**Supplemental Data Table S1.** Analytical performance of the cystatin C reagents Gentiancys and Rochecys

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Analytical performance of the cystatin C reagents Gentiancys and Rochecys** | | | | | | | |
| **Gentiancys** | | | | **Rochecys** | | | |
| Repeatability, %CV | 0.7 – 1.9 | | | | 0.7 – 2.4 | | | |
| Within-laboratory imprecision, %CV | 1.4 – 4.2 | | | | 1.1 – 2.2 | | | |
| Recovery, % | 100.0 – 107.0 | | | | 97.2 – 98.9 | | | |
| Linearity, mg/L | 0.3 – 8.8 | | | | 0.4 – 6.6 | | | |
| LLOQ, mg/L | 0.33 | | | | 0.4 | | | |
| Survey | **Results of the College of American Pathologists CYS Survey** | | | | | | | |
| **Gentiancys** | | | | | **Rochecys** | | |
| Peer group mean, mg/L | %CV | Value, mg/L | %diff | Peer group mean, mg/L | %CV | Value, mg/L | %diff |
| 2022-A | 0.619 | 5.6 | 0.64 | 3.39 | 0.662 | 6.3 | NA | NA |
| 1.964 | 2.8 | 2.01 | 2.34 | 1.824 | 2.5 | NA | NA |
| 2022-B | 3.046 | 2.5 | 3.03 | −0.53 | 2.83 | 2.2 | NA | NA |
| 0.713 | 4.5 | 0.68 | −4.63 | 0.749 | 4.2 | NA | NA |

Abbreviations: Gentiancys, Gentian cystatin C immunoassay; Rochecys, Tina-quant Gen.2 assay; %CV, percent CV; %diff, percent difference; LLOQ, lower limit of quantitation; NA, not available

**Supplemental Data Table S2.** Concordance of cystatin C-based eGFR values between two cystatin C measuring systems, Gentiancys and Rochecys

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Equation** | **Correlation coefficient in the subgroups according to the median value of cystatin C with Gentiancys** | | | |
| **Gentiancys ≥ 1.22 mg/L** | | **Gentiancys < 1.22 mg/L** | |
| ρc | 95% CI | ρc | 95% CI |
| CKD-EPIcys | 0.9949 | 0.9919 – 0.9968 | 0.9412 | 1.0253 – 1.1733 |
| CAPAeq | 0.9954 | 0.9928 – 0.9971 | 0.8872 | 1.2628 – 1.3532 |
| FASeq | 0.9962 | 0.9939 – 0.9976 | 0.9167 | 1.2021 – 1.3030 |
| EKFCcys | 0.9962 | 0.9939 – 0.9976 | 0.9167 | 1.2021 – 1.3030 |

Abbreviations: Gentiancys, Gentian cystatin C immunoassay; Rochecys, Tina-quant Gen.2 analysis; CKD-EPIcys,CKD-EPI cystatin C equation; CAPAeq, Caucasian, Asian, pediatric, and adult equation; FASeq, full age spectrum equation; EKFCcys, EKFC cystatin C equation; eGFR, estimated glomerular filtration; ρc, Lin’s concordance correlation coefficient; CI, confidence interval

**Supplemental Data Table S3.** Concordance of cystatin C-based eGFR values among four GFR estimation equations using the same measuring system

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Reagent** | **Comparison** | **Correlation coefficient in the subgroups according to the median value of cystatin C with Gentiancys** | | | |
| **Gentiancys ≥ 1.22 mg/L** | | **Gentiancys < 1.22 mg/L** | |
| **ρc** | **95% CI** | **ρc** | **95% CI** |
| Within Gentiancys | CKD-EPIcys vs. CAPAeq | 0.9943 | 0.9911 – 0.9964 | 0.9120 | 0.8744 – 0.9388 |
| CKD-EPIcys vs. FASeq | 0.9493 | 0.9243 – 0.9661 | 0.9039 | 0.8569 – 0.9360 |
| CKD-EPIcys vs. EKFCcys | 0.8997 | 0.8615 – 0.9278 | 0.9337 | 0.9028 – 0.9550 |
| CAPAeq vs. FASeq | 0.9524 | 0.9287 – 0.9684 | 0.9105 | 0.8686 – 0.9408 |
| CAPAeq vs. EKFCcys | 0.9114 | 0.8772 – 0.9365 | 0.9809 | 0.9714 – 0.9873 |
| FASeq vs. EKFCcys | 0.9798 | 0.9698 – 0.9866 | 0.9370 | 0.9099 – 0.9561 |
| Within Rochecys | CKD-EPIcys vs. CAPAeq | 0.9943 | 0.9910 – 0.9964 | 0.9778 | 0.9653 – 0.9859 |
| CKD-EPIcys vs. FASeq | 0.9492 | 0.9067 – 1.0019 | 0.8767 | 0.8166 – 0.9180 |
| CKD-EPIcys vs. EKFCcys | 0.9001 | 0.8619 – 0.9281 | 0.9697 | 0.9535 – 0.9803 |
| CAPAeq vs. FASeq | 0.9524 | 0.8682 – 0.9626 | 0.9003 | 0.8488 – 0.9348 |
| CAPAeq vs. EKFCcys | 0.9122 | 0.8781 – 0.9371 | 0.9701 | 0.9549 – 0.9802 |
| FASeq vs. EKFCcys | 0.9791 | 0.9686 – 0.9861 | 0.9177 | 0.8835 – 0.9421 |

Abbreviations: eGFR, estimated glomerular filtration; Gentiancys, Gentian cystatin C immunoassay; Rochecys, Tina-quant Gen.2 analysis; CKD-EPIcys,CKD-EPI cystatin C equation; CAPAeq, Caucasian, Asian, pediatric, and adult equation; FASeq, full age spectrum equation; EKFCcys, EKFC cystatin C equation; ρc, Lin’s concordance correlation coefficient; CI, confidence interval

**Supplemental Data Table S4.** Comparison of cystatin C-based eGFR values among six combinations of two measuring systems and three GFR estimation equations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Comparison** | **Correlation coefficient in the subgroups according to median value of cystatin C with Gentiancys** | | | |
| **Gentiancys ≥ 1.22 mg/L** | | **Gentiancys < 1.22 mg/L** | |
| **ρc** | **95% CI** | **ρc** | **95% CI** |
| Gentiancys CKD-EPIcys vs. Rochecys CAPAeq | 0.9871 | 0.9797 – 0.9919 | 0.9059 | 0.8617 – 0.9365 |
| Gentiancys CKD-EPIcys vs. Rochecys FASeq | 0.9315 | 0.8982 – 0.9542 | 0.7852 | 0.7010 – 0.8478 |
| Gentiancys CKD-EPIcys vs. Rochecys EKFCcys | 0.8777 | 0.8313 – 0.9120 | 0.9383 | 0.9082 – 0.9588 |
|  |  |  |  |  |
| Gentiancys CAPAeq vs. Rochecys CKD-EPIcys | 0.9919 | 0.9873 – 0.9948 | 0.8792 | 0.8360 – 0.9115 |
| Gentiancys CAPAeq vs. Rochecys FASeq | 0.9370 | 0.9062 – 0.9580 | 0.7315 | 0.6400 – 0.8025 |
| Gentiancys CAPAeq vs. Rochecys EKFCcys | 0.8913 | 0.8494 – 0.9220 | 0.8897 | 0.8525 – 0.9180 |
|  |  |  |  |  |
| Gentiancys FASeq vs. Rochecys CKD-EPIcys | 0.9588 | 0.9378 – 0.9728 | 0.9172 | 0.8809 – 0.9429 |
| Gentiancys FASeq vs. Rochecys CAPAeq | 0.9599 | 0.9392 – 0.9737 | 0.9268 | 0.8942 – 0.9495 |
| Gentiancys FASeq vs. Rochecys EKFCcys | 0.9690 | 0.9539 – 0.9792 | 0.9370 | 0.9099 – 0.9561 |

Abbreviations: eGFR, estimated glomerular filtration; Gentiancys, Gentian cystatin C immunoassay; Rochecys, Tina-quant Gen.2 analysis; CKD-EPIcys,CKD-EPI cystatin C equation; CAPAeq, Caucasian, Asian, pediatric, and adult equation; FASeq, full age spectrum equation; EKFCcys, EKFC cystatin C equation; ρc, Lin’s concordance correlation coefficient; CI, confidence interval



**Supplemental Data Figure S1.** Cumulative frequency of eGFR values from various combinations of measuring systems and equations.

Abbreviations: Gentiancys, Gentian cystatin C immunoassay; Rochecys, Tina-quant Gen.2 analysis; CKD-EPIcys,CKD-EPI cystatin C equation; CAPAeq, Caucasian, Asian, pediatric, and adult equation; FASeq, full age spectrum equation; EKFCcys, EKFC cystatin C equation; eGFR, estimated glomerular filtration.