MAYO CLINIC LABORATORIES

Test Definition: HANGM

Hantavirus IgM and IgG, ELISA, Serum

Overview

Useful For

Aid in the diagnosis of Hantavirus infection

Profile Information

Test Id	Reporting Name	Available Separately	Always Performed
HANTM	Hantavirus IgM, S	No	Yes
HANTG	Hantavirus IgG, S	No	Yes
HANTI	Hantavirus IgM/IgG, Interpretation	No	Yes

Highlights

This test detects IgM and IgG class antibodies in serum against two Hantavirus strains, Sin Nombre virus and Andes virus. However, it does not differentiate between the two strains.

Method Name

HANTM, HANTG: Enzyme-Linked Immunosorbent Assay (ELISA)
HANTI: Technical Interpretation

NY State Available

No

Specimen

Specimen Type

Serum

Ordering Guidance

This test can be used as an aid for diagnosis of hantavirus infection in patients with appropriate exposure history.

Additional Testing Requirements

Serologic testing should be performed alongside other diagnostic methods and epidemiologic exposure risk assessment.

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: 0.6 mL Serum
Collection Instructions: Centrifuge and aliquot serum into a plastic vial

Specimen Minimum Volume

Serum: 0.5 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)	21 days	
	Ambient	7 days	
	Frozen	30 days	

Clinical & Interpretive

Clinical Information

Hantaviruses are a group of rodent-borne viruses, with different strains tied to specific regions and host species, causing either hantavirus pulmonary syndrome (HPS) in the Americas or hemorrhagic fever with renal syndrome (HFRS) in Europe and Asia. Severity varies by strain, from milder infections like Puumala and Seoul viruses to more severe ones like Sin Nombre, Andes, and Hantaan, with Andes virus uniquely capable of limited person-to-person transmission. In the US, the principal syndrome is HPS, most commonly associated with the deer mouse (*Peromyscus maniculatus*), with cases concentrated in the Southwest but reported nationwide. Risk factors include activities that disturb rodent-infested environments (eg, cleaning cabins, barns, or sheds), occupational exposure (construction, farming), and peridomestic infestations.

After an incubation period of about 1 to 6 weeks, HPS typically begins with a nonspecific prodrome of fever, myalgias (often prominent in the thighs and back), fatigue, and headache, sometimes accompanied by gastrointestinal symptoms. Within several days, patients can progress rapidly to cough and noncardiogenic pulmonary edema leading to hypoxemic respiratory failure and shock. Laboratory findings often include thrombocytopenia, hemoconcentration, leukocytosis with left shift (elevated white blood cell count with increased immature neutrophils), and elevated lactate dehydrogenase. Diagnosis is confirmed by serology (IgM and rising IgG antibodies), polymerase chain reaction analysis for viral RNA, or immunohistochemistry in specialized settings. Early recognition is critical due to the potential for rapid deterioration.

Management is primarily supportive, with early intensive care monitoring, careful fluid management, and prompt

initiation of advanced respiratory support, including mechanical ventilation; extracorporeal membrane oxygenation (ECMO) may be lifesaving in severe cases. There is no widely approved specific antiviral therapy for HPS. Mortality for HPS remains high (approximately 30%-40%). Prevention focuses on minimizing rodent exposure through environmental control, safe cleanup practices (wet disinfection, avoiding aerosolization), and public health education.

Reference Values

IgM: Negative
IgG: Negative

Reference values apply to all ages.

Interpretation

IgM result	IgG result	Interpretation
Negative	Negative	No antibodies to Hantavirus (Sin Nombre or Andes strains) detected. False-negative results may occur in patients tested too soon following infection or in immunocompromised patients.
Negative	Borderline	Possible detection of IgG against Hantavirus (Sin Nombre or Andes strains, unable to differentiate). Consider repeat testing on a new specimen to confirm.
Negative	Positive	IgG against Hantavirus (Sin Nombre or Andes strains, unable to differentiate) detected. Results suggest prior exposure or infection with Hantavirus.
Borderline	Negative	Possible detection of IgM against Hantavirus (Sin Nombre or Andes strains, unable to differentiate). Consider repeat testing on a new specimen to confirm.
Borderline	Borderline	Possible detection of IgM and IgG against Hantavirus (Sin Nombre or Andes strains, unable to differentiate). Consider repeat testing on a new specimen to confirm.
Borderline	Positive	IgG against Hantavirus (Sin Nombre or Andes strains, unable to differentiate) detected. Possible detection of IgM against Hantavirus (Sin Nombre or Andes strains, unable to differentiate). Consider repeat testing on a new specimen to confirm IgM results.
Positive	Negative	IgM against Hantavirus (Sin Nombre or Andes strains, unable to differentiate) detected. Results suggest recent infection with Hantavirus.
Positive	Borderline	IgM against Hantavirus (Sin Nombre or Andes strains, unable to differentiate) detected. Possible detection of IgG against Hantavirus (Sin Nombre or Andes strains, unable to differentiate). Consider repeat testing on a new specimen to confirm IgG results.
Positive	Positive	IgM and IgG against Hantavirus (Sin Nombre or Andes strains, unable to differentiate) detected. Results suggest recent

		infection with Hantavirus.

Cautions

False-negative results may occur in patients that are tested either too soon following infection or are significantly immunocompromised.

This assay detects IgM and IgG antibodies against antigens from the Sin Nombre and Andes Hantavirus strains; however, it will not differentiate between the two strains. It is unknown if this assay will detect antibodies to other Hantavirus strains.

Results must be interpreted alongside epidemiological exposure history and clinical presentation and diagnosis should not be made solely on serologic results from this assay.

False-positive results may occur in patients with recent cytomegalovirus infection.

Results from this assay are qualitative only.

Clinical Reference

1. Romeo MA, Tofani S, Lapa D, et al. Orthohantaviruses: An overview of the current status of diagnostics and surveillance. Viruses. 2025;17(5):622
2. Koroknai A, Nagy A, Nagy O, et al. Human Hantavirus infections in Hungary (2018-2025): Epidemiology, molecular detection across clinical sample types, and phylogenetic analysis. Viruses. 2026;18(3):366

Performance

Method Description

IgM:
The test kit contains microplate strips each with 8 break-off reagent wells coated with recombinant Hanta virus antigens. In the first reaction step, diluted patient samples are incubated in the wells. In the case of positive samples, specific IgM (also IgA and IgG) antibodies will bind to the antigens. To detect the bound antibodies, a second incubation is carried out using an enzyme-labelled anti-human IgM (enzyme conjugate) catalyzing a color reaction.(Package insert: Anti-Hanta Virus Pool 2 "America" ELISA (IgM) Test Instructions. EUROIMMUN; EI_278h-2M_A_UK_C04, Version: 17/05/2021)

IgG:
The test kit contains microplate strips each with 8 break-off reagent wells coated with recombinant Hanta virus antigens. In the first reaction step, diluted patient samples are incubated in the wells. In the case of positive samples, specific IgG (also IgA and IgM) antibodies will bind to the antigens. To detect the bound antibodies, a second incubation is carried out using an enzyme-labelled anti-human IgG (enzyme conjugate) catalyzing a color reaction.(Package insert: Anti-Hanta Virus Pool 2 "America" ELISA (IgG) Test Instructions. EUROIMMUN; EI_278h-2G_A_UK_C04, Version: 17/05/2021)

PDF Report

No

Day(s) Performed
Wednesday, Friday

Report Available
Same day/1 to 5 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 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
86790 x 2

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
HANGM	Hantavirus IgM/IgG, ELISA, S	114479-9

Result ID	Test Result Name	Result LOINC® Value
HANTG	Hantavirus IgG, S	113095-4
HANTI	Hantavirus IgM/IgG, Interpretation	69048-7
HANTM	Hantavirus IgM, S	113094-7