

White blood cells (WBCs) or leukocytes

Definition: are the colorless and nucleated formed elements of blood (leuko is derived from Greek word leukos = white). Compared to RBCs, the WBCs are larger in size and lesser in number. Its **function**, important like RBCs because of their role in defense mechanism of body and protect the body from invading organisms by acting like soldiers.

Differences between WBCs and RBCs

Feature	WBCs	RBCs
Color	Colorless	Red
Number	Less: 4,000 to 11,000/cu mm	More: 4.5 to 5.5 million/cu mm
Shape	Irregular	Disk-shaped and biconcave
Nucleus	Present	Absent
Granules	Present in some types	Absent
Types	Many types	Only one type
Lifespan	Shorter ½ to 15 days	Longer 120 days

Classification

Based on the presence or absence of granules in the cytoplasm, the leukocytes are classified into two groups:

1. Granulocytes

Depending upon the staining property of granules, the granulocytes are classified into three types:

- ❖ Neutrophils with granules taking both acidic and basic stains.
- ❖ Eosinophils with granules taking acidic stain.
- ❖ Basophils with granules taking basic stain.

2. A-granulocytes

A-granulocytes have plain cytoplasm without granules. Tare of two types:

- ❖ Monocytes.
- ❖ Lymphocytes.

Normal White Blood Cell Count

Total WBC count (TC): 4,000 to 11,000/cu mm of blood.

Functions of White Blood Cells

Generally, WBCs play an important role in defense mechanism. These cells protect the body from invading organisms or foreign bodies, either by destroying or inactivating them. However, in defense mechanism, each type of WBCs acts in a different way.

- 1- Neutrophils play an important role in the defense mechanism of the body. Along with monocytes, the neutrophils provide the first line of defense against the invading microorganisms.
- 2- Eosinophils play an important role in the defense mechanism of the body against the parasites and its count increases also during allergic diseases like asthma.
- 3- Basophils play an important role in healing processes. So their number increases during healing process.
- 4- Lymphocytes play an important role in immunity.