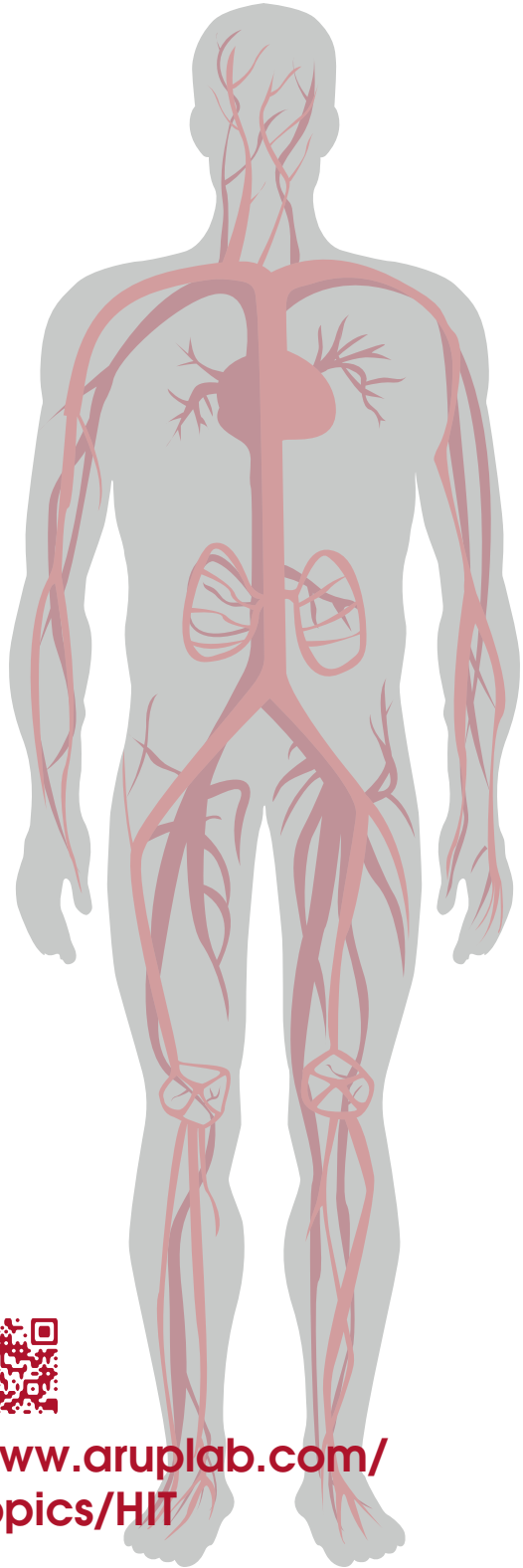

www.aruplab.com/topics/HIT

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keyword: HIT

A nonprofit enterprise of the University of Utah and its Department of Pathology

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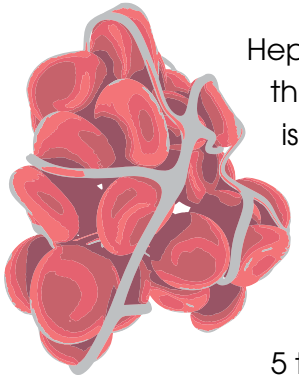
Heparin-Induced Thrombocytopenia (HIT)

testing at ARUP Laboratories

ARUP LABORATORIES



Heparin-induced thrombocytopenia (HIT) is a complication of heparin therapy. HIT is characterized by a **30–50% drop in platelet count** 5 to 10 days after heparin therapy is started and places a patient at increased risk of serious complications from blood clots.

Possible complications of HIT include the following:

- Deep-vein thrombosis, pulmonary emboli
- Myocardial infarction, stroke
- Compromised blood blow to limbs
- Skin necrosis, end-organ damage
- Death

Serotonin Release Assay (SRA) Testing Features and Benefits

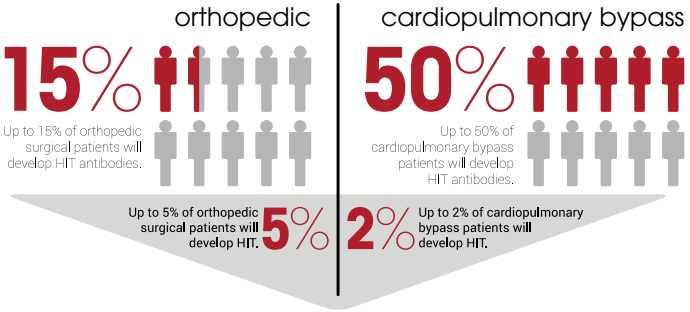
- Gold-standard confirmatory test
- Complex, highly sensitive and specific functional assay that uses high-performance liquid chromatography (HPLC) to measure serotonin released when platelets are activated by HIT antibodies
- Measures heparin-dependent platelet activation
- Medical director review and consultation available

Method Description

ARUP performs the SRA test by using washed donor platelets incubated with patient sera and low (therapeutic) and high concentrations of heparin. In the presence of low (therapeutic) heparin concentrations, HIT-positive sera result in platelet activation and platelet granule release. The platelet granules contain serotonin, making it a surrogate marker for platelet activation. Any serotonin released from the donor platelets is identified and quantified by high-performance liquid chromatography (HPLC). The results are expressed as percent release (amount of serotonin released/total amount of platelet serotonin).

Prevalence

Orthopedic and cardiac bypass surgical patients develop HIT syndrome more frequently than medical or obstetric patients.



venous or arterial thrombosis

50% If undiagnosed and untreated, up to 50% of patients with HIT will develop venous or arterial thrombosis.

Diagnosis

A prompt diagnosis is critical for patient management. Two types of assays are available:

FUNCTIONAL ASSAY	ELISA
Serotonin release assay (SRA) is a highly specific, functional assay that detects whether antibodies in complex with heparin/PF4 are capable of activating platelets in the presence of heparin.	ELISA assays are sensitive for HIT antibody detection but have poor specificity for clinical HIT, as they are incapable of determining if the antibodies have platelet-activating properties.

Laboratory Testing

ARUP TEST CODE AND NAME	
2005631	Serotonin Release Assay (Heparin-Dependent Platelet Antibody), Unfractionated Heparin
0051249	Heparin-Induced Thrombocytopenia (HIT) Antibodies, PF4 IgG/IgM/IgA by ELISA with Reflex to Serotonin Release Assay (Heparin-Dependent Platelet Antibody), Unfractionated Heparin
0051052	Heparin-Induced Thrombocytopenia (HIT) Antibodies, PF4 IgG/IgM/IgA by ELISA

How Does HIT Occur?

When a person is given heparin, the drug can combine with a substance called platelet factor 4 (PF4) found in platelets and form a complex. In some patients, the heparin-PF4 complex triggers an immune response, which results in an antibody being produced against the heparin-PF4 complex. When the antibodies bind to the heparin-PF4 complex on the surface of platelets, the platelets activate, leading to a drop in platelet count and increased risk of thrombosis. Activated platelets release additional PF4, causing the cycle to continue.