Appendix 2

SOPS OF COBAS INTEGRA 400

Daily startup

1- Checking the begin of day report.
2- Loading cleaners, diluents and ISE solution.
3- Loading and mixing cassettes (Reagents).
4- Checking resources.
5- Performing service actions.
6- Loading calibrators and control.
7- Creating orders.
8- Loading samples on board.
9- Starting processing.
10- Validating results.
11- Printing the final report.
CHAPTER ONE

1. INTRODUCTION
CHAPTER TWO

2. LITERATURE REVIEW
CHAPTER THREE

3. MATERIALS AND METHODS
CHAPTER FOUR

4. RESULTS
CHAPTER FIVE

5. DISCUSSION
CHAPTER SIX

6. CONCLUSION AND RECOMMENDATIONS
400 700 800

Uric Acid

Order information
COBAS INTEGRA® 500 Tests Cat. No. 20756296 Indicates analyzer(s) on which cassette can be used
Uric Acid System-ID 07 5629 6
Calibrator f.a.s. 10 x 3 mL Cat. No. 10759350
System-ID 07 3718 6
Precinorm® U 20 x 5 mL Cat. No. 10171743
System-ID 07 7997 0
Precipath® U 20 x 5 mL Cat. No. 10171778
System-ID 07 7998 9
Precinorm® U plus 10 x 3 mL Cat. No. 12149435
INTEGRA
400/
400 plus
INTEGRA/
INTEGRA
700
INTEGRA
800
System-ID 07 7999 7
Precipath® U plus 10 x 3 mL Cat. No. 12149443
System-ID 07 8000 6
COBAS INTEGRA 150 Tests Cat. No. 20764337
Cleaner Cassette System-ID 07 6433 7

Intended use
The cassette COBAS INTEGRA Uric Acid (UA) contains an
in vitro diagnostic reagent system intended for use on COBAS
INTEGRA systems for the quantitative determination of the
uric acid concentration in serum, plasma, and urine. This
method sheet describes the application for serum, plasma
(test UA, 0-029), and urine (test UAU, 0-129).

Summary
Uric acid is the major end product of purinemetabolism and is one
of the components of the nonprotein nitrogen fraction in plasma.
Most uric acid formation occurs in the liver and is derived either
from ingested or endogenous nucleoproteins. Approximately half
of the total uric acid in the body is eliminated daily by urinary
excretion and destruction in the intestinal tract.
Numerous disease states and physiological conditions are
associated with alterations in serum uric acid concentrations.
Increased levels are more frequent. Serum uric acid levels
are characteristically elevated in gout, a disorder involving
either uric acid synthesis or excretion.
Other common etiologies of hyperuricemia include renal
dysfunction, ketoadiposis, glucose-6-phosphate deficiency,
and Lesch-Nyhan syndrome. Decreased uric acid levels
have been described in renal tubular absorption defects,
Hodgkin’s disease, bronchogenic carcinoma, severe
hepatocellular disease, and xanthinuria.

Test principle
Enzymatic colorimetric test with uricase and 4-aminantipyrine.
In the initial step uric acid is oxidized in a reaction catalyzed
by uricase. The hydrogen peroxide formed reacts with
N-ethyl-N-(2-hydroxy-3-sulfopropyl)-m-tolidine (TOOS) and
4-aminoantipyrine (4-AAP) in the presence of peroxidase
(POD) and forms a red quinoneimine dye.

\[
\text{Uricase:} \quad \text{Uric acid} + 2 \text{H}_2\text{O} + \text{O}_2 \rightarrow \text{allantoin} + \text{CO}_2 + \text{H}_2\text{O}
\]

\[
2 \text{H}_2\text{O}_2 + 4\text{-AAP} + \text{TOOS} \text{quinoneimine dye} + 4 \text{H}_2\text{O}
\]

The color intensity of the quinoneimine formed is directly
proportional to the uric acid concentration and is determined
by measuring the increase in absorbance at 520 nm.
The addition of ascorbate oxidase prevents interference
by ascorbic acid.

Reagents - working solutions
R1 Uricase in vial A (liquid).
R2 Ascorbate oxidase in vial B (liquid).

Active ingredients
Components Concentrations
R1 R2 Test
Phosphate 120 120 58 mol/L  
4-Aminoantipyrine 0.66 0.25 mmol/L  
N-ethyl-N-(2-hydroxy-2 0.8 mmol/L  
3-sulfopropyl)-m-toluidine  
Potassium hexacyano 100 40 μmol/L  
ferrate (II)  
POD (horseradish) ≥100 ≥40 μkat/L (≥2.4 kU/L)  
Uricase (microbial) ≥5 ≥2 μkat/L (≥120 kU/L)  
Ascorbate oxidase ≥100 ≥8 μkat/L (≥0.5 kU/L) (cucurbita)  
pH 7.5 6.1 7.1  
Both reagents contain non-reactive stabilizers.  
Please see cassette label for reagent filling volumes.  

Precautions and warnings  
Pay attention to all precautions and warnings listed in Chapter 1, Introduction.  

Reagent handling  
Ready for use.  

2003-12, V 2 EN 1 / 4 UA  

Substrates  

400 700 800  

Storage and stability  
Shelf life at 2 to 8°C See expiration date on cassette  
INTEGRA 400  
On-board in use at 10 to 15°C 12 weeks  
INTEGRA 700/800  
On-board in use at 8°C 8 weeks  

Specimen collection and preparation  
Only the specimens listed below were tested and found acceptable.  
Serum: Collect serum using standard sampling tubes.  
Plasma: Li-heparin or EDTA plasma.  
Urine: Assay urinary uric acid as soon as possible. Do not refrigerate. To prevent ureate precipitation in urine samples add sodium hydroxide to keep urine alkaline (pH >8.0). Urine samples are automatically prediluted 1:10 (1+9) with water by the instrument.  
When processing samples in primary tubes, follow the instructions of the tube manufacturer.  
Stability in serum/plasma: 5 days at 4-8°C  
6 months at -20°C  
Stability in urines (upon NaOH addition): 4 days at 20-25°C  
Centrifuge samples containing precipitates before performing the assay.  

Materials provided  
See “Reagents - working solutions” section for reagents.  

Materials required (but not provided)  
COBAS INTEGRA Cleaner Cassette, Cat. No. 20764337, System-ID 07 6433 7. We recommend the use of extra wash cycles when certain test combinations are run together on COBAS INTEGRA systems. For information about test combinations requiring extra wash cycles, please refer to Chapter 1, Introduction, Part III.  

Assay  
For optimal performance of the assay follow the directions given in this document for the analyzer concerned. Refer to the appropriate operator manual for analyzer-specific assay instructions.  

Application for serum, plasma and urine  

INTEGRA 400 test definition  
Measuring mode Absorbance  
Abs. calculation mode Endpoint  
Reaction direction Increase  
Wavelength A/B 520/659 nm  
Calc. first/last To69  
Unit μmol/L  

Serum, plasma  
Reaction mode R1/R2-S  
Test range 0-1500 μmol/L (0-25 mg/dL)  
with postdilution 0-15 000 μmol/L (0-250 mg/dL)  
Postdilution factor 10 recommended  

Urine  
Reaction mode D-R1/R2-S  
Test range 0-15 000 μmol/L (0-250 mg/dL)  
with postdilution 0-150 000 μmol/L (0-2500 mg/dL)
Predilution factor 10
Postdilution factor 10 recommended

**Pipetting parameters**
Serum, plasma, urine Diluent (H₂O)
R1 38 μL 40 μL
R2 20 μL
Sample 2 μL 20 μL
Total volume 120 μL

**INTEGRA 700/800 test definition**
Measuring mode Absorbance
Abs. calculation mode Endpoint
Reaction direction Increase
Wavelength A/B 520/659 nm
Calc. first/last T0/98
Unit μmol/L
Serum, plasma
Reaction mode R1-R2-S
Test range 0-1500 μmol/L (0-25 mg/dL)
with postdilution 0-15 000 μmol/L (0-250 mg/dL)
Postdilution factor 10 recommended
Urine
Reaction mode D-R1-R2-S
Test range 0-15 000 μmol/L (0-250 mg/dL)
with postdilution 0-150 000 μmol/L (0-2500 mg/dL)
Postdilution factor 10 recommended

**Pipetting parameters**
Serum, plasma, urine Diluent (H₂O)
R1 38 μL 40 μL
R2 20 μL
Sample 2 μL 20 μL
Total volume 120 μL

**Calibration**
Calibrator Calibrator f.a.s.
Use deionized water as zero calibrator.
Calibration mode Linear regression
Calibration replicate Duplicate recommended
Calibration interval Each cassette (INTEGRA 700/800)
Each cassette and every 6 weeks
(INTEGRA 400)
Traceability: This method has been standardized against ID-MS.

**Quality control**
Quality control serum, plasma Precinorm U or Precinorm U plus
Precipath U or Precipath U plus
Quality control urine Quantitative urine controls are recommended for routine quality control.
Control interval 24 hours recommended
Control sequence User defined
Control after calibration Recommended

**UA 2 / 4 2003-12, V 2 EN**

**Substrates**

**400 700 800**

**Calculation**
COBAS INTEGRA analyzers automatically calculate the analyte concentration of each sample. For more details please refer to Chapter 7, Data Analysis, User Manual (COBAS INTEGRA 700), or to Data analysis in the onlineHelp (COBAS INTEGRA 400/800).
Conversion factor: μmol/L × 0.0168 = mg/dL

**Limitations - interference**
Criterion: Recovery within ±10% of initial value.
Serum, plasma
Hemolysis No significant interference up to a hemoglobin level of 0.31 mmol/L (5.0 g/L).
Icterus No significant interference up to a bilirubin level of 85 μmol/L (5 mg/dL).
Lipemia No significant interference.
Drugs Of the drugs tested in vitro, methyldopa and noramidopyrine cause artificially low uric acid values at the tested drug level. Refer to Chapter 1, Introduction for a list of tested drugs and their concentration.
Other physiological ascorbic acid concentrations do not interfere with the test. Ascorbic acid levels higher than 170 μmol/L (3.0 mg/dL) decrease the apparent uric acid concentration significantly. In very rare cases gammopathy, in particular type IgM (Waldenström’s macroglobulinemia), may cause unreliable results. For diagnostic purposes, the results should always be assessed in conjunction with the patient’s medical history, clinical examination and other findings.

**Expected values**

*Serum, plasma*

- Females <340 μmol/L (<5.7 mg/dL)
- Males (<65 y) <420 μmol/L (<7.0 mg/dL)
- Males (>65 y) <500 μmol/L (<8.4 mg/dL)

*Urine (reference range according to Krieg and Colombo)*

- 1st morning urine 2200-5475 μmol/L (37-92 mg/dL)
- 24 h urine 1200-5900 μmol/d (200-1000 mg/d)
- Corresponding to 773-3100 μmol/L (13-54 mg/dL)

*Urine (reference range according to Tietz)*

- Average diet 250-750 mg/24 hours
- Low purine diet
  - Females <400 mg/24 hours
  - Males (<65 y) <480 mg/24 hours
- High purine diet <1000 mg/24 hours

Each laboratory should investigate the transferability of the expected values to its own patient population and if necessary determine its own reference ranges.

**Specific performance data for serum and plasma**

Representative performance data on the COBAS INTEGRA analyzers are given below. Results obtained in individual laboratories may differ.

**Precision**

Reproducibility was determined using human samples and controls in an internal protocol (within run n = 20, between run n = 20). The following results were obtained.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>340 μmol/L</td>
<td>635 μmol/L</td>
</tr>
<tr>
<td>(5.7 mg/dL)</td>
<td>(10.7 mg/dL)</td>
</tr>
<tr>
<td>CV within run</td>
<td>0.65%</td>
</tr>
<tr>
<td>CV between run</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

**Analytical sensitivity (lower detection limit)**

4.71 μmol/L (0.079 mg/dL)

The detection limit represents the lowest measurable analyte level that can be distinguished from zero. It is calculated as the value lying three standard deviations above that of a zero sample (zero sample + 3 SD, within run precision, n = 30).

**Method comparison**

Uric acid values for human serum and plasma samples obtained on COBAS INTEGRA 700 with the cassette COBAS INTEGRA Uric Acid were compared to those determined with commercially available reagents for uric acid on COBAS MIRA and an alternative manufacturer’s clinical chemistry system. Samples were measured in duplicate. Sample size (n) represents all replicates. Values ranged from 69 to 824 μmol/L (1.2 to 13.8 mg/dL).

<table>
<thead>
<tr>
<th>COBAS MIRA</th>
<th>Alternative system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size (n) 240</td>
<td>240</td>
</tr>
<tr>
<td>Corr. coefficient (r) 0.990</td>
<td>0.996</td>
</tr>
<tr>
<td>(r_s) 0.991</td>
<td>0.994</td>
</tr>
</tbody>
</table>

Lin. regression y = 1.00x + 1.0 μmol/L, y = 1.04x - 24 μmol/L

Passing Bablok y = 1.00x + 0.8 μmol/L, y = 1.04x - 24 μmol/L

**Specific performance data for urine**

Representative performance data on the COBAS INTEGRA analyzers are given below. Results obtained in individual laboratories may differ.

**Precision**

Reproducibility was determined using human samples and controls in an internal protocol (within run n = 20, between run n = 20). The following results were obtained.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>1.64 mmol/L</td>
<td>3.86 mmol/L</td>
</tr>
<tr>
<td>(27.6 mg/dL)</td>
<td>(64.8 mg/dL)</td>
</tr>
</tbody>
</table>
CV within run 1.0% 0.67%
CV between run 1.7% 1.2%

**Analytical sensitivity (lower detection limit)**
0.095 mmol/L (1.6 mg/dL)
The detection limit represents the lowest measurable analyte level that can be distinguished from zero. It is calculated as the value lying three standard deviations above that of a zero sample (zero sample + 3 SD, within run precision, n = 30).

**Method comparison**
Uric acid values for human urine samples obtained on COBAS INTEGRA 700 with the cassette COBAS INTEGRA Uric Acid were compared to those determined with a commercially available reagent for uric acid on an alternative manufacturer’s clinical chemistry system. Samples were measured in duplicate. Sample size (n) represents all replicates. Values ranged from 0.20 to 3.68 mmol/L (3.36 to 61.8 mg/dL).

Alternative system
Sample size (n) 136
Corr. coefficient (r) 0.995
(t) 0.993
Lin. regression y = 1.15x - 0.09nmol/L
Passing Bablok y = 1.15x - 0.08nmol/L

**References**
7. Data on file at Roche Diagnostics.

COBAS INTEGRA, COBAS MIRA, Precinorm and Precipath are trademarks of a member of the Roche Group.

Significant additions or changes are indicated by a change bar in the margin.
©2003 Roche Diagnostics
Roche Diagnostics GmbH, D-68298 Mannheim
for USA: US Distributor: Roche Diagnostics Corporation, Indianapolis, IN
US Customer Technical Support 1-800-428-2336
Creatinine Jaffé
Compensated Method for Serum and Plasma

Order information
COBAS INTEGRA® 700 Tests Cat. No. 20764345 Indicates analyzer(s) on which cassette can be used
Creatinine Jaffé System-ID 07 6434 5
Calibrator f.a.s. 12 x 3 mL Cat. No. 10759350
System-ID 07 3718 6
Precinorm® U 20 x 5 mL Cat. No. 10171743
System-ID 07 7997 0
The cassette COBAS INTEGRA Creatinine Jaffé (CREAJ) contains an in vitro diagnostic reagent system intended for use on COBAS INTEGRA systems for the quantitative determination of the creatinine concentration in serum and plasma. This method sheet describes the applications for serum and plasma (compensated method) (test CREJC, 0-433 on INTEGRA 400, 0-233 on INTEGRA 700/800).

Summary:
Serum creatinine is a waste product formed by the spontaneous dehydration of body creatine. Most of the body creatine is found in muscle tissue where it is present as creatine phosphate and serves as a high energy storage reservoir for conversion to adenosine triphosphate. The rate of creatinine formation is fairly constant with 1 to 2 percent of the body creatine being converted to creatinine every 24 hours.

Serum creatinine and urea levels are elevated in patients with renal malfunction, especially decreased glomerular filtration. In the early stages of kidney damage, the rise in the serum urea levels usually precedes the increase in serum creatinine. The advantage is offset by the fact that serum urea levels are affected by factors such as diet, degree of hydration and protein metabolism. Serum creatinine levels on the other hand tend to be constant and unaffected by factors affecting serum urea levels. Thus serum creatinine is a significantly more reliable renal function screening test than serum urea.

A considerably more sensitive test for measuring glomerular filtration is the creatinine clearance test. For this test a precisely timed urine collection (usually 24 hours) and a blood sample are needed.

Test principle

In alkaline solution creatinine reacts with picric acid to form a yellow-red adduct.

Alkaline pH
Creatinine + picric acid yellow-red complex
The rate of the dye formation (color intensity) is directly proportional to the creatinine concentration in the specimen. It is determined by measuring the increase in absorbance at 512 nm. Serum and plasma samples contain proteins which react non-specifically in the Jaffé method. For compensation of serum and plasma results, values are automatically corrected by -18 μmol/L (-0.2 mg/dL).

Reagents - working solutions
R1 Alkaline buffer in vial B (liquid).
R2 = SR Picric acid in vial C (liquid).

Active ingredients

Components Concentrations
R1 SR Test
Potassium hydroxide 900 80 mmol/L
Phosphate 135 12 mmol/L
Picric acid 50 4.4 mmol/L
pH ≥ 13.5 6.5 13
Reagent SR contains a nonreactive buffer.

Please see cassette label for reagent filling volumes.

Precautions and warnings
Pay attention to all precautions and warnings listed in Chapter 1, Introduction.

This kit contains components classified as follows according
to the European Directive 88/379/EEC:

C
R1 contains potassium hydroxide 5% w/w.
Corrosive
R 35 Causes severe burns.
S 26-37/39-45 In case of contact with eyes rinse immediately with plenty of water and seek medical advice. In case of possible direct contact with the reagent, wear suitable gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
Contact phone: all countries: +49-621-7590,
USA: +1-800-428-2336

Reagent handling
Ready for use.

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Substrates

400 700 800

Storage and stability
Shelf life at 15 to 25°C See expiration date on cassette
INTEGRA 400
On-board in use at 10 to 15°C 8 weeks
INTEGRA 700/800
On-board in use at 8°C 8 weeks

Specimen collection and preparation:
Only the specimens listed below were tested and found acceptable.
Serum (free from lipemia): Collect serum using standard sampling tubes.
Plasma (free from lipemia): Li-heparin or EDTA plasma.
When processing samples in primary tubes, follow the instructions of the tube manufacturer.
Stability in serum/plasma: 7 days at 20-25°C
7 days at 4-8°C
3 months at -20°C
Centrifuge samples containing precipitates before performing the assay.

Materials provided
See “Reagents - working solutions” section for reagents.

Assay
For optimal performance of the assay follow the directions given in this document for the analyzer concerned. Refer to the appropriate operator manual for analyzer-specific assay instructions.

Applications for serum and plasma

INTEGRA 400 test definition
Measuring mode Absorbance
Abs. calculation mode Kinetic
Reaction direction Increase
Wavelength A/B 512/583 nm
Calc. first/last 40/49
Reaction mode R1-S-SR
Test range 36-1300 μmol/L (0.4-15 mg/dL)
with postdilution 36-13 000 μmol/L (0.4-150 mg/dL)
Postdilution factor 10 recommended
Unit μmol/L
Compensation -18 μmol/L (-0.2 mg/dL)
a) Cumulative value of technical limit (18 μmol/L) and bias from compensation step (18 μmol/L).

Pipetting parameters
Diluent (H2O)
R1 13 μL 71 μL
Sample 10 μL 20 μL
SR 13 μL 20 μL
Total volume 147 μL

INTEGRA 700/800 test definition
Measuring mode Absorbance
Abs. calculation mode Kinetic
Reaction direction Increase
Wavelength A/B 512/583 nm
Calc. first/last 55/70
Reaction mode R1-S-SR
Test range 36-1300 μmol/L (0.4-15 mg/dL)
with postdilution 36-13 000 μmol/L (0.4-150 mg/dL)
Postdilution factor 10 recommended
Unit μmol/L
Compensation -18 μmol/L (-0.2 mg/dL)

b) Cumulative value of technical limit (18 μmol/L) and bias from compensation step (18 μmol/L).

**Repetting parameters**

Diluent (H₂O)

R1 13 μL 41 μL
Sample 10 μL 30 μL
SR 13 μL 40 μL
Total volume 147 μL

**Calibration**

Calibrator Calibrator f.a.s.
Use deionized water as zero calibrator.

Calibration mode Linear regression
Calibration replicate Duplicate recommended
Calibration interval Each cassette and 7 days (INTEGRA 400), and as required following quality control procedures.
Each lot (INTEGRA 700/800) and as required following quality control procedures.

Traceability: This method has been standardized against ID/MS.
For the USA, this method has been standardized against a primary reference material (SRMs/914).

**Quality control**

Quality control serum, plasma Precinorm U or Precinorm U plus
Precipath U or Precipath U plus
Control interval 24 hours recommended
Control sequence User defined
Control after calibration Recommended

**Calculation**

COBAS INTEGRA analyzers automatically calculate the analyte concentration of each sample. For more details please refer to Chapter 7, Data Analysis, User Manual (COBAS INTEGRA 700), or to data analysis in the onlineHelp (COBAS INTEGRA 400/800).

Conversion factor: μmol/L × 0.0113 = mg/dL

**Limitations - interference**

Criterion: Recovery in the creatinine decision range for adults (90 μmol/L in serum) within ±10% of initial value.

Hemolysis INTEGRA 400: No significant interference up to an H index of 800 (approximate hemoglobin concentration: 800 mg/dL or 497 μmol/L).

INTEGRA 700/800: No significant interference up to an H index of 400 (approximate hemoglobin concentration: 400 mg/dL or 248 μmol/L).

Do not use Creatinine Jaffé when testing for creatinine in hemolyzed samples from neonates, infants or adults with an HbF level of ≥60 mg/dL (INTEGRA 400) or ≥30 mg/dL (INTEGRA 700/800).

Icterus INTEGRA 400/700/800: No significant interference up to an I index of 5 (approximate conjugated and unconjugated bilirubin concentration: 5 mg/dL or 85 μmol/L).

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**Substrates**

**400 700 800**

Lipemia (Intralipid) INTEGRA 400/700/800: No significant interference up to an L index of 250. There is poor correlation between the L index (corresponds to turbidity) and triglycerides concentration.

Other In very rare cases gammopathy, in particular type IgM (Waldenström’s macroglobulinemia), may cause unreliable results.

Values <0.2 mg/dL (<18 μmol/L) or negative results are reported in rare cases in children <3 years and elderly patients. In such cases use the Creatinine plus test to assay the sample.
Estimation of the Glomerular Filtration Rate (GFR) on the basis of the Schwartz Formula can lead to an overestimation. For diagnostic purposes, the results should always be assessed in conjunction with the patient’s medical history, clinical examination and other findings.

**Expected values**

**Adults**
- Females: 44-80 μmol/L (0.50-0.90 mg/dL)
- Males: 62-106 μmol/L (0.70-1.20 mg/dL)

**Children**
- Neonates (premature): 25-91 μmol/L (0.29-1.04 mg/dL)
- Neonates (full term): 21-75 μmol/L (0.24-0.85 mg/dL)
- 2-12 years: 15-37 μmol/L (0.17-0.42 mg/dL)
- 1-<3 years: 21-36 μmol/L (0.24-0.41 mg/dL)
- 3-<5 years: 27-42 μmol/L (0.31-0.47 mg/dL)
- 5-<7 years: 28-52 μmol/L (0.32-0.59 mg/dL)
- 7-<9 years: 35-53 μmol/L (0.40-0.60 mg/dL)
- 9-<11 years: 34-65 μmol/L (0.39-0.73 mg/dL)
- 11-<13 years: 46-70 μmol/L (0.53-0.79 mg/dL)
- 13-<15 years: 50-77 μmol/L (0.57-0.87 mg/dL)

Creatinine clearance for adults: 71-151 mL/min

Refer to reference 8 for a prospective study on creatinine clearance in children.

Each laboratory should investigate the transferability of the expected values to its own patient population and if necessary determine its own reference ranges.

**Specific performance data for serum and plasma**

Representative performance data on the COBAS INTEGRA analyzers are given below. Results obtained in individual laboratories may differ.

**Precision**

Reproducibility was determined using human samples and controls in an internal protocol (within run n = 21, between run n = 21). The following results were obtained.

<table>
<thead>
<tr>
<th>Level</th>
<th>Level 2</th>
<th>Mean</th>
<th>CV within run</th>
<th>CV between run</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Level 2</td>
<td>66.0</td>
<td>3.1%</td>
<td>2.8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mg/dL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mg/dL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Level 2</td>
<td>65.6</td>
<td>1.4%</td>
<td>1.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mg/dL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>mg/dL)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Analytical sensitivity (lower detection limit)**

18 μmol/L (0.2 mg/dL)

The detection limit represents the lowest measurable analyte level that can be distinguished from zero. It is calculated on the basis of precision studies with human sera (between day, n = 10).

**Method comparison**

Creatinine values for human serum and plasma samples obtained on COBAS INTEGRA 700 with the cassette COBAS INTEGRA Creatinine Jaffé (compensated method) were compared to those determined with commercially available reagents for creatinine on COBAS INTEGRA 700 (Creatinine plus method).

Values ranged from 20.2 to 821 μmol/L (0.23 to 9.29 mg/dL).

COBAS INTEGRA 700
Method enzymatic
Sample size (n) 90
Corr. coefficient (r) 0.999
Lin. regression y = 1.03x - 1.81 μmol/L.
Passing Bablok y = 1.03x - 2.58 μmol/L.

**References**
7. Data on file at Roche Diagnostics.

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