MAYO CLINIC LABORATORIES

Test Definition: PBHA

Lead, Hair

Overview

Useful For

Detecting lead exposure using hair specimens

Special Instructions

- Collecting Hair and Nails for Metals Testing

Method Name

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

NY State Available

No

Specimen

Specimen Type

Hair

Necessary Information

Indicate source of hair (axillary, head, or pubic), if known

Specimen Required

Supplies: Hair and Nails Collection Kit (T565)
Source: Head (preferred), beard, mustache, chest, pubic
Specimen Volume: 0.2 g
Collection Instructions: Prepare and transport specimen per the instructions in the kit or see Collecting Hair and Nails for Metals Testing.

Specimen Minimum Volume

0.05 g

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Hair	Ambient (preferred)		
	Refrigerated		
	Frozen		

Clinical & Interpretive

Clinical Information

Hair analysis for lead can be used to corroborate blood analysis or to document past lead exposure. If the hair is collected and segmented in a time sequence (based on length from root), the approximate time of exposure can be assessed.

Reference Values

<4.0 mcg/g of hair

Reference values apply to all ages.

Interpretation

Hair grows at a rate of approximately 0.5 inch/month. Hair keratin synthesized today will protrude through the skin in approximately 1 week. Thus, a hair specimen collected at the skin level represents exposure of 1 week ago, 1 inch distally from the skin represents exposure 2 months ago, etc.

Normal hair lead content is below 4.0 mcg/g. While hair lead content above 10.0 mcg/g may indicate significant lead exposure, hair is also subject to potential external contamination with environmental lead and contaminants in artificial hair treatments (eg, dyeing, bleaching, or permanents). Ultimately, the hair lead content needs to be interpreted in addition to the overall clinical scenario including symptoms, physical findings, and other diagnostic results when determining further actions.

Cautions

Blood lead analysis has the strongest correlation with toxicity.

Clinical Reference

1. Strumylaite L, Ryselis S, Kregzdyte R. Content of lead in human hair from people exposed to lead. Int J Hyg Environ Health. 2004;207:345-351
2. Barbosa F, Tanus-Santos J, Gerlach R, Parsons P. A Critical review of biomarkers used for monitoring human exposure to lead: advantages, limitations, and future needs. Environ Health Perspect. 2005;113:1669-1674
3. Sanna E, Liguori A, Palmes L, et al. Blood and hair lead levels in boys and girls living in two Sardinian towns at different risks of lead pollution. Ecotoxicol Environ Saf. 2003;55:293-299
4. DiPietro ES, Phillips DL, Paschal DC, Neese JW. Determination of trace elements in human hair. Biol Trace Elem Res. 1989;22:83-100
5. Strathmann FG, Blum LM. Toxic elements. In: Rifai N, Chiu RWK, Young I, Burnham CAD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:chap 44

Performance

Method Description

The metal analytes of interest are analyzed by triple-quadrupole inductively coupled plasma mass spectrometry.(Unpublished Mayo method).

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Lead, Hair

PDF Report
No

Day(s) Performed
Wednesday

Report Available
2 to 14 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
83655

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
PBHA	Lead, Hair	5673-9

Result ID	Test Result Name	Result LOINC® Value
31898	Lead, Hair	5673-9
PBHSC	Specimen Source	31208-2