MAYO CLINIC LABORATORIES

# Test Definition: RATO2

Protein/Creatinine, Random, Urine

## Overview

### Useful For

Calculation of total protein concentration per creatinine concentration

### Method Name

Only orderable as part of a profile. For more information see ORTHP / Orthostatic Proteinuria, Random, Urine.

Calculation

### NY State Available

Yes

## Specimen

### Specimen Type

Urine

### Specimen Required

Only orderable as part of a profile. For more information see ORTHP / Orthostatic Proteinuria, Random, Urine.

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Urine | Refrigerated (preferred) | 14 days | |
| | Ambient | 24 hours | |
| | Frozen | 30 days | |

## Clinical & Interpretive

### Clinical Information

Orthostatic proteinuria refers to the development of increased proteinuria that develops only when the person is upright and resolves when recumbent or supine. This condition is usually seen in children, adolescents, or young adults, and accounts for the majority of cases of proteinuria in childhood.

Orthostatic proteinuria usually does not indicate significant underlying renal pathology, and is usually not associated with other urine abnormalities such as hypoalbuminemia, hematuria, red blood cell casts, fatty casts, etc. Orthostatic proteinuria typically resolves over time.

This test evaluates for this condition by demonstrating either significant proteinuria, even while supine, or normal

protein excretion. Significant proteinuria, even while supine, suggests that the patient does not have orthostatic proteinuria while normal protein excretion supports the diagnosis. This test is typically done on three consecutive mornings to provide more robust support for the diagnosis.

### Reference Values

Only orderable as part of a profile. For more information see ORTHP / Orthostatic Proteinuria, Random, Urine.

> or =18 years: <0.18 mg/mg creatinine
Reference values have not been established for patients younger than 18 years of age.

### Interpretation

First-morning urine protein-to-creatinine ratio below 0.20 mg/mg creatinine supports the diagnosis of orthostatic proteinuria, while a result above 0.20 mg/mg creatinine does not support this diagnosis.

Further investigation into other etiologies for proteinuria may be warranted.

### Cautions

False proteinuria may be due to contamination of urine with menstrual blood, prostatic secretions, or semen.

Normal newborn infants may have higher excretion of protein in urine during the first 3 days of life.

The presence of hemoglobin elevates protein concentration.

Protein electrophoresis and immunofixation may be required to characterize and interpret the proteinuria.

### Clinical Reference

1. Brunzel N: Chemical examination of urine. In: Fundamentals of Urine and Body Fluids. 4th ed. Saunders; 2018:92-94
2. Wilson DM, Anderson RL: Protein-osmolality ratio for the quantitative assessment of proteinuria from a random urinalysis sample. Am J Clin Pathol. 1993 Oct;100(4):419-424
3. Morgenstern BZ, Butani L, Wollan P, Wilson DM, Larson TS: Validity of protein-osmolality versus protein-creatinine ratios in the estimation of quantitative proteinuria from random samples of urine in children. Am J Kidney Dis. 2003 Apr;41(4):760-766
4. Rinehart BK, Terrone DA, Larmon JE, Perry KG Jr, Martin RW, Martin JN Jr: A 12-hour urine collection accurately assesses proteinuria in hospitalized hypertensive gravida. J Perinatol. 1999 Dec;19(8 Pt 1):556-558
5. Adelberg AM, Miller J, Doerzbacher M, Lambers DS: Correlation of quantitative protein measurements in 8-, 12-, and 24-hour urine samples for diagnosis of preeclampsia. Am J Obstet Gynecol. 2001 Oct;185(4):804-807
6. Robinson RR: Isolated proteinuria in asymptomatic patients. Kidney Int. 1980 Sep;18(3):395-406
7. Dube J, Girouard J, Leclerc P, Douville P: Problems with the estimation of urine protein by automated assays. Clin Biochem. 2005 May;(38):479-485
8. Koumantakis G, Wyndham L: Fluorescein interference with urinary creatinine and protein measurements. Clin Chem. 1991 Oct;37(10 Pt 1):1799
9. Lamb EJ, Jones GRD: Kidney function tests. In: Rifai N, Horvath AR, Wittwer CT, eds. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018:479-517

## Performance

### Method Description
This test is a calculation to provide the total protein per creatinine ratio. This calculation is performed by the laboratory information system, SCC Soft.

### PDF Report
No

### Day(s) Performed
Monday through Sunday

### Report Available
Same day/1 day

### 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.

### LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| RATO2 | Protein/Creatinine Ratio | 2890-2 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| RATO2 | Protein/Creatinine Ratio | 2890-2 |