

## 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: Roche SALI reagent. Roche Diagnostics Corp; 11/2023)

**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              |