

Overview

Useful For

Evaluation of renal tubular damage

Monitoring exposure to cadmium and mercury

Method Name

AutomatedChemiluminescentImmunoMetricAssay

NY State Available

Yes

Specimen

Specimen Type

Urine

Specimen Required

Supplies: Urine Tubes, 5 mL

Container/Tube: Plastic, urine tube

Specimen Volume: 3 mL

Collection Instructions:

1. Patient should empty bladder.
2. Have patient drink at least 0.5 liters of water.
3. Within 1 hour, collect a random urine specimen.
4. Add 1 M NaOH as preservative to the collection. This preservative is intended to achieve a pH of between approximately 6 and 8.

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

Specimen with pH <6	Reject
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Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Frozen (preferred)	14 days	
	Refrigerated	48 hours	

Clinical and Interpretive

Clinical Information

Beta-2 microglobulin is a low-molecular-weight protein that forms the light chain component of class I histocompatibility (HLA: human leukocyte antigen) antigens.

Increased urine levels are seen in proximal tubular renal damage due to a variety of causes, including cadmium, mercury, lithium, or aminoglycoside toxicity; pyelonephritis; and Balkan nephropathy, a chronic interstitial nephritis of unknown etiology.

Reference Values

< or =300 mcg/L

Interpretation

Increased excretion is consistent with renal tubular damage.

Beta-2 microglobulin excretion is increased 100 to 1,000 times normal levels in cadmium-exposed workers.

Cautions

Degradation of beta-2 microglobulin occurs at pH <6.0.

Clinical Reference

- Ikeda M, Ezaki T, Tsukahara T, et al: Threshold levels of urinary cadmium in relation to increases in urinary beta2-microglobulin among general Japanese populations. *Toxicol Lett* 2003 Feb 3;137(3):135-141
- Moriguchi J, Ezaki T, Tsukahara T, et al: Comparative evaluation of four urinary tubular dysfunction markers, with special references to the effects of aging and correction for creatinine concentration. *Toxicol Lett* 2003 Aug 28;143(3):279-290
- Stefanovic V, Cukuranovic R, Mitic-Zlatkovic M, Hall PW: Increased urinary albumin excretion in children from families with Balkan nephropathy. *Pediatr Nephrol* 2002 Nov;17(11):913-916

Performance

Method Description

Testing is performed on the Immulite 2000. Immulite 2000 Beta-2 Microglobulin is a solid phase, 2-site chemiluminescent enzyme-labeled immunometric assay. The solid-phase bead is coated with an affinity-purified murine monoclonal anti-beta-2 antibody. The serum sample and alkaline phosphatase conjugated affinity-purified goat polyclonal anti-beta-2 antibody are incubated to bind beta-2 microglobulin into an antibody sandwich complex.

The chemiluminescent substrate, a phosphate ester of adamantyl dioxetane, in the presence of alkaline phosphatase produces light proportional to the concentration of the beta-2 microglobulin in the sample.(Product Information: IMMULITE 2000 Beta-2 Microglobulin, Siemens Healthcare Diagnostics, 2012-11-05)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Friday; 5 a.m.-3 p.m., Saturday; 6 a.m.-3 p.m.

Analytic Time

1 day

Maximum Laboratory Time

3 days

Specimen Retention Time

2 Weeks

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

82232

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
B2MU	Beta-2 Microglobulin, U	1953-9

Result ID	Test Result Name	Result LOINC Value
B2MU	Beta-2 Microglobulin, U	1953-9