### Overview

#### Useful For
Evaluation of renal disease
Screening for monoclonal gammopathy

#### Method Name
Turbidimetry

#### NY State Available
Yes

### Specimen

#### Specimen Type
Urine

#### Specimen Required

**Patient Preparation:** Collect specimen either prior to fluorescein administration or wait to collect for at minimum of 24 hours after administration.

**Supplies:** Aliquot Tube, 5 mL (T465)

**Container/Tube:** Plastic, 5-mL tube

**Specimen Volume:** 4 mL

**Collection Instructions:**
1. Collect a random urine specimen.
2. No preservative.
3. Invert well before taking 4 mL aliquot.
4. Do not overfill aliquot tube, maximum 4 mL.

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

#### Specimen Minimum Volume
1 mL

#### Reject Due To
All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

### Specimen Stability Information
Clinical and Interpretive

Clinical Information

Protein in urine is normally composed of a combination of plasma-derived proteins that have been filtered by glomeruli and have not been reabsorbed by the proximal tubules and proteins secreted by renal tubules or other accessory glands.

Increased amounts of protein in the urine may be due to:

- Glomerular proteinuria: caused by defects in permselectivity of the glomerular filtration barrier to plasma proteins (e.g., glomerulonephritis or nephrotic syndrome)
- Tubular proteinuria: caused by incomplete tubular reabsorption of proteins (e.g., interstitial nephritis)
- Overflow proteinuria: caused by increased plasma concentration of proteins (e.g., multiple myeloma, myoglobinuria)

Reference Values

<0.18 mg/mg creatinine

Reference values have not been established for patients <18 years of age.

Interpretation

Total protein of greater than 500 mg/24 hours should be evaluated by immunofixation to determine if a monoclonal immunoglobulin light chain is present and, if so, identify it as either kappa or lambda type.

Urinary protein levels may rise to 300 mg/24 hours in healthy individuals after vigorous exercise.

Low-grade proteinuria may be seen in inflammatory or neoplastic processes involving the urinary tract.

In a random urine specimen, a protein:creatinine or protein:osmolality ratio can be used to roughly approximate 24-hour excretion rates. The normal protein-to-osmolality ratio is less than 0.42. (1) For patients younger than 18 years of age no reference range has been established.

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


Performance

Method Description

Protein Method: Turbidimetric method. The sample is preincubated in an alkaline solution containing EDTA, which denatures the protein and eliminates interference from magnesium ions. Benzethonium chloride is then added, producing turbidity. (Package insert: Roche Diagnostics Total Protein Urine/CSF Gen.3)

Creatinine Method: The enzymatic method is based on the determination of sarcosine from creatinine with the aid of creatininase, creatinase, and sarcosine oxidase. The liberated hydrogen peroxide is measured via a modified Trinder reaction using a colorimetric indicator. Optimization of the buffer system and the colorimetric indicator enables the creatinine concentration to be quantified both precisely and specifically. (Package insert: Roche Diagnostics, Indianapolis IN, 2004)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Sunday; Continuously

Analytic Time

Same day/1 day

Maximum Laboratory Time

Same day/1 day
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
84156
82570

LOINC® Information

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