MAYO CLINIC LABORATORIES

# Test Definition: BART

Bartonella Antibody Panel, IgG and IgM, Serum

## Overview

### Useful For

Diagnosis of *Bartonella* infection, especially in the context of a cat scratch

### Testing Algorithm

For information see Infective Endocarditis: Diagnostic Testing for Identification of Microbiological Etiology.

### Special Instructions

- Infective Endocarditis: Diagnostic Testing for Identification of Microbiological Etiology

### Highlights

This assay can be used as an aid to diagnose recent or past infection with *Bartonella henselae* or *Bartonella quintana.*

### Method Name

Immunofluorescence Assay (IFA)

### NY State Available

Yes

## Specimen

### Specimen Type

Serum

### Specimen Required

**Supplies:** Sarstedt Aliquot Tube 5 mL (T914)
**Collection Container/Tube:**
**Preferred:** Serum gel
**Acceptable:** Red top
**Submission Container/Tube:** Plastic vial
**Specimen Volume:** 0.5 mL
**Collection Instructions:** Centrifuge and aliquot serum into plastic vial.

### Forms

If not ordering electronically, complete, print, and send Infectious Disease Serology Test Request (T916) with the specimen.

### Specimen Minimum Volume

0.15 mL

### Reject Due To

| | |
|---|---|
| Gross hemolysis | Reject |
| Gross lipemia | Reject |

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Serum | Refrigerated (preferred) | 30 days | |
| | Frozen | 30 days | |

## Clinical & Interpretive

### Clinical Information

*Bartonella henselae* and *Bartonella quintana* are small, rod-shaped, pleomorphic, gram-negative bacteria. The human body louse *(Pediculus humanis)* is the proposed vector for *B quintana*. No animal reservoir has been determined for *B quintana*. The domestic cat is believed to be both a reservoir and vector for *B henselae*. Cats may infect humans directly through scratches, bites, or licks, or indirectly through an arthropod vector. Humans remain the only host in which *Bartonella* infection leads to significant disease.

The sight of entry for *Bartonella* is through openings in the skin. Microscopically, *Bartonella* lesions appear as rounded aggregates that proliferate rapidly. These aggregates are masses of *Bartonella* bacteria. Warthin-Starry staining has shown that *Bartonella* organisms can be present within the vacuoles of endothelial cells, in macrophages, and between cells in areas of necrosis. Occasionally organisms are seen in the lumens of vessels. While cutaneous lesions are common, disseminated tissue infection by *Bartonella* has been seen in the blood, lymph nodes, spleen, liver, bone marrow, and heart. *B henselae* has been associated with cat scratch disease (CSD), peliosis hepatitis (PH), bacillary angiomatosis (BA), and endocarditis. *B quintana* has been associated with trench fever, BA, and endocarditis. BA is a vascular proliferative disease usually involving the skin and regional lymph nodes.

CSD begins as a cutaneous papule or pustule that usually develops within a week after animal contact. Regional lymphadenopathy follows and is the predominant clinical feature of CSD. Trench fever was a significant problem during World War I and World War II and is characterized by a relapsing fever and severe pain in the shins. PH and febrile bacteremia syndrome are both syndromes that have afflicted patients with AIDS and patients who are immunocompromised. While trench fever and CSD are usually self-limiting illnesses, the other *Bartonella*-associated diseases can be life-threatening.

Interest in *B quintana* and *B henselae* has recently increased since its increased prevalence in patients with AIDS, a transplanted organ, or suppressed immunity.

### Reference Values

*BARTONELLA HENSELAE*
IgG: <1:128
IgM: <1:20

*BARTONELLA QUINTANA*
IgG: <1:128
IgM: <1:20

### Interpretation

A positive immunofluorescence assay (IFA) IgM (titer >1:20) suggests a current infection with either *Bartonella henselae* or *Bartonella quintana*.

A positive IgG (titer >1:128) suggests a current or previous infection. Increases in IgG titers in serial specimens suggest active infection.

Normal serum specimens usually have an IgG titer of less than 1:128. However, 5% to 10% of healthy controls exhibit a *B henselae* and *B quintana* titer of 1:128. Sera from healthy volunteers rarely show titers of 1:256 or greater. IgM titers in normal serum are typically less than 1:20. IgM titers at 1:20 or greater have not been seen in the normal population.

Molecular testing of tissue for *Bartonella* species nucleic acid is recommended in cases of suspected endocarditis.

### Clinical Reference

1. Rodino KG, Stone E, Saleh OA, Theel ES. The Brief case: Bartonella henselae endocarditis-a case of delayed diagnosis. J Clin Microbiol. 2019;57(9). e00114-19. doi:10.1128/JCM.00114-19
2. Wolf LA, Cherry NA, Maggi RG, Breitschwerdt EB. In pursuit of a stealth pathogen: Laboratory diagnosis of bartonellosis. Clin Micro News. 2014;36(5):33-39

## Performance

### Method Description

The Euroimmun indirect immunofluorescence test is a standardized, in vitro assay for the determination of specific antibodies against *Bartonella henselae* and *Bartonella quintana*. BIOCHIP Mosaics are coated with *B henselae* and *B quintana* infected cells positioned next to each other in one reaction field. Samples are diluted and incubated on the substrate slides. If the reaction is positive, specific antibodies of class IgG and IgM attach to the antigens. In a second step, the attached antibodies are stained with fluorescein-labeled anti-human antibodies and made visible using fluorescence microscopy. Semiquantitative endpoint titers are obtained by testing serial dilutions of positive specimens.(Unpublished Mayo method)

### PDF Report

No

### Day(s) Performed

Monday through Saturday

### Report Available

Same day/1 to 3 days

### Specimen Retention Time

14 days

### Performing Laboratory Location

Rochester

## 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

86611 x 4

### LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| BART | Bartonella Ab Panel, IgG and IgM | 90251-0 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| 15659 | Bart Henselae IgG | In Process |
| 15660 | Bart Henselae IgM | In Process |
| 15661 | Bart Quintana IgG | In Process |
| 15662 | Bart Quintana IgM | In Process |