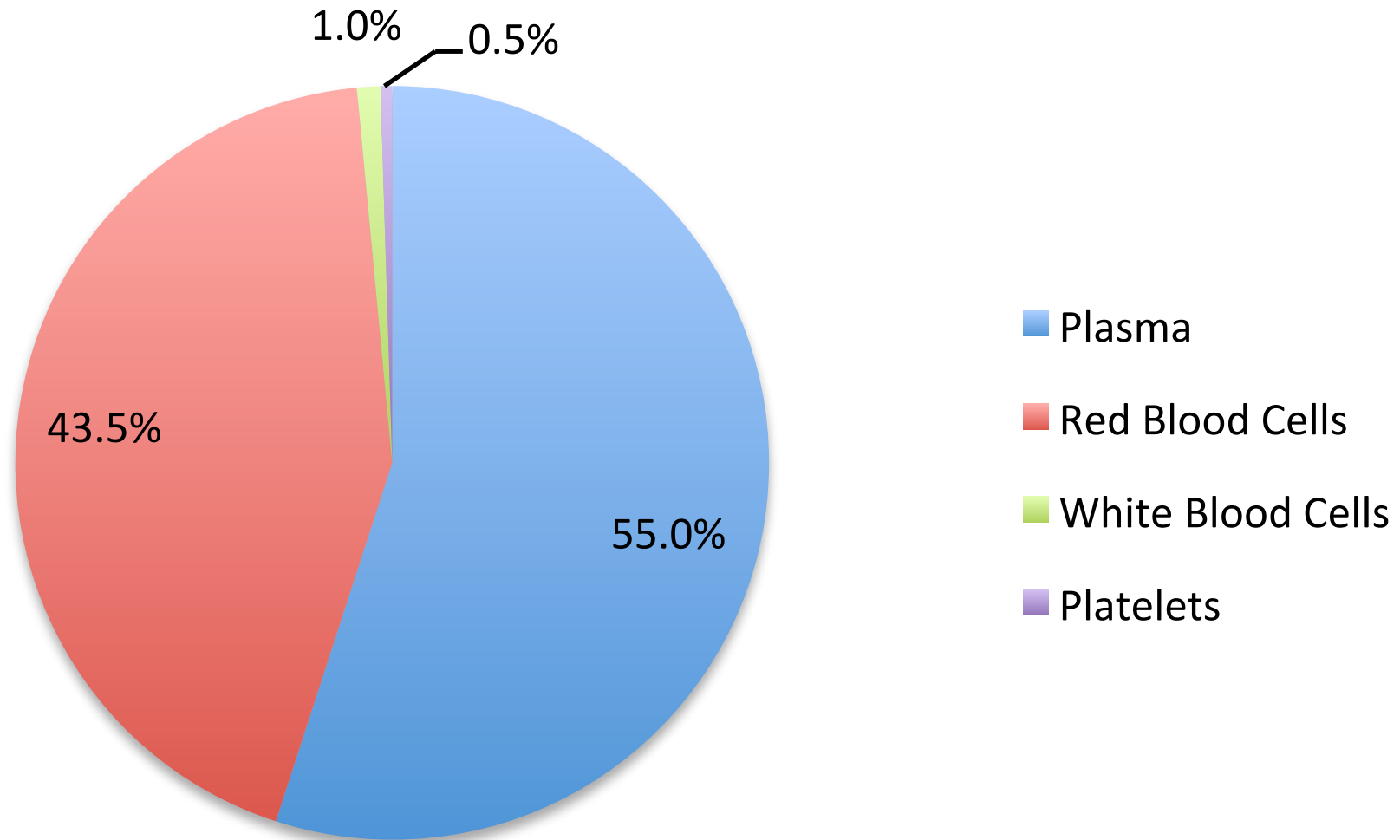


The Blood – A Fluid Connective Tissue

A. Composition



The Blood – A Fluid Connective Tissue

B. Functions of Blood

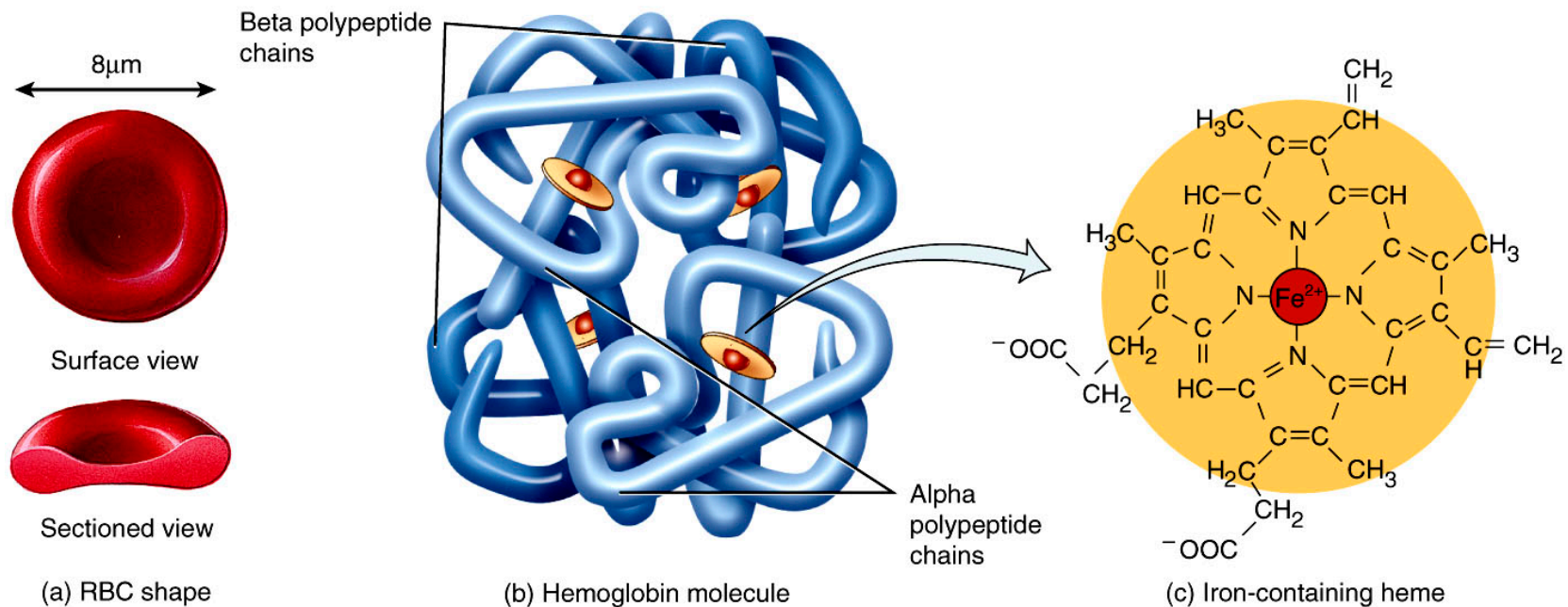
1. A transport medium
2. A regulator of body temperature, pH, and water volume
3. A defender against diseases

The Blood – A Fluid Connective Tissue

C. The Red Blood Cell – Structure-Function Relationship

1. Structural Features

- A biconcave disc
- No organelles
- Contains Hemoglobin
- Surface has agglutinogens



The Blood – A Fluid Connective Tissue

- C. The Red Blood Cell – Structure-Function Relationship
 - 2. Functional Benefits of structure
 - a. Flexible – can squeeze through tight spaces
 - b. Lots of volume to carry oxygen
 - c. Lots of surface area for gas exchange

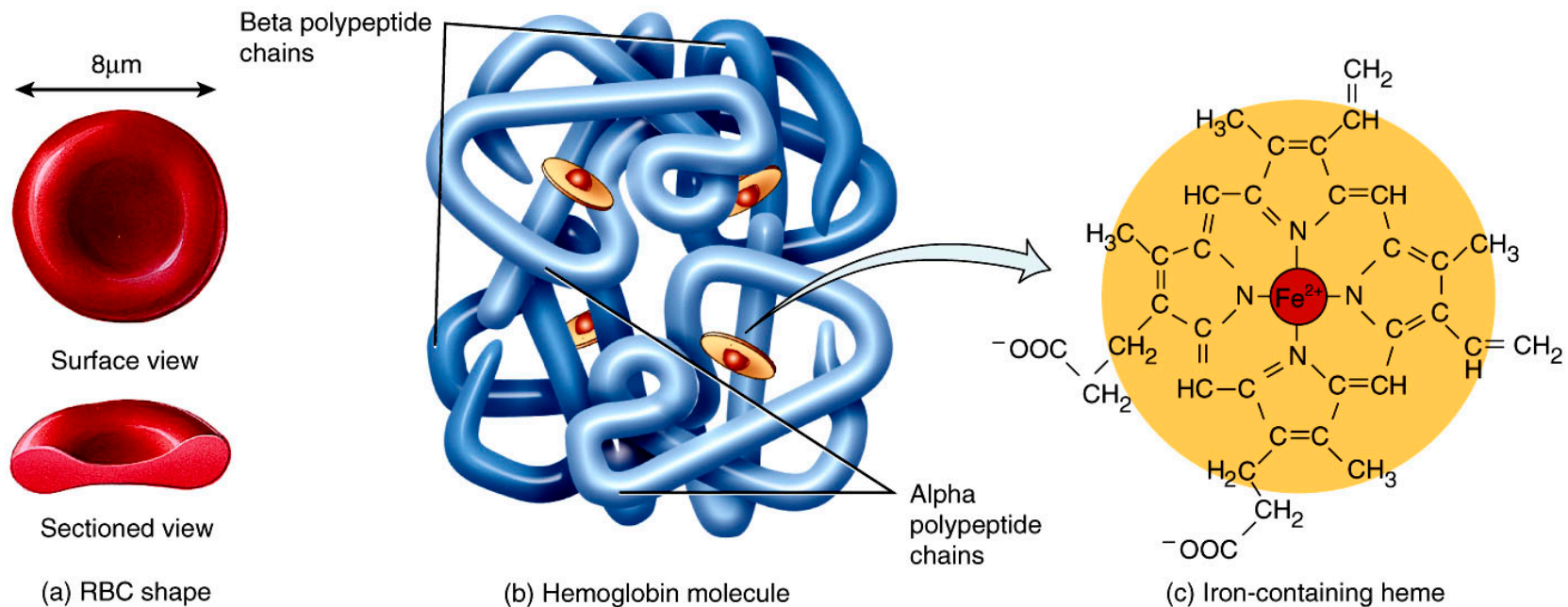


Figure 19.04 Tortora - PAP 12/e
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The Blood – A Fluid Connective Tissue

D. Dehydration and Blood Flow

1. Lose water, less plasma (Plasma is 91.5% water)
2. Same # of cells
3. Affects viscosity

$$\text{Flow} = \frac{\Delta P}{R}$$

$$R = \frac{\pi \mu L}{r^4}$$

The Blood – A Fluid Connective Tissue

- E. Abnormal increase in Red Blood Cell Number and Blood Flow
 - 1. Same amount of plasma
 - 2. Significantly more cells (RBCs account for almost all formed elements)
 - 3. Affects viscosity

$$\text{Flow} = \frac{\Delta P}{R}$$

$$R = \frac{\pi \mu L}{r^4}$$