MAYO CLINIC LABORATORIES

Test Definition: CDB

Cadmium, Blood

Overview

Useful For
Detecting exposure to cadmium, a toxic heavy metal

Special Instructions
- Metals Analysis Specimen Collection and Transport

Method Name
Triple Quadrupole Inductively Coupled Plasma Mass Spectrometry (ICP-MS/MS)

NY State Available
Yes

Specimen

Specimen Type
Whole blood

Specimen Required
*****This specimen container cannot be opened or used for any other testing before shipping.*****
Patient Preparation: High concentrations of gadolinium and iodine are known to potentially interfere with most inductively coupled plasma mass spectrometry-based metal tests. If either gadolinium- or iodine-containing contrast media has been administered, **a specimen should not be collected for 96 hours**.
Supplies:
-Metal Free EDTA 3 mL Tube (T989)
-Metal Free B-D Tube (EDTA), 6 mL (T183)
Container/Tube:
Preferred: Royal blue-top BD vacutainer with EDTA blood collection tube (3 mL) (BD catalog no. 367777) (T989)
Acceptable: Royal blue-top BD Vacutainer Plus with EDTA blood collection tube (6 mL) (BD catalog no. 368381) (T183)
Specimen Volume: 1 mL
Collection Instructions:
1. See Metals Analysis Specimen Collection and Transport for complete instructions.
2. Send whole blood specimen in original collection tube. **Do not aliquot.**

Forms
If not ordering electronically, complete, print, and send General Request (T239) with the specimen.

Specimen Minimum Volume
0.25 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Whole blood	Refrigerated (preferred)	28 days	
	Ambient	28 days	
	Frozen	28 days	

Clinical & Interpretive

Clinical Information

The toxicity of cadmium resembles the other heavy metals (arsenic, mercury, and lead) in that it attacks the kidney; kidney dysfunction with proteinuria with slow onset (over a period of years) is the typical presentation.

Breathing the fumes of cadmium vapors leads to nasal epithelial deterioration and pulmonary congestion resembling chronic emphysema.

The most common source of chronic exposure comes from spray painting organic-based paints without a protective breathing apparatus; auto repair mechanics represent a susceptible group for cadmium toxicity. In addition, another common source of cadmium exposure is tobacco smoke.

Reference Values

<5.0 ng/mL
Reference values apply to all ages.

Interpretation

Normal blood cadmium is less than 5.0 ng/mL, with most results in the range of 0.5 to 2.0 ng/mL.

Acute toxicity will be observed when the blood level exceeds 50 ng/mL.

Cautions

No significant cautionary statements

Clinical Reference

1. Moreau T, Orssaud G, Lellouch J, Claude JR, Juguet B, Festy B. Blood cadmium levels in a general population with special reference to smoking. Arch Environ Health. 1983;38(3):163-167
2. Strathmann FG, Blum LM. Toxic elements. In: Rifai N, Chiu RWK, Young I, Burnham CD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:chap 44

Performance

Method Description
The metal of interest is analyzed by triple quadrupole inductively coupled plasma mass spectrometry.(Unpublished Mayo method)

PDF Report
No

Day(s) Performed
Monday through Saturday

Report Available
1 to 3 days

Specimen Retention Time
14 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

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 was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
82300

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CDB	Cadmium, B	5609-3

Result ID	Test Result Name	Result LOINC® Value
8682	Cadmium, B	5609-3