

Blood

Text: Human Biology, by Mader pp. 116-130

1. Introduction (p. 116)
 - A. Blood and Circulation
 - B. Connective Tissue
 - i. Origin
 - ii. Fibrous Elements
 - “Fluid Tissue”
 - iii. Matrix
2. Functions of Blood (p. 116)
 - A. Transport
 - i. Gases and Nutrients
 - ii. Waste Products
 - iii. Hormones
 - B. Regulates
 - i. Blood Clotting
 - ii. Body Temperature
 - iii. Water and Electrolyte Concentrations
 - C. Immunological

3. Blood Components (p. 116 - 118)

A. Plasma (p. 116)

i. Water

ii. Proteins

a. Albumin

- Water Retention and Osmotic Pressure

b. Fibrinogen

c. Globulins (ie., Antibodies)

4. Red Blood Cells (Erythrocytes) (pp. 118 - 120)

- Respiration

- Life Span: 80-120 days

A. Hemoglobin (Hb) (p. 118)

i. Heme

ii. Globin

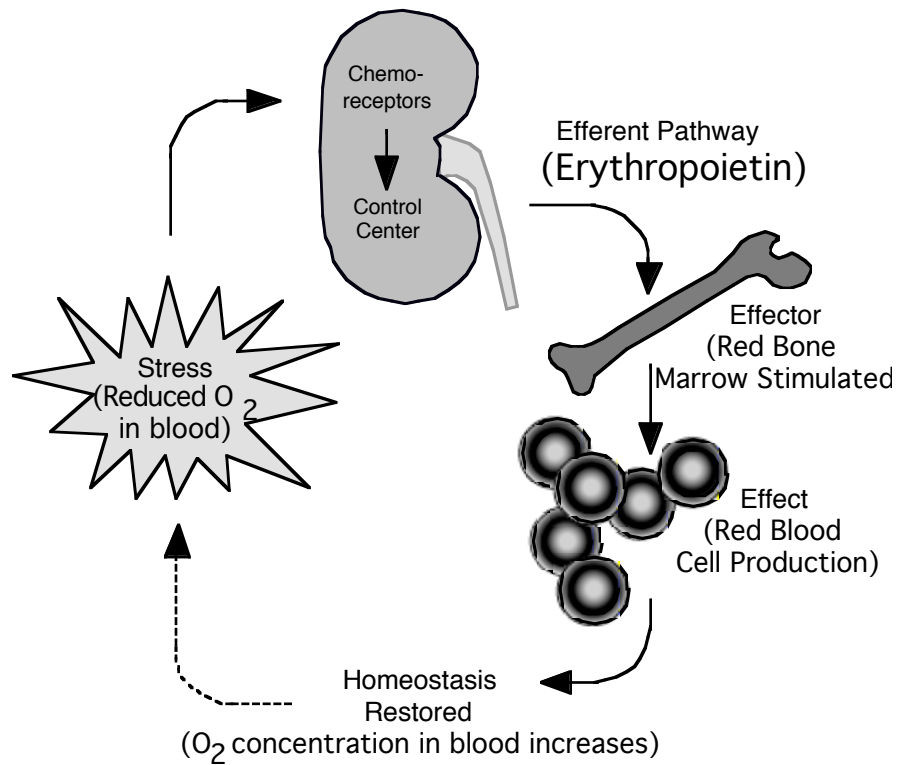
iii. Oxygen Transport

a. Oxyhemoglobin

iv. Carbon Dioxide Transport

- a. Plasma - 7%
- b. With globin - 25%
- c. as bicarbonate ion

B. Erythropoiesis



i. Regulation – Erythropoietin

- a. Stem Cells

5. White Blood Cells (Leukocytes) (pp. 121 - 123)

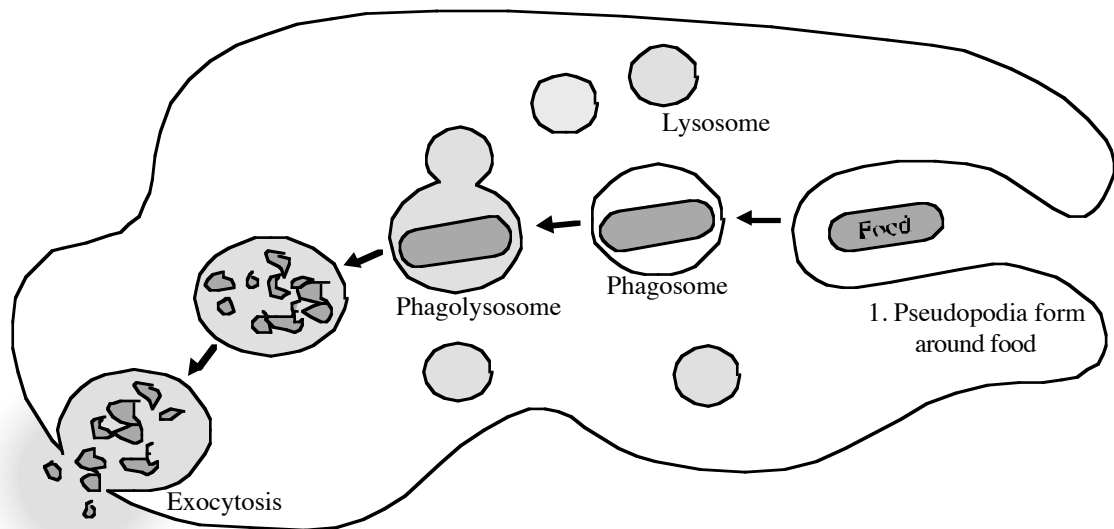
A. Function

B. Leukopoiesis

- Colony-Stimulating Factors (CSFs)

C. General Functional Overview

- a. Margination
- b. Diapedesis
- c. Chemotaxis
- d. Phagocytosis



D. Classification of White Blood Cells

i. Granulocytes

a. Neutrophils

- b. Eosinophils
- c. Basophils
 - Histamine
- ii. Agranulocytes
 - a. Monocytes
 - Monocytes → Macrophages
 - Phagocytosis
 - b. Lymphocytes
 - Specific Host Immune Response
 - Major Histocompatibility Complex
 - * Antigen
 - Cell Types
 - * T cells
 - * B cells → Plasma Cells
 - ✓ Antibodies
 - ✓ Antigen-Antibody Complex

6. Platelets (Thrombocytes) (p. 123)

- Hemostasis
- Platelet Plug
- Blood Clot

7. Blood Types (p. 126 - 127)

A. The ABO Blood-Grouping System

Blood

| <u>Type</u> | <u>Antigen</u> | <u>Antibody</u> |
|-------------|----------------|-----------------|
| A | A | Anti-A |
| B | B | Anti-B |
| AB | A&B | None |
| O | None | Anti-A & anti-B |

- Agglutination

B. Rh Grouping System