



# AL-MUSTAQBAL UNIVERSITY

Department of Medical laboratory Techniques  
Department

*Clinical Biochemistry (4<sup>th</sup> stage )*

**(Determination of Albumin )**



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## Albumin

Plasma proteins are separated into three major groups:

- a) Fibrinogen (4%).
- b) Globulins (38%).
- c) Albumin (58%).

Is the most abundant protein in the blood, constituting 2/3 of total proteins. Albumin is a protein that belongs to the globular proteins family synthesized by hepatocytes in the liver and excreted in very high quantities in the blood, about 12g / day, which accounts for 25% of total protein production in the liver. The disintegration of the large portion of the albumin is also done in the liver, too, after a life span of 17-20 days. Minimal amounts of albumin are also stored in the liver. Most of the albumin (about 60%) is present in the body fluids outside the blood vessels, while the remaining 40% is present in the serum.

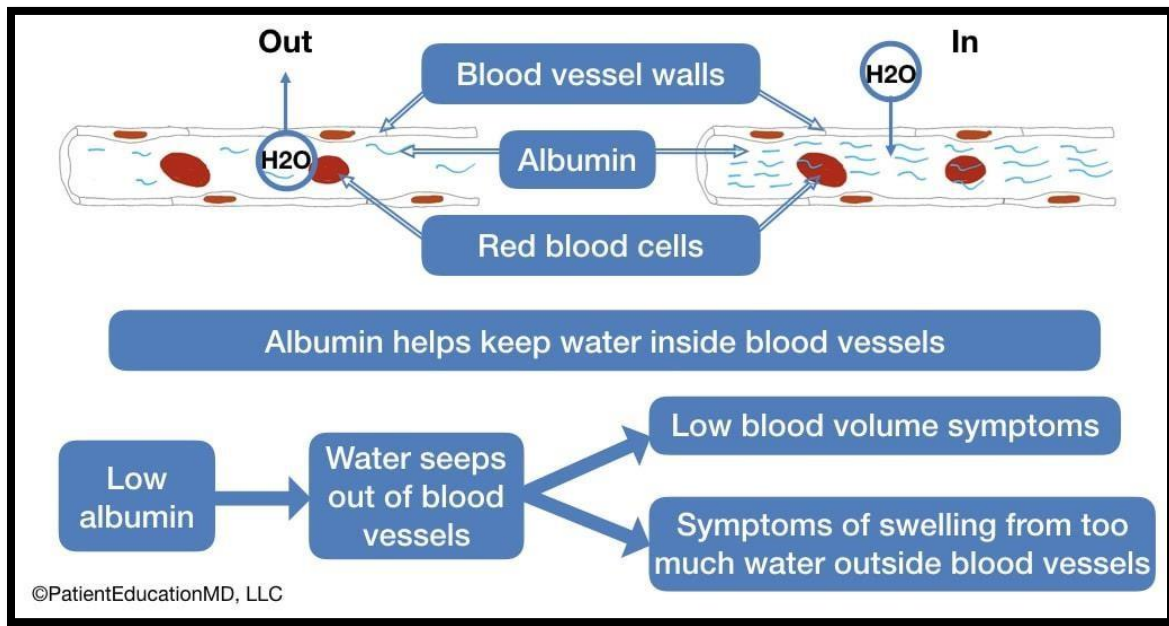
### The albumin has two functions in the human body

1\_ It maintains the intravascular pressure, preventing fluid leakage into the extravascular space. Without enough albumin, fluid can leak out of your blood and build up in your lungs, abdomen, or other parts of your body.

2\_ Albumin functions as a carrier of several different endogenous (e.g., long chain fatty-acids, steroids) and exogenous (various medications) compounds in the blood. The binding of those substances to albumin can reduce their toxicity.

3\_ Albumin has an important role in the endogenous metabolism of calcium, fatty acids, bilirubin, drugs, and hormones.

Serum contains a large variety of proteins. Albumin and the various globulins constitute the bulk of the total amount of proteins present in serum.



The normal range for albumin is 3.5 g/dL.

The most common cause of hyperalbuminemia, or high serum albumin levels, is dehydration. This is because there is a loss of intravascular fluid .

Hypoalbuminemia is the condition in which the albumin levels in the blood are lower than normal levels (below 3.5 g / dl). This condition usually occurs after a decrease in the production of albumin in the liver, which may result from liver cell injury and damage to albumin production capacity, or may result from a decrease in the consumption of amino acids, which form the basic units in proteins, due to a diet. Chronic liver disease, such as chronic viral hepatitis and other liver cirrhosis, is the most common cause of low levels of

albumin in the blood following the death of hepatic cells and serious damage to the liver's ability to produce

A low albumin may be seen in several conditions such as

- 1-Infection
- 2-Burns
- 3-Surgery
- 4-Chronic illness
- 5-liver disease
- 6-inflammation
- 7-kidney disease

