

Nephrolyx



Nephrolyx IohexolQuant

Measured Glomerular Filtration Rate (mGFR)
for Research Applications

mGFR by Iohexol Clearance

For Research Use Only – Not for Use in Diagnostic Procedures

Nephrolyx IohexolQuant: Ready-to-Use Solution for Direct Kidney Function Measurement – mGFR

Nephrolyx IohexolQuant is intended for research use only to quantify iohexol in samples, followed by transformation into the resulting glomerular filtration rate (GFR). The IohexolQuant solution supports versatile use across diverse laboratory environments. Iohexol quantification can be performed using either (U)HPLC-UV or LC-MS/MS analytical systems, giving researchers the freedom to choose the detection technology. Chromatographic separation and elution of iohexol are achieved with a simple linear gradient on a reversed-phase column, ensuring robust and reproducible results across platforms.



Nephrolyx IohexolQuant:

The reagent kit is ready to use and allows up to 192 test measurements (including calibrants, QC, and samples). It has an open-vial stability of 28 days and is intended for use with two units of the Nephrolyx IohexolQuant Plates. The turnaround time to first results is < 3 hours, and the gradient requires only 90 seconds.

Nephrolyx IohexolQuant contains 6 calibrants and 3 quality-control levels for use in (U)HPLC-UV or LC-MS/MS detection. The kit reagents have been designed with the high quality calibrator and quality control materials and are metrologically traceable to the official pharmacopeia reference standards. The kit can be utilized with DNPx, the Nephrolyx digital platform that offers data handling and mGFR calculation.

Key Features and Advantages

Confidence in Research

Measuring Glomerular Filtration Rate (mGFR) through clearance of the exogenous marker (typically from serum and plasma samples), iohexol, is widely recognized in the scientific literature as the gold standard to assess kidney function in research studies. The Nephrolyx IohexolQuant delivers accuracy and precision in GFR measurement for preclinical and clinical research applications.

Accuracy & Ease of Use

Nephrolyx IohexolQuant provides direct GFR measurement with high accuracy and precision compared to traditional biomarker-based measurements, such as creatinine and cystatin C, which estimate GFR. The kit is ready to use and allows 192 measurements, including calibrant and quality control measurements.

Rapid

Nephrolyx IohexolQuant offers a streamlined workflow that delivers reliable results in less than three hours, making it faster than other mGFR methods.

Conclusive Data

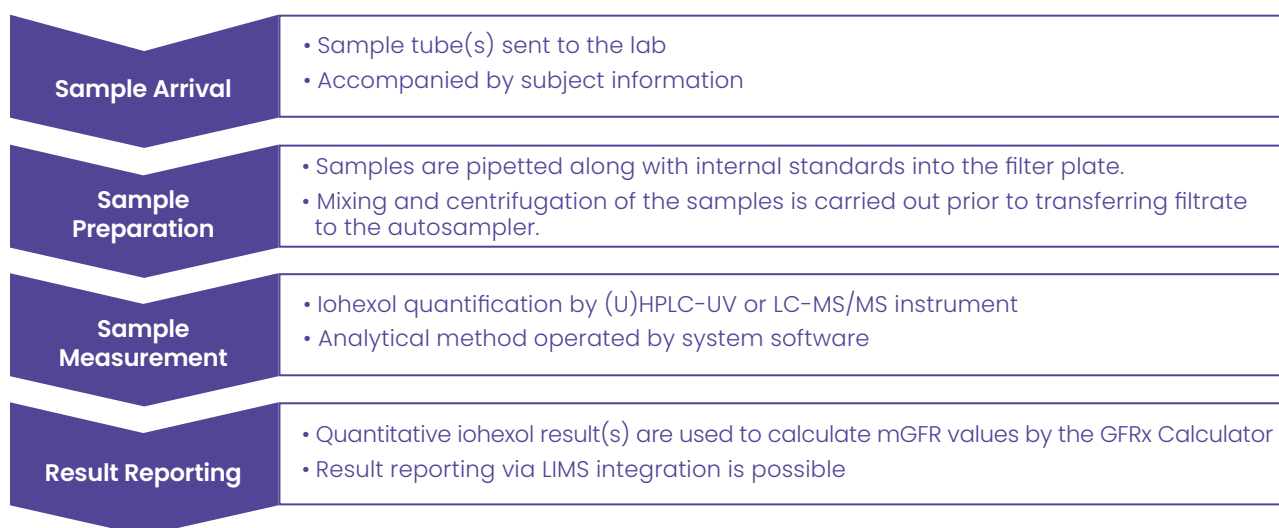
Operating the Nephrolyx IohexolQuant method with a compatible (U)HPLC-UV or LC-MS/MS system enables excellent analytical performance in a consistent and reproducible workflow. Measured Iohexol concentration data can be seamlessly integrated into the GFR Calculator of the DNPx Platform to transform Iohexol concentrations into an mGFR value.

Lab Perspective: From Requirements to Analytical Workflow

Analytical Measurement System Requirements					
Chosen Detection Method:	UV Detection:			MS/MS Detection:	
Compatible LC Systems:	HPLC (up to 300 bar pressure)	Hybrid UHPLC (up to 600 bar pressure)	UHPLC (up to 1,200 bar pressure)	Hybrid UHPLC (up to 600 bar pressure)	UHPLC (up to 1,200 bar pressure)
Detector:	UV or DAD/PDA detector			MS/MS triple quadrupole	
System Requirements:	Binary pump system according to pressure limit (e.g., Shimadzu, Waters, Agilent, Thermo Scientific, Hitachi)				
	Autosampler with 4 °C cooling function recommended				
	Column heater at 50 °C				
	40-100 µL sample loop				

Required Equipment	
Analytical column	PN 001310 – Nephrolyx UHPLC Column or PN 001330 – Nephrolyx HPLC Column
Guard column	PN 001320 – Nephrolyx UHPLC Guard Column or PN 001340 – Nephrolyx HPLC Guard Column
Platform shaker	Up to 1,000 RPM
Plate centrifuge	1,500 G capability
Pipettes	20 µL and 200 µL

Laboratory Workflow



Note: Guard and analytical columns used to perform the test with (U)HPLC or LC-MS/MS are not included in the kit and need to be ordered separately.

Analytical Performance Comparison

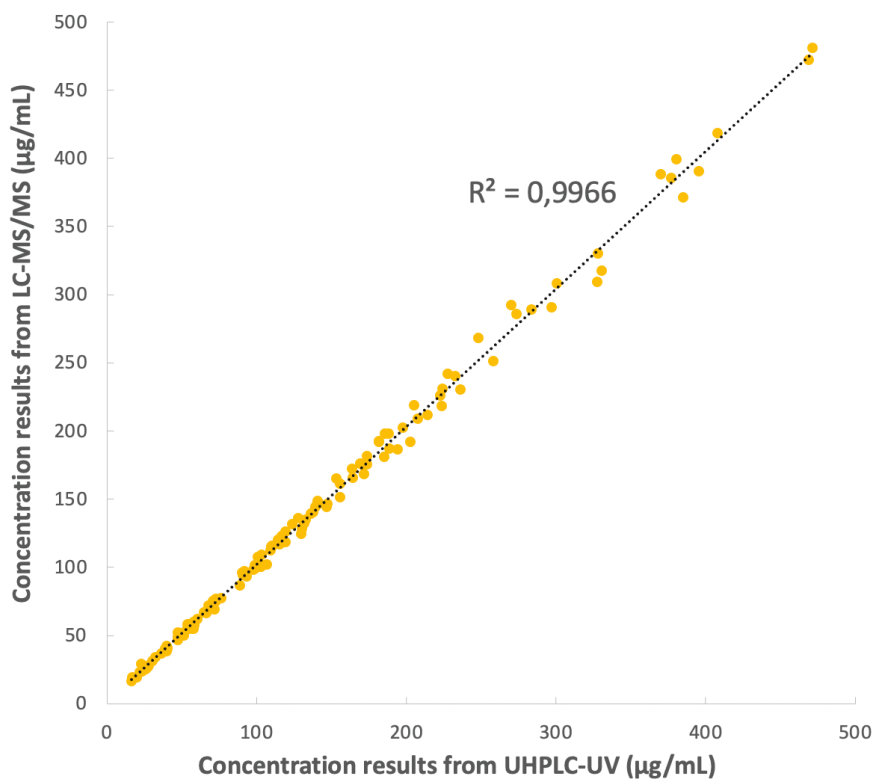


Figure 1: Method comparison plot showing concordance between UHPLC-UV (comparative measurement procedure) and LC-MS/MS (candidate measurement procedure)

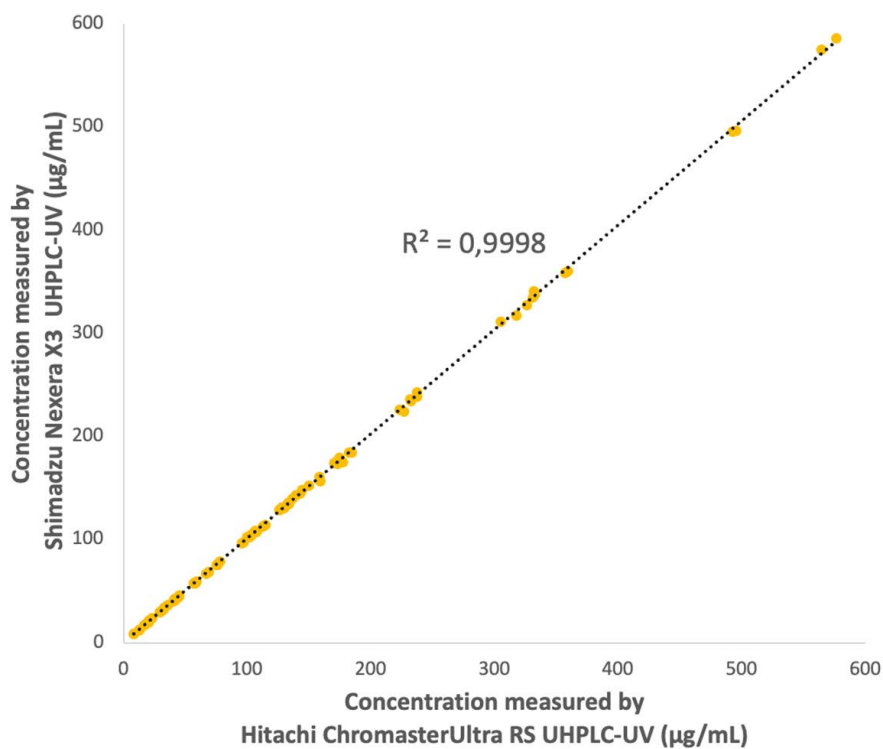


Figure 2: Inter-instrument correlation for UHPLC-UV performance between Hitachi ChromasterUltra RS and Shimadzu Nexera X3

Analyte: Iohexol

Matrix: Human serum

The Nephrolyx DNPx Software Platform Enables Smooth Workflow Integration of GFR Measurement

Digital Nephrology Platform (DNPx)

The digital nephrology platform facilitates mGFR measurement for clinical research by enabling the development of worklists, assessment of chromatograms, calculation, and reporting of GFR results. Nephrolyx DNPx provides flexible deployment options, including standard cloud hosting or on-premises deployment within the facility's private network.

Patient/sample information input

Sex: Female Male

Age: By date By month and year In years

Date of birth: 02/02/1939

Body weight (in kg): 53 **Body height (in cm):** 163

Amount of Iohexol: By contrast volume (mL) By syringe weight (g) By Iohexol crystalline weight (g)

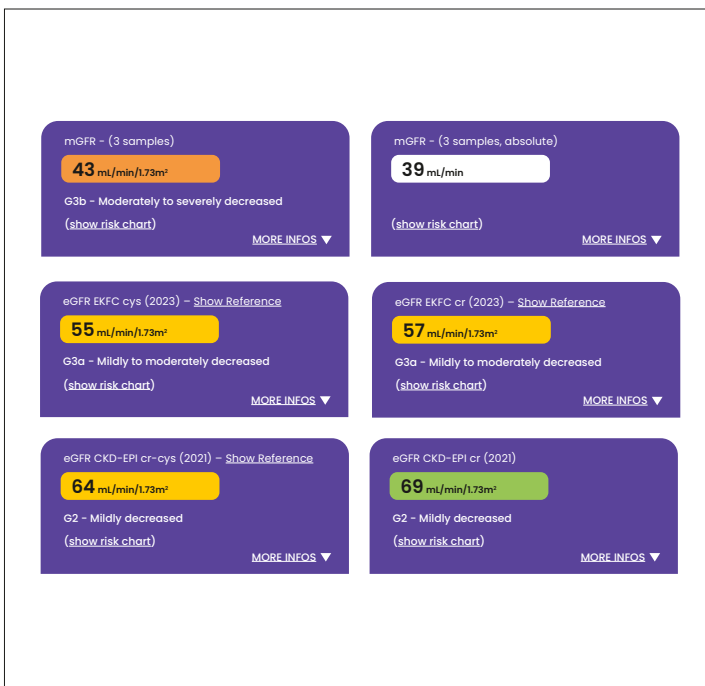
Administered volume of contrast agent fluid (in mL): 5.0

Iohexol concentration: Accu-/Omnipaque 300 (647mg/mL)

Quickly input patient and optional biomarker information—including Iohexol administration details—within a single intuitive interface.

Data transfer from LIMS and measurement systems can be fully automated or manually entered to support any laboratory setup. This fully digital workflow eliminates the need for Excel spreadsheets and manual data tracking.

Result display



mGFR and eGFR Automatically Calculated and Reported:

- mGFR derived using area under the curve (AUC) methodology
- Supports both single- and multiple-sample protocols
- Absolute and body-surface-area indexed mGFR values are available
- eGFR values generated using multiple equations based on input biomarkers
- AUC curve visualization and graphical outputs are included for enhanced interpretation

Order Information

Product No. (PN)	Product Name and Description
PN 001100_RUO	Nephrolyx IohexolQuant Reagents
PN 001140_RUO	Nephrolyx IohexolQuant Plates
PN 001200_RUO	Nephrolyx DNPx Digital Nephrology Platform (1-Year License)
PN 001290_RUO	Nephrolyx Lab PC
PN 001310	Nephrolyx UHPLC Column
PN 001320	Nephrolyx UHPLC Guard Column
PN 001330	Nephrolyx HPLC Column
PN 001340	Nephrolyx HPLC Guard Column

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Disclaimer

Product availability may be different from country to country. Please contact our sales team for more information.

Product design and specifications may be subject to further product developments.

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