MAYO CLINIC LABORATORIES

Test Definition: URIC

Uric Acid, Serum

Overview

Useful For

Diagnosis and treatment of renal failure

Monitoring patients receiving cytotoxic drugs and a variety of other disorders, including gout, leukemia, psoriasis, starvation and other wasting conditions

Method Name

Colorimetric

NY State Available

Yes

Specimen

Specimen Type

Serum

Necessary Information

Patient's age and sex are required.

Specimen Required

Collection Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Specimen Volume: 0.5 mL

Submission Container/Tube: Plastic vial

Collection Instructions:

1. Serum gel tubes should be centrifuged within 2 hours of collection.
2. Red-top tubes should be centrifuged and aliquoted within 2 hours of collection.

Forms

If not ordering electronically, complete, print, and send a Renal Diagnostics Test Request (T830) with the specimen.

Specimen Minimum Volume

0.25 mL

Reject Due To

Gross hemolysis	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	7 days	
	Frozen	180 days	

Clinical & Interpretive

Clinical Information

Uric acid is the final product of purine metabolism in humans. Purines, compounds that are vital components of nucleic acids and coenzymes, may be synthesized in the body or they may be obtained by ingesting foods rich in nucleic material (eg, liver, sweetbreads). Approximately 75% of the uric acid excreted is lost in the urine; most of the remainder is secreted into the gastrointestinal tract where it is degraded to allantoin and other compounds by bacterial enzymes.

Asymptomatic hyperuricemia is frequently detected through biochemical screening. The major causes of hyperuricemia are increased purine synthesis, inherited metabolic disorder, excess dietary purine intake, increased nucleic acid turnover, malignancy, cytotoxic drugs, and decreased excretion due to chronic renal failure or increased renal reabsorption. Long-term follow-up of these patients is undertaken because many are at risk of developing renal disease; few of these patients ever develop the clinical syndrome of gout.

Hypouricemia, often defined as serum urate below 2.0 mg/dL, is much less common than hyperuricemia. It may be secondary to severe hepatocellular disease with reduced purine synthesis, defective renal tubular reabsorption, overtreatment of hyperuricemia with allopurinol, as well as some cancer therapies (eg, 6-mercaptopurine).

Reference Values

Males
1-10 years: 2.4-5.4 mg/dL
11 years: 2.7-5.9 mg/dL
12 years: 3.1-6.4 mg/dL
13 years: 3.4-6.9 mg/dL
14 years: 3.7-7.4 mg/dL
15 years: 4.0-7.8 mg/dL
> or =16 years: 3.7-8.0 mg/dL
Reference values have not been established for patients who are <12 months of age.

Females
1 year: 2.1-4.9 mg/dL
2 years: 2.1-5.0 mg/dL
3 years: 2.2-5.1 mg/dL
4 years: 2.3-5.2 mg/dL
5 years: 2.3-5.3 mg/dL
6 years: 2.3-5.4 mg/dL
7-8 years: 2.3-5.5 mg/dL

9-10 years: 2.3-5.7 mg/dL
11 years: 2.3-5.8 mg/dL
12 years: 2.3-5.9 mg/dL
> or =13 years: 2.7-6.1 mg/dL
Reference values have not been established for patients who are <12 months of age.

Interpretation
Hyperuricemia is most commonly defined by serum or plasma uric acid concentrations above 8.0 mg/dL in males or above 6.1 mg/dL in females.

Cautions
The following drugs cause interference (falsely decreased levels) at therapeutic concentrations:
-Alpha-methyldopa
-Desferoxamine
-Calcimdobesilate

Results can be falsely decreased in patients with elevated levels of N-acetyl-p-benzoquinone imine (NAPQI, a metabolite of acetaminophen), N-acetylcysteine (NAC), and metamizole.

Clinical Reference
Tietz Textbook of Clinical Chemistry. Chapter 24: Fourth edition, Edited by CA Burtis, ER Ashwood, WS Bruns. WB Saunders Company, Philadelphia, 2006, pp 803-807

Performance

Method Description
Uricase cleaves uric acid to form allantoin and hydrogen peroxide. In the presence of peroxidase, 4-aminophenazone is oxidized by hydrogen peroxide to a quinone-diimine dye. The color intensity of the quinone-diimine formed is directly proportional to the uric acid concentration and is determined by measuring the increase in absorbance.(Package insert: Uric Acid reagent. Roche Diagnostics; 11/2023)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 to 2 days

Specimen Retention Time
1 week

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & 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 account representative. For assistance, contact Customer Service.

Test Classification

This test has been cleared, approved, or is exempt by the US 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

84550

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
URIC	Uric Acid, S	3084-1

Result ID	Test Result Name	Result LOINC® Value
URIC	Uric Acid, S	3084-1