

Acute Phase Reactants



PLAY PICMONIC

Definition

Inflammation Markers

In-flame Marker

Inflammation markers are blood tests that can help detect inflammation in the body caused by diseases such as infections, cancers, and autoimmune conditions.

Positive (Upregulated)

Ferritin

Ferret-tin

Ferritin is a protein that stores iron inside body cells and binds iron to inhibit microbial iron scavenging. The ferritin study is used to determine a patient's iron level, and low ferritin can lead to iron deficiency anemia. On the other hand, high ferritin shows that the body has too much iron, which can be seen in hemochromatosis.

Fibrinogen

Fiber-jam

Fibrinogen, also known as coagulation factor I, is a protein produced in the liver that travels to the bleeding site to create blood clots. It promotes endothelial repair and correlates with ESR. Low fibrinogen should be suspected in patients with excessive bleeding. High fibrinogen can be suspected in patients with inflammation, injury, acute stress, pregnancy, and aging. It is also associated with the risk of deep venous thrombosis.

Serum Amyloid A

Syrup Armadillo (A) Apple

A patient can be seen with a high level of serum amyloid A if they have a long-lasting infection or inflammatory diseases, such as rheumatoid arthritis, chronic infections, inflammatory bowel disease, and vasculitis. Prolonged elevation of serum amyloid A can lead to secondary amyloidosis.

Hepcidin

Happy-seed

Hepcidin is a protein produced by the liver that works as an iron regulator. It regulates iron absorption, recycles it in macrophages, and releases it from iron storage (hepatocytes and enterocytes). High hepcidin levels can be seen in anemias of inflammation and anemia of chronic disease. Low hepcidin levels can be seen in iron-deficiency anemia, hereditary hemochromatosis, diabetes mellitus type 2, and hepatitis C.

Haptoglobin

Happy-goblin

Haptoglobin is a protein that binds extracellular hemoglobin, which helps to protect hemoglobin from oxidative stress. Low serum haptoglobin indicates increased hemolysis intravascular, which can be seen in paroxysmal nocturnal hemoglobinuria.

Procalcitonin

[Pro-cow-throne](#)

An increased procalcitonin serum can be seen in infections caused by bacteria, and it does not increase in viral infections. In normal conditions, procalcitonin is secreted by the thyroid gland's parafollicular (C cells).

C-Reactive Protein

[C-Reaction Protein-ribbon](#)

C-reactive protein is a part of positive acute phase reactants and acts as an opsonin, promotes phagocytosis, and fixes complement. It is commonly checked as a nonspecific sign of continuing inflammation.

Alpha-1 Antitrypsin

[Afro \(1\) Wand Ant-tie Trips-sun](#)

Alpha-1 antitrypsin works by protecting cells from neutrophil elastase activity. It can be seen as low in certain conditions, such as hepatitis, liver cirrhosis, and panacinar emphysema.

Negative (Downregulated)

Albumin

[Album-man](#)

Albumin is a part of the negative acute phase reactants, which means that albumin reduces in acute inflammation. This is caused by the reduced production of the liver, as well as proteolysis. Albumin production in acute-phase reactions decreased to conserve amino acids for positive acute-phase reactants.

Transferrin

[Train-fern](#)

Transferrin is a part of the negative acute phase reactant, which is internalized by macrophages to sequester iron.

Transthyretin

[Train-thigh-red-tin](#)

Transthyretin is a part of the negative acute-phase reactant known as prealbumin, and its production decreased to conserve amino acids for positive acute-phase reactants.

Systemic Manifestation

Fever

[Fever-beaver](#)

Acute phase reactants action will cause fever due to its inflammation process. Fever is the classical manifestation seen in patients.

Leukocytosis

[Luke-side-toe](#)

The rise of acute phase reactants can cause leukocytosis.