MAYO CLINIC LABORATORIES

# Test Definition: C1Q

Complement C1q, Serum

## Overview

### Useful For

Assessment of an undetectable total complement level

Diagnosing congenital C1 (first component of complement) deficiency

Diagnosing acquired deficiency of C1 inhibitor

### Method Name

Nephelometry

### NY State Available

Yes

## Specimen

### Specimen Type

Serum

### Specimen Required

**Patient Preparation:**

Fasting: 12 hours, preferred but not required

**Supplies:** Sarstedt Aliquot Tube, 5 mL (T914)

**Collection Container/Tube:**

**Preferred:** Serum gel

**Acceptable:** Red top

**Submission Container/Tube:** Plastic vial

**Specimen Volume:** 1 mL Serum

**Collection Instructions:** Centrifuge and aliquot serum into a plastic vial

### Specimen Minimum Volume

Serum: 0.5 mL

### Reject Due To

| | |
|---|---|
| Gross hemolysis | OK |
| Gross lipemia | Reject |
| Gross icterus | OK |

## Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Serum | Refrigerated (preferred) | 28 days | |
| | Ambient | 21 days | |
| | Frozen | 28 days | |

## Clinical & Interpretive

### Clinical Information

The first component of complement (C1) is composed of 3 subunits designated as C1q, C1r, and C1s. C1q recognizes and binds to immunoglobulin complexed to antigen and initiates the complement cascade. Congenital deficiencies of any of the early complement components (C1, C2, C4) results in an inability to clear immune complexes. Inherited deficiency of C1 is rare.

Like the more common C2 deficiency, C1 deficiency is associated with increased incidence of immune complex disease (systemic lupus erythematosus, polymyositis, glomerulonephritis, and Henoch-Schonlein purpura). Low C1 levels have also been reported in patients with abnormal immunoglobulin levels (Bruton and common variable hypogammaglobulinemia and severe combined immunodeficiency). This is most likely due to increased catabolism.

The measurement of C1q is an indicator of the amount of C1 present.

### Reference Values

12-22 mg/dL

### Interpretation

An undetectable C1q (first component of complement subunit q) in the presence of an absent total complement and normal C2, C3, and C4 suggests a congenital C1 (first component of complement) deficiency.

A low C1q in combination with a low C1 inhibitor and low C4 suggests an acquired C1 inhibitor deficiency.

### Cautions

This is a different assay than C1q (first component of complement subunit q) binding, which is an assay for circulating immune complexes.

### Clinical Reference

1. Stegert M, Bock M, Trendelenburg M. Clinical presentation of human C1q deficiency: How much of a lupus? Mol Immunol. 2015;67(1):3-11
2. Tangye SG, Al-Herz W, Bousfiha A, et al. Human inborn errors of immunity: 2022 update on the classification from the International Union of Immunological Societies Expert Committee. J Clin Immunol. 2022;42(7):1473-1507
3. Beurskens FJ, van Schaarenburg RA, Trouw LA. C1q, antibodies and anti-C1q autoantibodies. Mol Immunol. 2015;68(1):6-13

## Performance

### Method Description
Nephelometry and anti-C1q (first component of complement subunit q) antiserum are used to quantitate the C1q antigen level.(Instruction manual: Siemens Nephelometer II. Siemens, Inc; 07/2019)

### PDF Report
No

### Day(s) Performed
Tuesday through Friday

### Report Available
2 to 5 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
86160

### LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| C1Q | Complement C1q, S | 4478-4 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| C1Q | Complement C1q, S | 4478-4 |