

Overview

Useful For

As an adjunct in the diagnosis of human granulocytic ehrlichiosis

Seroepidemiological surveys of the prevalence of the infection in certain populations

Testing Algorithm

See [Acute Tick-Borne Disease Testing Algorithm](#) in Special Instructions.

Special Instructions

- [Acute Tick-Borne Disease Testing Algorithm](#)

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
Gross icterus	Reject
Other	Heat-inactivated specimen

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	14 days	
	Frozen	14 days	

Clinical and Interpretive

Clinical Information

Anaplasma phagocytophilum, an intracellular rickettsia-like bacterium, preferentially infects granulocytes and forms inclusion bodies, referred to as morulae. *A phagocytophilum* is transmitted by *Ixodes* species ticks, which also transmit *Borrelia burgdorferi* and *Babesia* species. Infection with *A phagocytophilum* is also referred to as human granulocytic anaplasmosis (HGA) and symptoms in otherwise healthy individuals are often mild and nonspecific, including fever, myalgia, arthralgia, and nausea. Clues to the diagnosis of anaplasmosis in a patient with an acute febrile illness after tick exposure include laboratory findings of leukopenia or thrombocytopenia and elevated liver enzymes. HGA is most prevalent in the upper Midwest and in other areas of the United States that are endemic for Lyme disease.

Reference Values

<1:64

Reference values apply to all ages.

Interpretation

A positive result of an immunofluorescence assay (IFA) test (titer > or =1:64) suggests current or previous infection with human granulocytic ehrlichiosis. In general, the higher the titer, the more likely it is that the patient has an active infection.

Seroconversion may also be demonstrated by a significant increase in IFA titers.

During the acute phase of the infection, serologic tests are often nonreactive, PCR testing is available to aid in the diagnosis of these cases (see EHRL / [Ehrlichia/Anaplasma, Molecular Detection, PCR, Blood](#)).

Cautions

Previous episodes of human granulocytic ehrlichiosis may produce a positive serologic result.

In rare instances, clinical evidence of infection may also be derived by direct microscopic examination of Giemsa- or Diff-Quik-stained peripheral blood buffy coat smears, which may reveal clusters of round, dark-purple stained, small dots or clusters of dots (morulae) in the cytoplasm of polymorphonuclear cells. However, this is a very insensitive method.

Performance characteristics have not been established for hemolyzed or lipemic specimens.

Clinical Reference

CDC. Tick-borne diseases of the United States: A Reference Manual for Health Care Providers. Fourth Edition, 2017

Performance

Method Description

The patient's serum is diluted and is placed in microscopic slide wells that have been coated with *Anaplasma phagocytophilum*-infected cells. After incubation, the slides are washed and a fluorescein-isothiocyanate conjugate is added to each well. The slides are then read using a fluorescence microscope and significant fluorescent staining of intracellular organisms constitutes a positive reaction. (Dumler JS, Asanovich KM, Bakken JS, et al: Serologic cross-reactions among *Ehrlichia equi*, *Ehrlichia phagocytophilia*, and human granulocytic ehrlichia. J Clin Microbiol 1995;33:1098-1103; Pancholi P, Kolbert CP, Mitchell PD, et al: *Ixodes dammini* as a potential vector of human granulocytic ehrlichiosis. J Infect Dis 1995;172:1007-1012)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Friday; 9 a.m.

Analytic Time

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 using an analyte specific reagent. Its performance characteristics were 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

86666

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
ANAP	Anaplasma phagocytophilum Ab, IgG,S	23877-4



Result ID	Test Result Name	Result LOINC Value
81157	Anaplasma phagocytophilum Ab, IgG,S	23877-4