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

<table>
<thead>
<tr>
<th>Condition</th>
<th>Action</th>
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</thead>
<tbody>
<tr>
<td>Gross hemolysis</td>
<td>Reject</td>
</tr>
<tr>
<td>Gross lipemia</td>
<td>Reject</td>
</tr>
<tr>
<td>Gross icterus</td>
<td>Reject</td>
</tr>
<tr>
<td>Other</td>
<td>Heat-inactivated specimen</td>
</tr>
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</table>

Specimen Stability Information
Test Definition: ANAP
Anaplasma phagocytophilum Ab, IgG,S

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
<th>Special Container</th>
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<tbody>
<tr>
<td>Serum</td>
<td>Refrigerated (preferred)</td>
<td>14 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frozen</td>
<td>14 days</td>
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**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**

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**

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<tr>
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<td>Anaplasma phagocytophilum Ab, IgG,S</td>
<td>23877-4</td>
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Test Definition: ANAP
Anaplasma phagocytophilum Ab, IgG,S

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<tbody>
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<td>Anaplasma phagocytophilum Ab, IgG,S</td>
<td>23877-4</td>
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