MAYO CLINIC LABORATORIES

Test Definition: PARVS

Parvovirus B19 Antibodies, IgG and IgM, Serum

Overview

Useful For

Serologic detection of recent or past parvovirus B19 infection

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
PARVG	Parvovirus B19 Ab, IgG, S	No	Yes
PARVM	Parvovirus B19 Ab, IgM, S	No	Yes
PARVN	Parvovirus B19 Ab Interpretation	No	Yes

Highlights

This assay may be used to determine the serostatus of patients at risk for infection with parvovirus B19.

Alongside clinical evaluation and other laboratory findings, results may be used to determine if the patient has recent or past infection with parvovirus B19.

Method Name

PARVG, PARVM: Enzyme Immunoassay (EIA)
PARVN: Technical Interpretation

NY State Available

Yes

Specimen

Specimen Type

Serum

Ordering Guidance

This test is intended for patients with at least 7 days of symptoms or asymptomatic individuals with recent exposure to parvovirus B19.

For patients with acute, symptomatic presentation, order either PARVP / Parvovirus B19, Molecular Detection, PCR, Plasma or PARVO / Parvovirus B19, Molecular Detection, PCR, Varies.

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 Information: Centrifuge and aliquot serum into a plastic vial.

Forms

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

Specimen Minimum Volume

0.4 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject
Heat-inactivated specimen	Reject

Specimen Stability Information

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

Clinical & Interpretive

Clinical Information

Parvovirus B19 is the causative agent of fifth disease (ie, erythema infectiosum, slapped cheek syndrome), which usually produces a mild illness characterized by an intensive erythematous maculopapular facial rash. Most outbreaks of parvovirus infection are acquired by direct contact with respiratory secretions and primarily occur in the spring. Close contact between individuals is responsible for infection in schools, daycare centers, and hospitals. The virus has also been associated with fetal damage (hydrops fetalis), aplastic crisis, and arthralgia. Infection during pregnancy presents the risk of transmission to the fetus that may cause intrauterine death. The rate of fetal death following maternal infection ranges between 1% and 9%.

Parvovirus B19 preferentially replicates in erythroid progenitor cells.(1) Infection with parvovirus B19 occurs early in life, and the virus is transmitted by respiratory secretion and occasionally by blood products. The prevalence of parvovirus B19 IgG antibodies increases with age. The age-specific prevalence of antibodies to parvovirus is 2% to 9% of children under 5 years, 15% to 35% in children 5 to 18 years of age, and 30% to 60% in adults (19 years or older).

Most acute infections with parvovirus B19 are diagnosed in the laboratory by serologically detecting IgG and IgM class antibodies to the virus using an enzyme-linked immunosorbent assay testing.

Reference Values

IgG: Negative
IgM: Negative

Interpretation

Parvovirus B19 IgM	Parvovirus B19 IgG	Interpretation
Negative	Negative	No antibody to Parvovirus B19 detected. Acute infection cannot be ruled out as antibody levels may be below the limit of detection. If clinically indicated, a second serum should be submitted in 14 to 21 days.
Negative	Positive	Results suggest past infection.
Equivocal	Positive or negative	Recommend follow-up testing in 10 to 14 days if clinically indicated.
Positive	Positive, negative, or equivocal	Results suggest recent infection and should be interpreted in the context of clinical presentation.

The presence of IgM class antibodies suggests recent infection. The presence of IgG antibodies only is indicative of past exposure.

Both IgG and IgM may be present at or soon after onset of illness and reach peak titers within 30 days. Because IgG antibody may persist for years, diagnosis of acute infection is made by the detection of IgM antibodies.

Cautions

Specimens collected prior to seroconversion may yield negative IgM or IgG antibody results, while specimens collected after IgM antibody levels have begun to decline may yield negative IgM antibody results. Follow-up testing of convalescent samples may be beneficial to establish infection status.

The continued presence or absence of antibodies cannot be used to determine the success or failure of therapy.

Test results of specimens from immunocompromised patients may be difficult to interpret.

Testing should not be performed as a screening procedure for the general population. Testing should only be done when clinical evidence suggests the diagnosis of parvovirus B19-associated disease.

The performance of this test has not been established on neonates and immunocompromised patients.

Specimens containing antinuclear antibodies may produce equivocal or positive test results in the IgM assay.

Epstein-Barr virus-positive specimens may produce positive or equivocal test results in the IgM assay.

Assay performance characteristics have not been established for matrices other than serum.

Clinical Reference

1. Brown KE, Young NS. Parvovirus B19 in human disease. Ann Rev Med. 1997;48:59-67
2. Reno ML, Cox CR, Powell EA. Parvovirus B19: A Clinical and Diagnostic Review. Clinical Microbiology Newsletter. 2022 Jun 15;44(12):107-14

Performance

Method Description

Antibody to parvovirus B19 is detected by a sandwich enzyme immunoassay for the detection of IgG or IgM class antibodies in serum or plasma. Specific parvovirus B19 antibodies in specimens bind to antigen-coated microtiter wells. Following a wash step, peroxidase-labeled rabbit-antihuman IgG is added that binds to parvovirus antibody. The antigen-antibody complex is detected by the addition of substrate, which turns blue in the presence of the enzyme peroxidase.(Anderson LJ, Tsou R, Parker RA, et al: Detection of antibodies and antigens of human parvovirus B19 by enzyme-linked immunosorbent assay. J Clin Microbiol. 198624[4]:522-526; Package insert: Parvovirus B19 IgG and IgM Enzyme Immunoassay. DiaSorin; 06/2019)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

Same day/1 to 3 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 has been modified from the manufacturer's instructions. 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 US Food and Drug Administration.

CPT Code Information

86747 x 2

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
PARVS	Parvovirus B19 Ab, IgG and IgM, S	34950-6

Result ID	Test Result Name	Result LOINC® Value
PARVG	Parvovirus B19 Ab, IgG, S	29660-8
PARVM	Parvovirus B19 Ab, IgM, S	40658-7
PARVN	Parvovirus B19 Ab Interpretation	58737-8