Calibration Verification Vial level to be run.

2. Remove the cap from a single NEPHROCHECK® Calibration Verification Vial (Level 1, 2, 3, 4 or 5).
3. Add 500 µL deionized water using a calibrated, precision pipette.
4. Recap the vial and invert the vial three times to mix.
5. Visually confirm the lyophilized material is completely dissolved before use.
6. Remove a new NEPHROCHECK® Test Cartridge and NEPHROCHECK® Test Conjugate Vial from the foil pouch and place on a flat surface.
7. Each NEPHROCHECK® Test Conjugate Vial contains a single conjugate bead. Remove the cap from the NEPHROCHECK® Test Conjugate Vial. Visually inspect the cap and vial to ensure that the conjugate bead has not adhered to the cap and is present in the vial. If the bead has adhered to the cap, place the cap on the vial and tap three times. Repeat if necessary until the bead drops into the vial. Do not touch the bead or attempt to remove the bead from the cap by any other means.
8. Pipette 100 µL of NEPHROCHECK® Test Buffer Solution (included in the NEPHROCHECK® Test Kit) into the conjugate vial containing the conjugate bead. This will result in reconstitution of the conjugate bead into solution.
9. Pipette 100 µL of reconstituted NEPHROCHECK® Calibration Verification solution into the NEPHROCHECK® Test Conjugate Vial that now contains the reconstituted conjugate bead solution. Mix thoroughly (mix at least three times using the pipette tip).
10. Pipette 100 µL of mixed Conjugate Vial solution into the designated sample port on the NEPHROCHECK® Test cartridge. Wait approximately one minute for the sample to be absorbed into the round well.



11. Using the grips on the side of the NEPHROCHECK® Test cartridge, position the cartridge inside the ASTUTE140® Meter drawer with the Astute Medical logo towards the inside of the meter drawer. Keep the NEPHROCHECK® Test cartridge horizontal and avoid tipping the test cartridge during placement into the ASTUTE140® Meter drawer.
12. Close the ASTUTE140® Meter drawer. In approximately 20 minutes the Calibration and Verification result will be displayed (The NEPHROCHECK® Test incubation time must be ≤ 25 minutes from the sample incubation time set in the ASTUTE140® Meter). The ASTUTE140® Meter will display a single numerical value per level run.
13. Press the key to open the ASTUTE140® Meter drawer. Each calibration verification vial and conjugate vial is intended for single use only. Remove the NEPHROCHECK® Test cartridge and discard the cartridge, the Calibration Verification Vial, and the conjugate vial in accordance with local regulations. The NEPHROCHECK® Calibration Verification Kit Vial is intended for single use only.
14. Repeat steps 1–13 for the remaining four levels of NEPHROCHECK® Calibration Verification Kit Vials.

NEPHROCHECK® Calibration Verification Preparation Process



Results

The ASTUTE140® Meter automatically calculates a single numerical risk result for each NEPHROCHECK® Calibration Verification level that is tested. This result is displayed on the ASTUTE140® Meter screen after the NEPHROCHECK® Test procedure is completed; results for the individual markers are not displayed. Compare the displayed result with the information provided on the back of the NEPHROCHECK® Expected Values Card to ensure the results fall within the published ranges. If any of the levels fall outside the acceptable range, test that specific level again using a new NEPHROCHECK® Test Kit. If it does not fall into the assigned range after re-testing, contact Astute Medical Technical Support. The NEPHROCHECK® Test results are also stored in the ASTUTE140® Meter memory and may be accessed at any time (See “Review and Management of Test Results” in the ASTUTE140® Meter User Manual).

Expected Results

Expected values are determined by testing the NEPHROCHECK® Calibration Verification materials with the NEPHROCHECK® Test during product manufacturing. The expected value ranges are determined from the average and standard deviation of these testing results.

Standardization

The NEPHROCHECK® Calibration Verification Kit is traceable to reference standard solutions that contain defined mass (concentration) of TIMP-2 and IGFBP-7 proteins, in accordance with EN ISO 17511. The NEPHROCHECK® Calibration Verification materials and NEPHROCHECK® Test cartridges are traceable to the same reference standard solutions.

Limitations of the Procedure

The ranges given for the expected values are intended only as guidelines. Laboratories should determine their ranges and standard deviations based on their own testing policies and tolerance limits.

Ordering and Contact Information

NEPHROCHECK® Calibration Verification Kit (PN 500009)

For questions regarding the use or performance of the NEPHROCHECK® Calibration Verification Kit or any Astute Medical, Inc. product, please contact Astute Technical Support.

Contact Information

Astute Medical, Inc.
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Website: www.astutemedical.com

Symbols Glossary

Symbol	Standard Reference	Symbol Title	Symbol Reference Number	Symbol Description as Provided by the Referenced Standard
	a	Manufacturer	5.1.1	Indicates the medical device manufacturer, as defined in EU Directives 90/385/EEC, 93/42/EEC and 98/79/EC.
	a	Consult instructions for use	5.4.3	Indicates the need for the user to consult the instructions for use.
	a	Catalogue number	5.1.6	Indicates the manufacturer's catalogue number so that the medical device can be identified.
	a	Batch code	5.1.5	Indicates the manufacturer's batch code so that the batch or lot can be identified.
	a	*In vitro* diagnostic medical device	5.5.1	Indicates a medical device that is intended to be used as an *in vitro* diagnostic medical device.
	a	Use-by date	5.1.4	Indicates the date after which the medical device is not to be used.
	a	Do not re-use	5.4.2	Indicates a medical device that is intended for one use, or for use on a single patient during a single procedure.
	a	Temperature limit	5.3.7	Indicates the temperature limits to which the medical device can be safely exposed.
	a	Biological risks	5.4.1	Indicates that there are potential biological risks associated with the medical device.
$\bar{X}$	b	Average, Sample mean	1.15	Arithmetic mean; sum of random variables in a random sample divided by the number of terms in the sum
σ	b	Standard Deviation	2.37	Positive square root of the variance
CONTENTS	c	Kit Contents	--	Kit Contents
EXPECTED VALUES	c	Expected values	--	Expected values
EXPECTED VALUES CARD	c	Expected Values Card	--	Expected Values Card
CALIBRATION VERIFICATION (CAL VERS) KIT	c	Calibration Verification (Cal Vers) Kit	--	Calibration Verification (Cal Vers) Kit
CAL VERS 1	c	Calibration Verification Vial 1	--	Calibration Verification Vial 1
CAL VERS 2	c	Calibration Verification Vial 2	--	Calibration Verification Vial 2
CAL VERS 3	c	Calibration Verification Vial 3	--	Calibration Verification Vial 3

Symbol	Standard Reference	Symbol Title	Symbol Reference Number	Symbol Description as Provided by the Referenced Standard
CAL VERS | 4	c	Calibration Verification Vial 4	--	Calibration Verification Vial 4
CAL VERS | 5	c	Calibration Verification Vial 5	--	Calibration Verification Vial 5

Legend for Standard Reference (designation number and title):

a) ANSI/AAMI/ISO 15223-1:2012 & ISO 15223-1 Second edition, 2012-07-01 Medical Devices to be used with medical device labels, labeling and information to be supplied – Part 1: General requirements
b) ISO 3534-1:2006 Second Edition Statistics — Vocabulary and symbols —Part 1: General statistical terms and terms used in probability
c) Symbol containing explanatory text for clarity

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