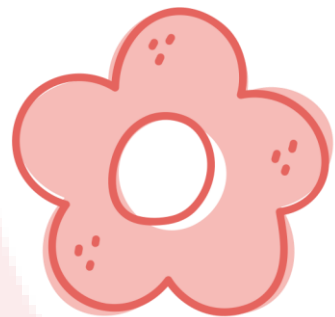


Cardiovascular system



By

Dr. Benan Aad



StructureThe Heart



The heart is composed of several main parts that work together to pump blood throughout the body. Here is the structure of the heart with medical terminology:

1. Pericardium: A double-layered membrane that surrounds the heart, protecting it and reducing friction during beats.

2. Heart Wall: Consists of three layers:

Endocardium: The inner lining of the heart chambers.

Myocardium: The middle layer made of muscle tissue responsible for contractions.

Epicardium: The outer layer that covers the heart.



3. Heart Chambers:

Right Atrium: Receives deoxygenated blood from the body via the larger and lesser vena cava.

Left Atrium: Receives oxygenated blood from the lungs via the pulmonary veins.

Right Ventricle: Pumps deoxygenated blood to the lungs via the pulmonary artery.

Left Ventricle: Pumps oxygenated blood to the whole body through the aorta.





4. Heart Valves:

Prevent blood backflow and control its flow within the heart:

Tricuspid Valve: Between the right atrium and right ventricle.

Mitral Valve: Between the left atrium and left ventricle.

Pulmonary Valve: Between the right ventricle and pulmonary artery.

Aortic Valve: Between the left ventricle and the aorta.

5. Major Blood Vessels:

Veins: Such as the superior vena cava, inferior vena cava, and pulmonary veins.

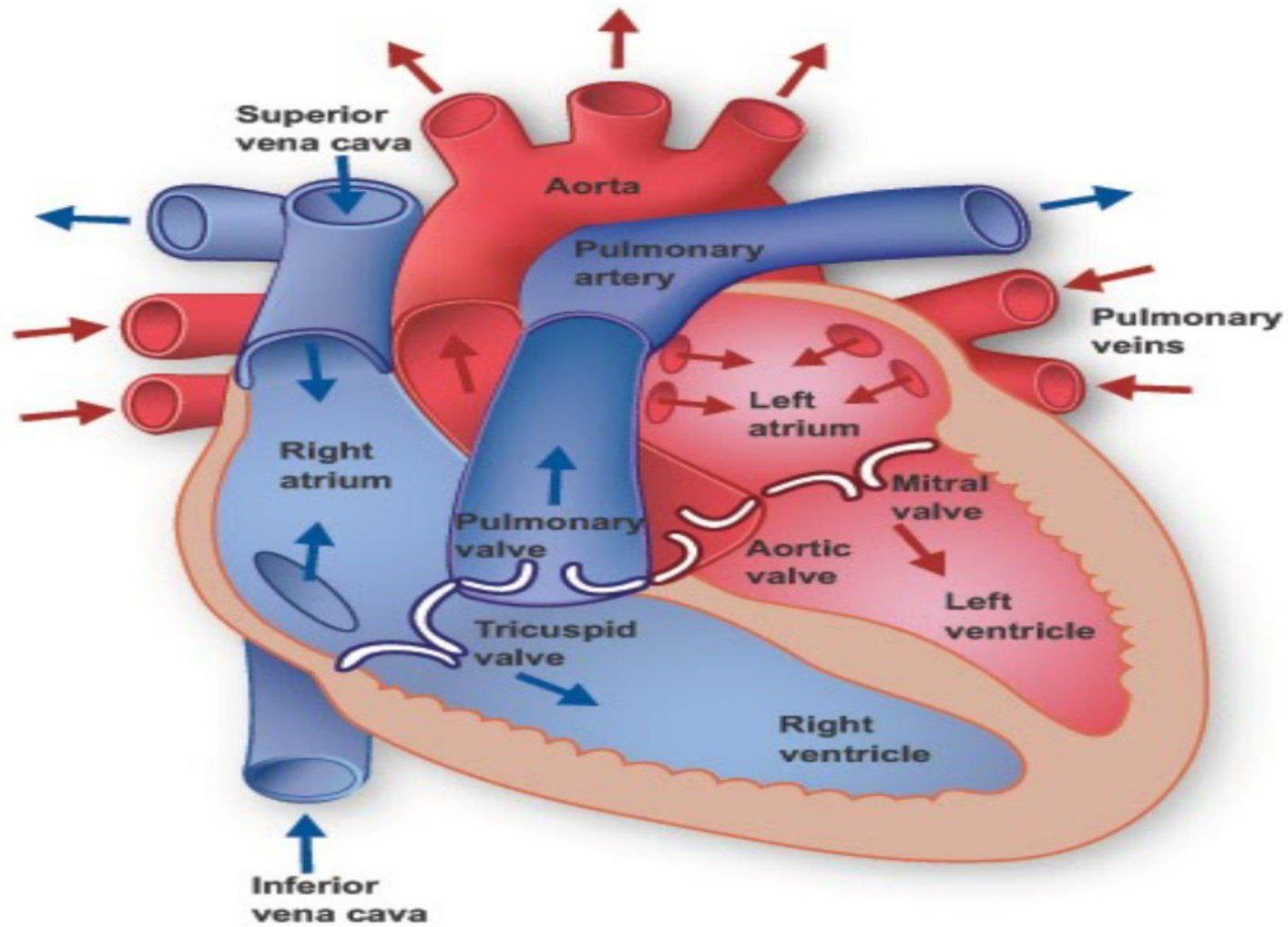
Arteries: Such as the pulmonary artery and aorta.

6. Cardiac Conduction System:

Sinoatrial (SA) Node: The natural pacemaker of the heart.

Atrioventricular (AV) Node: Regulates electrical signals between the atria and ventricles.





Structure of Blood



1) Fluid Portion

Plasma consisting of::

- Water
- Proteins
- Salts
- Nutrients
- Vitamins
- Hormones



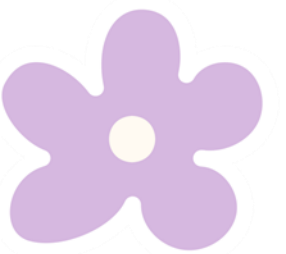
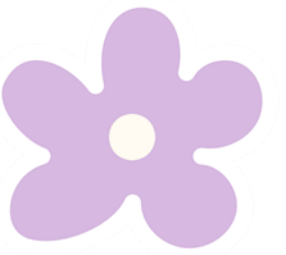
Plasma Proteins

1-Albumin

2-globulins

3-Fibrinogen

4-prothrombin



2) Cellular Portion

-Blood cells consisting of::

- red blood cells:Hemoglobin---heme/ globin
- white blood cells:

Two main groups are

1)Granulocytes

Neutrophils

Eosinophils

Basophils

2)Agranulocytes

Monocytes

Lymphocytes

- platelets

Also known as thrombocytes.





Abbreviation

Meaning

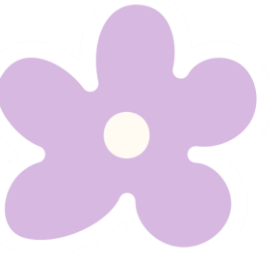


AcG-----	accelerator globulin
AF-----	atrial fibrillation
AS-----	aortic stenosis
ASCVD-----	Arteriosclerotic cardiovascular disease
ASD-----	atrial septal defect
ASHD-----	arteriosclerotic heart disease
AV-----	atrioventricular



Abbreviation Meaning

BP-----	blood pressure
CABG-----	coronary artery bypass graft
CAD-----	coronary artery disease
Cath-----	catheter
CCU-----	coronary care unit
CHD-----	coronary heart disease
CHF-----	congestive heart failure

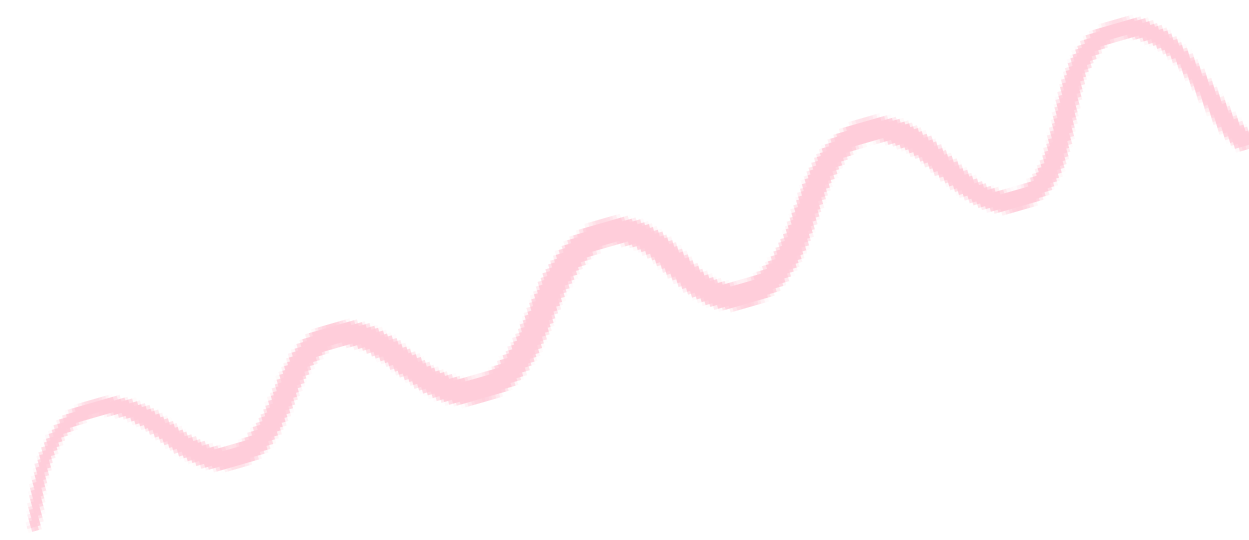


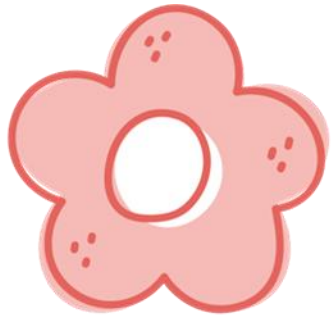


Abbreviation

Meaning

CO-----	cardiac output
CPK-----	creatine phosphokinase
CPR-----	cardiopulmonary resuscitation
CVA-----	cerebrovascular accident
CVD-----	cardiovascular disease
DSA-----	digital subtraction angiography
DVT-----	deep venous thrombosis





<u>Abbreviation</u>	<u>Meaning</u>
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APTT-----	activated partial thromboplastin time
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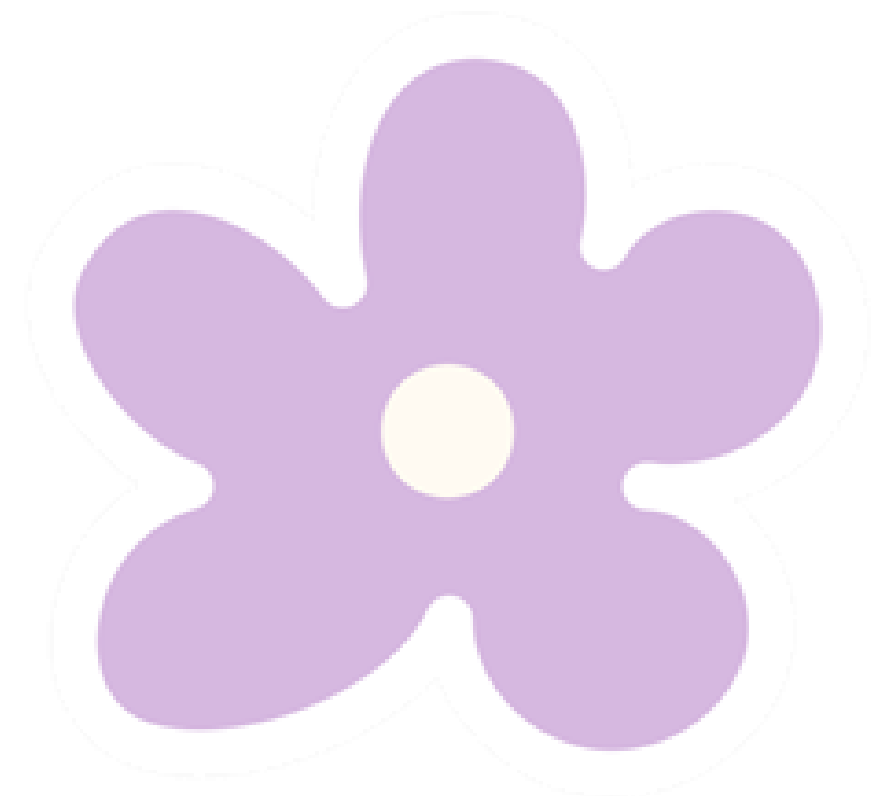
Baso-----	basophil
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BCP-----	biochemistry panel
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BMT-----	bone marrow transplant
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CBC-----	complete blood count
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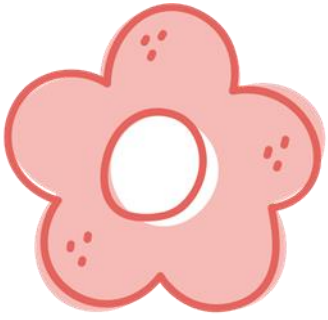
Eos-----	eosinophils
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Abbreviation

Meaning

ESR	erythrocyte sedimentation rate
G-CSF	granulocyte colony stimulating factor
GM-CSF	granulocyte macrophage colony stimulating factor
HCT	hematocrit
HGB	Hemoglobin
MCH	mean corpuscular hemoglobin
RBC	red blood cell count
SR	sedimentation rate
seg	segmented mature white blood cells
WBC	white blood cell count



MCV	mean corpuscular volume
mono	monocyte
PCV	packed cell volume
PLT	platelet count
PMN	polymorphonuclear neutrophil
PT	prothrombin time
PTT	partial thromboplastin time



The lymphatic system

is an essential part of the immune system, responsible for draining excess fluid from tissues, transporting absorbed fats from the intestines, and combat infections through lymph nodes and immune cells. Here are some key medical terms related to the lymphatic system:

1. Main Components of the Lymphatic System:

Lymph: A clear fluid containing white blood cells (especially lymphocytes)

Lymph Nodes: Small structures that filter lymph fluid and contain immune cells

Lymph Vessels: Channels that carry lymph throughout the body, similar to blood vessels but without a central pump (like the heart).

Spleen: An organ located in the upper left abdomen

Thymus: A gland behind the sternum

Tonsils: Lymphoid tissues in the throat



2. Types of Lymphocytes:

Lymphocytes: White blood cells responsible for immunity, including:

T-Cells: Play a major role in cellular immunity.

B-Cells: Produce antibodies to combat infections.

Natural Killer (NK) Cells: Destroy virus-infected or cancerous cells.



Immune system



The components of the immune system:

1. Main Organs of the Immune System:

A) Bone Marrow:

A spongy tissue found inside the bones, where immune cells like white blood cells are produced.

B) Thymus:

A small gland located in the chest behind the sternum, where T-cells mature.

C) Lymph Nodes:

Small glands throughout the body containing immune cells like B-cells and T-cells. They filter lymphatic fluid from bacteria and viruses.

D) Spleen:

An organ located on the left side of the abdomen, responsible for destroying damaged cells and filtering the blood, while containing immune cells that interact with microbes.

E) Tonsils:

Located in the throat, they help filter microbes entering the body via the mouth or nose.

F) Intestines:

The intestines contain immune cells that defend the body against microbes that may enter through food or drink.

2. Immune Cells:

A)T-cells:

Mature T-cells migrate from the thymus to lymphatic tissues and play an important role in the immune response by identifying infected or abnormal cells

B)B-cells:

B-cells are responsible for producing antibodies that bind to microbes and viruses to neutralize or destroy them.

C)Natural Killer (NK) Cells:

Specialized immune cells that destroy virus-infected or cancerous cells.

D)Phagocytes:

Cells such as macrophages that engulf and destroy foreign bodies like bacteria and viruses.

E)Helper T-cells:

T-cells that help activate other immune cells for a more effective immune response.

F)Regulatory T-cells:

T-cells that help regulate and maintain balance in the immune system by controlling immune responses.

3. Protein Molecules:

A)Antibodies:

Proteins produced by B-cells that bind to foreign bodies like viruses and bacteria, helping to neutralize them.

B)Antigens:

Substances that trigger an immune response in the body, such as proteins on the surface of microbes or cancer cells.

C)Cytokines:

Proteins released by immune cells that help regulate the immune response by promoting or inhibiting immune cell activity.



4. Fluid Components:

A)Blood:

Contains immune cells like lymphocytes (T-cells and B-cells) as well as immune proteins.

B)Lymph:

A fluid that contains immune cells, collected by the lymphatic system from tissues and returned to the bloodstream.

5. Immune Mechanisms:

A)Phagocytosis:

The process by which immune cells like macrophages surround and destroy foreign bodies or microbes.

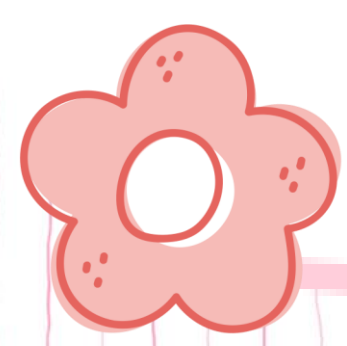
B)Adaptive Immunity:

The body's specific immune response to microbes, involving antibodies and specialized T-cells.

C)Innate Immunity:

The body's rapid, non-specific immune response to microbes, including phagocytosis and natural barriers like the skin and mucous membranes.





Thank You