

## **Mastery Series: Types of Leukocytes**

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1. Where do WBCs develop?
2. What is pus?
3. Why is cloudy CSF cause for concern?
4. 3 granulocytes are:
5. 2 major kinds of agranulocytes are:
6. 3 kinds of lymphocytes are:
7. 2 kinds of antigen-presenting cells are:
8. Which type of leukocyte:
  - a. Secretes bleach
  - b. Damages helminths and fungus, in particular
  - c. Releases histamine in the blood and in mucous membranes to cause inflammation
  - d. Are adept at destroying autoimmune or cancerous cells
  - e. Are the “generals” of adaptive immunity
  - f. Make antibodies
  - g. Might be considered the “link” between innate (general) and adaptive (specialized) immunity?
  - h. Make memory cells that patrol for years to prevent future invasions by a pathogen
9. What are “band” cells?
10. What is phagocytosis?
11. Which two types of leukocytes are particularly good at phagocytosis?

## **Mastery Series ANSWERS: Types of Leukocytes**

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1. Where do WBCs develop?  
**Red bone marrow; T cells further mature in lymphatic tissue, such as lymph nodes**
2. What is pus?  
**Combination of WBCs, pathogens, and damaged cells/fluids. Some of the pathogens are probably still alive, so pus can transmit disease.**
3. Why is cloudy CSF cause for concern?  
**Indicates WBCs and an infection somewhere in the central nervous system**
4. 3 granulocytes are:  
**Neutrophils: neutral-loving phagocytosing all-purpose fighters that secrete bleach and peroxide**  
**Basophils: basic-dye-loving purple-staining, histamine-releasing; similar to mast cells**  
**Eosinophils: acid-dye-loving, red-staining, worm and protist-killing**
5. 2 major kinds of agranulocytes are:  
**Macrophages: phagocytic, important in innate immunity (first line of defense); and instrumental in adaptive immunity (taking out a “recognized” pathogen)**  
**Lymphocytes: Perform adaptive immunity in which they recognize and specifically block current and future attempts by a particular pathogen. They can “learn” and “remember”**
6. 3 kinds of lymphocytes are:  
**T cells—helper T cells start adaptive immunity by stimulating other kinds of WBCs; cytotoxic T cells actively take out targeted cells; suppressor T cells stop the immune response once the threat has been neutralized.**  
**B cells—make antibodies**  
**NK cells—destroy virally infected cells; cancerous cells; and autoimmune WBCs**
7. 2 kinds of antigen-presenting cells are: **dendritic cells and macrophages**
8. Which type of leukocyte:
  - a. Secretes bleach: **neutrophil**
  - b. Damages helminths and fungus, in particular: **eosinophils**
  - c. Releases histamine in the blood and in mucous membranes to cause inflammation—**basophils and mast cells**
  - d. Are adept at destroying autoimmune or cancerous cells—**NK cells and Cytotoxic T cells**
  - e. Are the “generals” of adaptive immunity—**helper T cells**
  - f. Make antibodies—**B cells**
  - g. Might be considered the “link” between innate (general) and adaptive (specialized) immunity? – **macrophages and dendritic cells (APCs)**
  - h. Make memory cells that patrol for years to prevent future invasions by a pathogen—**T cells and B cells**
9. **immature neutrophils; too many in bloodstream may indicate infection**
10. What is phagocytosis?—**engulfing of other cells or parts of cells**
11. **Macrophages and neutrophils**