

Overview

Useful For

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

Highlights

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

Testing Algorithm

See [Infective Endocarditis: Diagnostic Testing for Identification of Microbiological Etiology](#) in Special Instructions.

Special Instructions

- [Infective Endocarditis: Diagnostic Testing for Identification of Microbiological Etiology](#)

Method Name

Immunofluorescence Assay (IFA)

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Specimen Volume: 0.5 mL

Forms

If not ordering electronically, complete, print, and send a [Microbiology Test Request](#) (T244) 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 and 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 an animal contact. Regional lymphadenopathy follows and is the predominant clinical feature of CSD. Trench fever, which was a significant problem during World War I and World War II, 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, in transplant patients, and those with 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 Aug 26;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. Semi quantitative endpoint titers are obtained by testing serial dilutions of positive specimens. (Package insert: IIFT *Bartonella henselae*/*Bartonella quintana* (IgM) Instructions for the indirect immunofluorescence test. Euroimmun US, Inc; Version 7/18/2017)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Saturday; 9 a.m.

Analytic Time

Same day/1 day

Maximum Laboratory Time

3 days

Specimen Retention Time

14 days

Performing Laboratory Location

Rochester

Fees and 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 Regional Manager. 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. This test has not been cleared or approved by the U.S. 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	6954-2
15660	Bart Henselae IgM	6955-9
15661	Bart Quintana IgG	44827-4
15662	Bart Quintana IgM	44825-8