MAYO CLINIC LABORATORIES

Test Definition: SALCA

Salicylate, Serum

Overview

Useful For

Quantitative determination of toxic levels of salicylate

This test is **not useful** for assessing low-dose aspirin therapy.

Method Name

Photometric

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Collection Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Submission Container/Tube: Plastic vial

Specimen Volume: 0.5 mL

Collection Instructions:

1. Serum gel tubes should be centrifuged within 2 hours of collection.
2. Red-top tubes should be centrifuged, and the serum aliquoted into a plastic vial within 2 hours of collection.

Specimen Minimum Volume

0.25 mL

Reject Due To

Gross hemolysis	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	7 days	
	Ambient	72 hours	

	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Therapeutic salicylates include, among others, salicylic acid, sodium salicylate, methyl salicylate (oil of wintergreen), and acetylsalicylic acid (aspirin).

Aspirin is an analgesic, antipyretic, anti-inflammatory drug contained in a large number of preparations. Aspirin is rapidly hydrolyzed by hepatic and blood esterases to the pharmacologically active intermediate, salicylic acid, which has a dose-dependent serum half-life ranging from 3 to 20 hours.

Stimulation of the respiratory center in the central nervous system and uncoupling of oxidative phosphorylation are direct effects of salicylate that lead to many of the toxic symptoms observed in overdose situations.

Symptoms of salicylate toxicity can include nausea, vomiting, tinnitus, headache, hyperpnea, confusion, hyperthermia, slurred speech, and convulsions. Acid-base disturbances such as compensated respiratory alkalosis (mild toxicity) and metabolic acidosis with increased anion gap (severe toxicity) are commonplace.

Reference Values

Therapeutic: <30.0 mg/dL
Critical value: > or =50.0 mg/dL

Interpretation

Therapeutic concentrations for antipyretic/analgesic are 3.0 to 10.0 mg/dL, while concentrations between 1.5 and 30 mg/dL are for anti-inflammatory effect and treatment of rheumatic fever.

Toxic concentrations are 50.0 mg/dL or higher.

Cautions

This test is not intended for use with low-dose aspirin therapy. Most patients on low daily doses of aspirin for cardiovascular prophylaxis will have serum concentrations near or below the lower limit of the analytical range.

Clinical Reference

1. Flower RJ, Moncada S, Vane JR. Analgesic-antipyretics and anti-inflammatory agents: drugs employed in the treatment of gout. In The Pharmacological Basis of Therapeutics. 1980:688-698
2. Adeli K, Higgins V, Bohn MK. Reference Information for the Clinical Laboratory. In: Rifai N, Chiu RWK, Young I, Burnham CD, Wittwer CT, eds. Tietz Textbook of Laboratory Medicine. 7th ed. Elsevier; 2023:1390-1470

Performance

Method Description

This determination depends upon the conversion of salicylate in the presence of the reduced form of nicotinamide

adenine dinucleotide (NADH) by salicylate hydroxylase to catechol and nicotinamide adenine dinucleotide (NAD[+]). The concomitant conversion of NADH to NAD[+] is measured by the decrease in absorbance at 340 nm. The decrease is proportional to the concentration of salicylate present in the sample.(Package insert: Salicylate reagent; Roche Diagnostics; 05/2024)

PDF Report
No

Day(s) Performed
Monday through Sunday

Report Available
Same day/1 day

Specimen Retention Time
1 week

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

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 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
80179

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SALCA	Salicylate, S	4024-6

Result ID	Test Result Name	Result LOINC® Value
SALCA	Salicylate, S	4024-6