



Ch. 17: BLOOD

Ch. 18: HEART

Ch. 19: BLOOD VESSELS

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Blood Composition= Hematocrit

<u>Formed Elements</u>	<u>Plasma</u>
45% RBC + <1% WBC + <1% platelet	55%
Solid portion	92% water (blood matrix)
Living	Non-living

BLOOD PLASMA

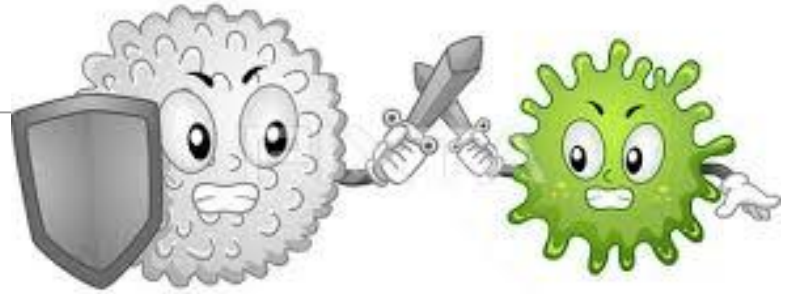


- **>100 dissolved solutes**
- **ALBUMIN: major blood protein that retains water in blood**
- **Blood buffer (maintains pH balance)**
 - **Slightly basic pH 7.35-7.45**

Erythrocytes aka Red Blood Cells

1 drop	2.5 million
life span	100-120 days
cell composition	anucleated
anatomy & physiology	contains hemoglobin- transports O₂

Leukocytes aka White Blood Cells

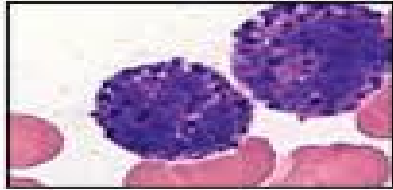


1 drop	4,800-10,000
life span	12 hrs- decades
cell composition	eukaryotic
anatomy & physiology	2 types: granulocytes and agranulocytes

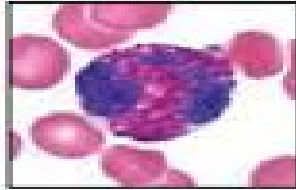
pixta.jp - 12025361

2 types of Leukocytes- WBC

Key



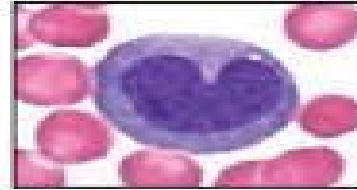
Basophil



Eosinophil



Neutrophil



Monocyte



Lymphocyte

Granulocytes-

Neutrophils: bacteria

Eosinophils: parasitic worms

Basophils- histamine (swelling)and heparin (anticoagulant)

Agranulocytes-

Monocytes- phagocytic

lymphocytes- B & T cells

Thrombocytes

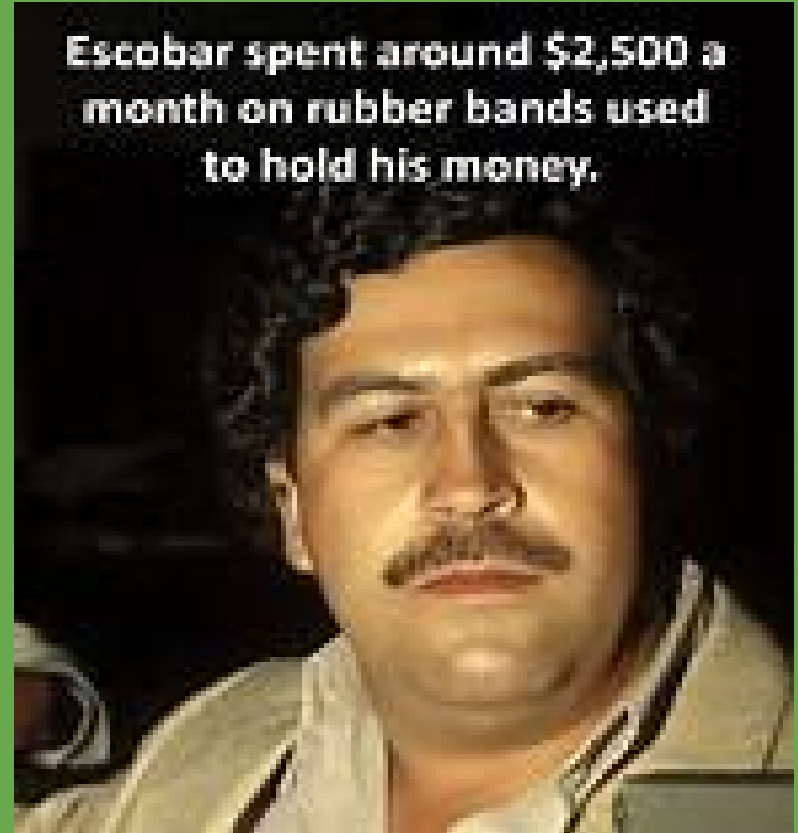
FORMED ELEMENTS

1 drop	n/a
life span	10 days
cell composition	Cell fragments
anatomy & physiology	Forms scabs



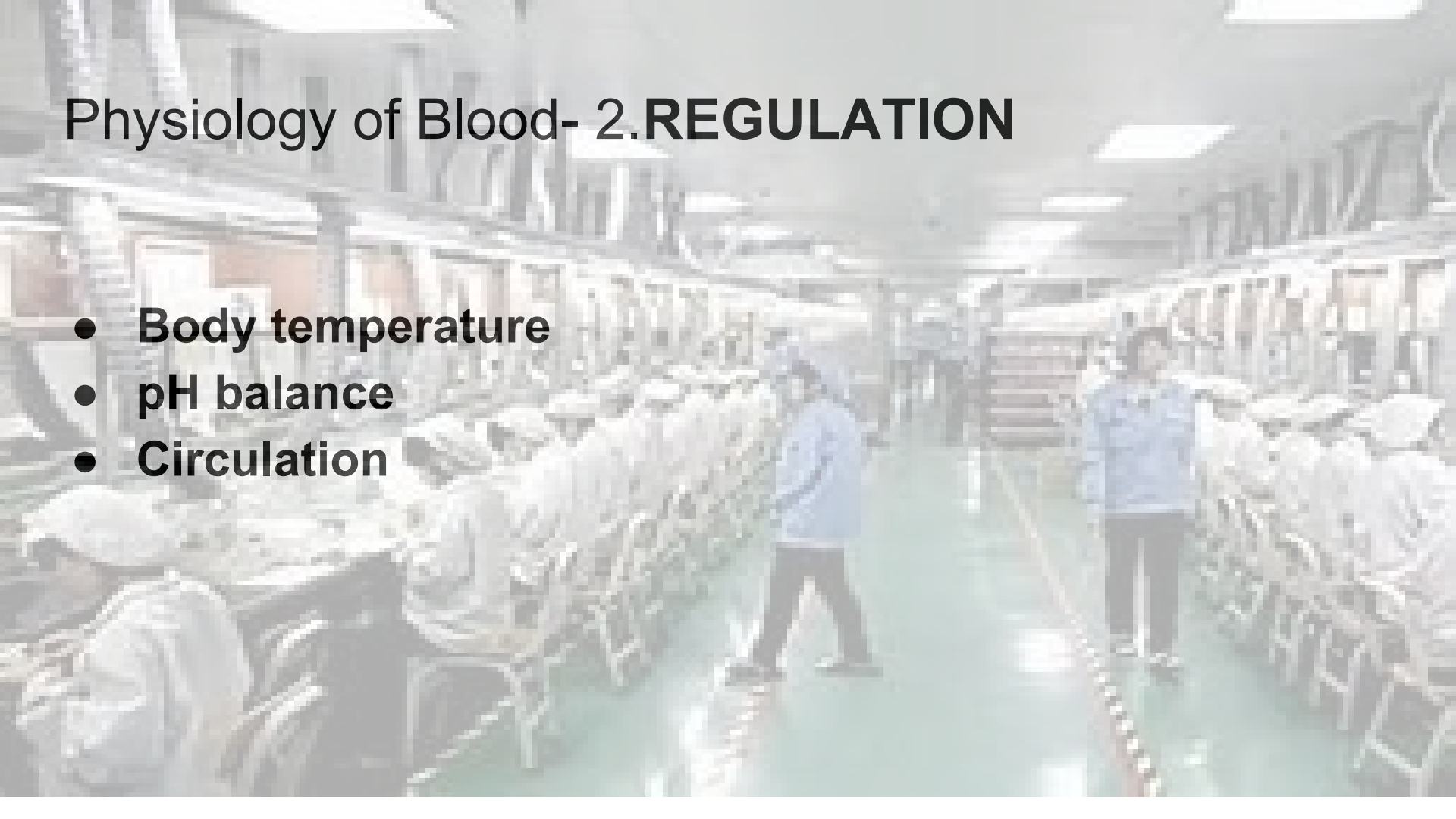
Physiology of Blood- 1.**DISTRIBUTION**

- **O₂**
- **Nutrients**
- **CO₂ & N** in urine
- **Hormones**



Physiology of Blood- 2. **REGULATION**

- **Body temperature**
- **pH balance**
- **Circulation**



Physiology of Blood- 3.PROTECTION

- Blood clotting
- Antibodies & WBC



Human Blood Groups

- Incompatible blood can be fatal
 - antigens will agglutinate (clump) and destroy the blood cells.
- Blood is identified by their antigens (is any substance that causes an immune system to produce antibodies against it)
- AGGLUTINOGENS-: A and B Rh factor: + or -
- O- does not have agglutinogens (ii)
- Blood types in the population
 - O= 45% A= 40%
 - B=11% AB=4%
 - Rh+= 85%



ABO Blood Typing

- 8 blood types
- rH factor: + or -
- Alleles
- Codominant
- Recessive
- Homozygous dominant
- Heterozygous

