Test Definition: NEZPP

Zinc Protoporphyrin, B

Overview

Useful For

Evaluating iron deficiency

Monitoring treatment and environmental intervention of chronic lead poisoning

Special Instructions

- Lead and Heavy Metals Reporting
- Trace Metals Analysis Specimen Collection and Transport

Method Name

Hematofluorometry

NY State Available

Yes

Specimen

Specimen Type

Whole blood

Specimen Required

Patient Preparation: High concentrations of gadolinium and iodine are known to interfere with most metals tests. If either gadolinium- or iodine-containing contrast media has been administered, a specimen should not be collected for 96 hours.

Supplies:

-Metal Free B-D Tube (EDTA), 6 mL (T183)

-Metal Free (Lead only) EDTA Tube, 3 mL (T615)

-Microtainer (EDTA) Tube, 0.5 mL (T174)

-If ordering the EDTA trace element Vacutainer tube from BD, order catalog #368381.

Container/Tube:

Preferred: Royal blue-top BD Vacutainer Plus with EDTA blood collection tube (T183)

Acceptable: Tan-top (lead only) BD Vacutainer Plus with EDTA blood collection tube (T615) or BD Microtainer with EDTA (T174) or royal blue-top Monoject trace element blood collection tube

Specimen Volume: 1 mL

Collection Instructions:

1. See Trace Metals Analysis Specimen Collection and Transport in Special Instructions for complete instructions.

2. Send specimen in original tube.

Forms

1. Lead and Heavy Metals Reporting (T491) in Special Instructions

2. If not ordering electronically, complete, print, and send a Benign Hematology Test Request (T755) with the specimen.

Specimen Minimum Volume

0.3 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Whole blood	Refrigerated	28 days	

Clinical and Interpretive

Clinical Information

The porphyrins are intermediaries in the heme synthesis pathway. When iron is not available for heme synthesis (eg, iron deficiency), zinc protoporphyrin (ZPP) accumulates within RBCs. Lead inhibits several enzymes in the heme synthesis pathway and causes increased levels of RBC ZPP.

ZPP is a biological marker of lead toxicity and was previously used, in conjunction with blood lead assays, to screen for lead poisoning in children. However, because of poor sensitivity and specificity, ZPP is no longer recommended for lead screening in children. However, ZPP remains a useful tool for monitoring treatment of individuals with confirmed elevated lead levels.

Reference Values

<70 mcmol ZPP/mol heme

Interpretation

An elevated zinc protoporphyrin (ZPP) indicates impairment of the heme biosynthetic pathway.

Elevated ZPP levels in adults may indicate long-term (chronic) lead exposure or may be indicative of iron deficiency anemia or anemia of chronic disease.

Cautions

High concentrations of gadolinium and iodine are known to interfere with most metals tests. If either gadolinium- or iodine-containing contrast media has been administered, it is suggested a specimen not be collected for 96 hours.

Clinical Reference

1. Stanton NV, Gunter EW, Parsons PJ, et al: Empirically determined lead-poisoning screening cutoff for the Protofluor-Z hematofluorometer. Clin Chem 1989;35(10):2104-2107

2. Rosen JF: Preventing Lead Poisoning in Young Children. US Public Health Service, Centers for Disease Control, Atlanta, GA, 1991

3. Occupational Safety and Health Administration: OSHA Lead Standard-Requirements from the General Industry Standards Lead (1910, 1025), from 29 CFR 1910, 1025, A.M. Best Safety and Security-2000. Retrieved July 2016. Available at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10033

4. Centers for Disease Control and Prevention. Screening Young Children for Lead Poisoning. Guidance for State and Local Public Health Officials. Atlanta, GA: US Dept of Health and Human Services. Public Health Service: November 1997. Available at cdc.gov/nceh/lead/guide/guide97.htm

Performance

Method Description

Zinc protoporphyrin is measured on the Helena ProtoFluor-Z hematofluorometer using a multichannel front surface photofluorometer. When the sample is exposed to light, zinc protoporphyrin (ZPP) is excited and emits light. A second lens/filter system collects, filters, and focuses the light onto a photomultiplier tube (PMT). The PMT produces a current level in response to the light reaching it, which is proportional to the ZPP:heme ratio. During the reading, over 1,000 light-level readings are taken and averaged by the microcomputer and a value is displayed in mcmol ZPP/mol heme.(Instruction manual: Helena Laboratories ProtoFluor-Z Hematofluorometer 9/2013)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Friday; 5 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

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Zinc Protoporphyrin, B

This test has been modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

CPT Code Information

84202

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
NEZPP	Zinc Protoporphyrin, B	29763-0

Result ID	Test Result Name	Result LOINC Value
300009	Zinc Protoporphyrin, B	29763-0