

Overview**Useful For**

Assessment of renal failure (prerenal vs acute kidney injury)

Method Name

KineticUltravioletAssay

NY State Available

Yes

Specimen**Specimen Type**

Urine

Specimen Required

Container/Tube: Plastic, 5-mL tube (T465)

Specimen Volume: 4 mL

Collection Instructions:

1. Collect a random urine specimen.
2. No preservative.

Specimen Minimum Volume

1 mL

Reject Due To

Hemolysis	NA
Lipemia	NA
Icterus	NA
Other	NA

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	14 days	
	Frozen	14 days	

Clinical and Interpretive

Clinical Information

Urea is a low molecular weight substance (Mol Wt=60) that is freely filtered by glomeruli and the majority is excreted into the urine, although variable amounts are reabsorbed along the nephron. It is the major end product of protein metabolism in humans and other mammals. Approximately 50% of urinary solute excretion and 90% to 95% of total nitrogen excretion is composed of urea under normal conditions. Factors that tend to increase urea excretion include increases in glomerular filtration rate, increased dietary protein intake, protein catabolic conditions, and water diuretic states. Factors that reduce urea excretion include low protein intake and conditions which result in low urine output (eg, dehydration). Urea excretion is a useful marker of protein metabolism.

In oliguric patients with a rising creatinine a fractional excretion of urea <35% is consistent with a prerenal cause, while values >35% are more consistent with acute kidney injury.(2) The fractional excretion of sodium is also used for this purpose, but may be more affected by diuretics. Therefore, the fractional excretion of urea may be particularly useful for patients receiving diuretics.

Reference Values

No established reference values

Interpretation

Fractional excretion of urea <35% is consistent with a prerenal cause.

Clinical Reference

1. Carvounis CP, Nisar S, Guro-Razuman S: Significance of the fractional excretion of urea in the differential diagnosis of acute renal failure, *Kidney Int*, 2002 Dec;62(6):2223-2229
2. Bankir L, Trinh-Trang-Tan MM: Urea and the kidney. In *The Kidney*. Sixth edition. Edited by BM Brenner. Philadelphia, WB Saunders Company, 2000

Performance**Method Description**

Urea is hydrolyzed by urease to form ammonia and CO₂. The ammonia formed then reacts with ketoglutarate and NADH in the presence of glutamate dehydrogenase (GLDH) to yield glutamate and NAD(+). The decrease in absorbance is due to consumption of NADH as measured kinetically at 340 nm.(Package insert: Roche Urea/BUN, Roche Diagnostic Corp, Indianapolis IN)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Sunday; Continuously

Analytic Time

Same day/1 day

Maximum Laboratory Time

2 days

Specimen Retention Time

7 days

Performing Laboratory Location

Rochester

Fees and Codes**Fees**

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact [Customer Service](#).

Test Classification

This test has been cleared or approved by the U.S. Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

84540

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
RURAU	Urea, Random, U	44416-6

Result ID	Test Result Name	Result LOINC Value
URCON	Urea, Random, U	3092-4
CREA5	Creatinine Concentration	2161-8
RATO4	Urea/Creatinine Ratio	44416-6