MAYO CLINIC LABORATORIES

Test Definition: HGB

Hemoglobin, Blood

Overview

Useful For

Screening tool to confirm a hematologic disorder

Establishing or ruling out a diagnosis

Detecting an unsuspected hematologic disorder

Monitoring the effects of radiation or chemotherapy

Method Name

Sodium Lauryl Sulfate (SLS) Hemoglobin Method

NY State Available

No

Specimen

Specimen Type

Whole Blood EDTA

Specimen Minimum Volume

1 mL

Reject Due To

Gross hemolysis	Reject
Other	Clotted

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Whole Blood EDTA	Refrigerated (preferred)	48 hours	
	Ambient	24 hours	

Clinical & Interpretive

Clinical Information

Hemoglobin transports oxygen and CO2. This activity is decreased in anemia and increased in polycythemia, erythrocytosis, and dehydration.

Hemoglobin measurements are used as clinical guides in the diagnosis or monitoring of many diseases.

Reference Values

HEMOGLOBIN
Males:
0-14 days: 13.9-19.1 g/dL
15 days-4 weeks: 10.0-15.3 g/dL
5 weeks-7 weeks: 8.9-12.7 g/dL
8 weeks-5 months: 9.6-12.4 g/dL
6 months-23 months: 10.1-12.5 g/dL
24 months-35 months: 10.2-12.7 g/dL
3-5 years: 11.4-14.3 g/dL
6-8 years: 11.5-14.3 g/dL
9-10 years: 11.8-14.7 g/dL
11-14 years: 12.4-15.7 g/dL
15-17 years: 13.3-16.9 g/dL
Adults: 13.2-16.6 g/dL
Females:
0-14 days: 13.4-20.0 g/dL
15 days-4 weeks: 10.8-14.6 g/dL
5 weeks-7 weeks: 9.2-11.4 g/dL
8 weeks-5 months: 9.9-12.4 g/dL
6 months-35 months: 10.2-12.7 g/dL
3-5 years: 11.4-14.3 g/dL
6-8 years: 11.5-14.3 g/dL
9-10 years: 11.8-14.7 g/dL
11-17 years: 11.9-14.8 g/dL
Adults: 11.6-15.0 g/dL

Interpretation

Results outside of normal value ranges may reflect a primary disorder of the cell-producing organs or an underlying disease. Results should be interpreted in conjunction with the patient's clinical picture and appropriate additional testing performed.

Cautions

Questionable results are detected by in-house checking criteria based on quantitative and qualitative parameters.

Clinical Reference

1. CLSI. Defining, Establishing, and Verifying Reference Intervals in the Clinical Laboratory. Approved Guideline-Third Edition. CLSI document EP28-A3c. Wayne, PA. Clinical and Laboratory Standards Institute, 2008
2. Klee G: Decision rules for accelerated hematology laboratory investigation. University of Minnesota 1974; PhD thesis
3. McKenzie SB: Textbook of Hematology. Lea and Febiger, Philadelphia 1988
4. Orkin SH, Fisher DE, Ginsburg D, et al: Nathan and Oski's Hematology and Oncology of Infancy and Childhood. Edited

by ST Orkin, DE Fisher, AT Look, et al. WB Saunders Co, Philadelphia, 1981
5. Adeli, K, Raizman, J, Chen, Y, et al: Complex Biological Profile of Hematologic Markers Across Pediatric, Adult, and Geriatric Ages: Establishment of Robust Pediatric and Adult Reference Intervals on the Basis of the Canadian Health Measures Survey. Clin Chem 61:8 2015
6. Soldin, J, Brugnara, C, Wong, EC: Pediatric Reference Intervals. In Pediatric References Intervals. Fifth Edition. Edited by SJ Soldin, C Brugnara, EC Wong. AACC Press. Washington DC, 2005. ISBN 1-594250-32-4

Performance

Method Description

The sodium lauryl sulphate-hemoglobin (SLS-HGB) detection method uses cyanide-free SLS. The reagent lyses red and white blood cells in the sample. The chemical reaction begins by altering the globin and then oxidizing the heme groups. Then the hydrophilic portions of the SLS bind to the heme group and form a stable, colored complex (SLS-HGB), which is analyzed using a photometric method.

An LED sends out monochromatic light and by moving through the mixture, light is absorbed by the SLS-HGB complexes. The absorbance is measured by a photo sensor and is proportional to the hemoglobin concentration of the sample. This method is usually less influenced by specimen turbidity caused by interferences such as lipemia and leukocytosis.(Instruction manual: Sysmex XN-9000, August 2012, Kobe, Japan; adapted from Sysmex Europe Knowledge Centre 2017)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

Same day/1 to 2 days

Specimen Retention Time

3 days

Performing Laboratory Location

Mayo Clinic Jacksonville Clinical Lab

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 Definition: HGB

Hemoglobin, Blood

Test Classification

This test has been cleared, approved, or is exempt by the US 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

85018

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
HGB	Hemoglobin	718-7

Result ID	Test Result Name	Result LOINC® Value
HGB	Hemoglobin	718-7