Develop Competencies Needed for Professional Success

The new edition features new content, a strong emphasis on molecular diagnostics and genomic medicine, and a focus on the newest guidelines for ASCLS Entry Level and ASCLS Professional Body of Knowledge competencies in hematology, hemostasis and coagulation, and molecular applications.
Capturing the excitement of the ever-changing field of hematology, this competency based and clearly written text uses a logical eight part organization, clear explanations, and built-in study tools to help with mastery of the theory underlying clinical hematology and the procedures used to diagnose and treat disorders of the blood and bone marrow.

See for yourself! Check out a sample chapter today
New to the 6th Edition:

**Full-color images, tables and boxes** offer student desired visual guides to the concepts, procedures, and cellular structures and functions discussed in the text.

**Box 17.2**

**Examples of Selected Hemoglobinopathies**

**ABNORMAL MOLECULAR STRUCTURE**
- Hb SS (sickle cell disease)
- Hb SA (sickle cell trait)
- Hb C disease or trait

**RATE OF SYNTHESIS**
- β Thalassemia
- α Thalassemia

**COMBINATION OF TWO MOLECULAR ALTERATIONS OR A MOLECULAR ABNORMALITY AND SYNTHESIS DEFECT**
- Hb S- Hb C
Numerous Case Studies with fully developed clinical and laboratory information with critical thinking group discussion link key concepts and procedures to laboratory practice.

Case Study 17.1
An 18-year-old black woman was admitted to the hospital for elective surgery. She had a routine preoperative CBC and urinalysis.

- **Laboratory Data**
  The results of these tests were as follows:

  - Hemoglobin 13.0 g/dL
  - Hct 40%
  - RBC $4.35 \times 10^{12}$/L
  - WBC $7.3 \times 10^{9}$/L

  The RBC indices were as follows:

  - MCV 92 fl
  - MCH 29.9 pg
  - MCHC 33 g/dL

The patient's peripheral blood smear revealed a normochromatic normocytic anemia.
Certification-style Review Questions help you assess your knowledge as you advance through each chapter.

5. In sickle cell disease, the cause is
   A. a change of a single nucleotide (GAT to GTT)
   B. the substitution of valine for glutamic acid at the sixth position on the beta chain of the hemoglobin molecule
   C. not genetic
   D. both A and B

6. In sickle cell disease, the abnormality is related to
   A. the rate of synthesis of hemoglobin
   B. an abnormal molecular structure of hemoglobin
   C. an acquired defect
   D. a membrane dysfunction

*7. One of the two most common monogenetic diseases of man is
   A. sickle cell trait
   B. sickle cell disease

*13. How do good medical practice principles promote patient safety?
   A. \ ...
   B. \ ...
   C. \ ...
   D. \ ...

*14. \ ...
   A. \ ...
   B. \ ...
   C. \ ...
   D. \ ...
Hemoglobinopathies and Thalassemias

KEY TERMS

- Hemoglobinopathy
- Sickle cell disease
- Thalassemia
- Hemoglobin defects
- Sickle cell syndromes
- Other hemoglobinopathies

LEARNING OUTCOMES

- Define the terms involved in hemoglobinopathies and thalassemias.
- Explain the classification and complications of hemoglobinopathies.
- Discuss the pathogenesis and management of sickle cell disease.
- Describe the clinical features and genetic aspects of thalassemia.
- Identify the various forms of thalassemia and their inheritance patterns.
- Summarize the genetic and clinical characteristics of other hemoglobinopathies.

In normal human development, several types of hemoglobin are produced (see Chapter 17). Typically, normal adult hemoglobin (Hb A) is the major component of hemoglobin, with the other types (Hb F, Hb A2, etc.) present in smaller amounts. The genes coding for these globins are located on the X and Y chromosomes. The specific sequence of these amino acids is known and is important in the identification of hemoglobinopathies (hemoglobinopathies) involving substitutions of specific amino acids.

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“I like the tables in the book, they organize the material nicely. I also like in the Erythrocyte chapter that for the parasites, she does include others beside Plasmodium.”

“The questions and case studies are a good review.”

“It is very student friendly and the case studies are a nice and unique way that the author approached bringing the material together for the student.”
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New Flashcards help students review and test their knowledge.

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Two Test Banks—one with more than 800 unique questions and one with all the review questions in the book—facilitate student assessment.

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