
This well-written 69-chapter book discusses laboratory tests from the organ system and disorder approach. This is not a book on how to do laboratory tests. Instead, the book enables the reader to first see how tests should be utilized from the laboratory perspective, and then turns the perspective around so that the reader sees how proper use of laboratory tests aids in the diagnosis and treatment of specific clinical disorders.

The book is divided into two parts. Part I gives a very thoughtful discussion of clinical utilization issues and the emerging role of the clinical laboratory scientist (CLS) as a bridge between the laboratory and the clinician needing laboratory information. Part II takes up a clinical focus and gives an excellent discussion of a wide range of clinical disorders that together cover a great deal of the testing done by clinical laboratories.

The first part of the book is divided into three chapters: Clinical Laboratory Utilization: Rationale; Clinical Laboratory Utilization: Implementation; and Consulting as a Professional Role for the Clinical Laboratory Scientist. The first chapter introduces the reader to the issues surrounding proper utilization of the clinical laboratory and how clinical appropriateness and practice guidelines are replacing standing orders and routine testing. The second chapter explores the value of expanding the role of the CLS to include assisting clinicians in the proper utilization of the laboratory. The third chapter delves into the specific areas of how and where a CLS consultant could be utilized and the basic competencies and responsibilities of the CLS consultant.

The remaining 66 chapters are located within the 16 sections that make up Part II of the book. The first 10 sections, composed of 46 chapters, cover disorders of the cardiovascular, pulmonary, renal, gastrointestinal, hepatic, endocrine, reproductive, neurologic, hematologic, and immune systems. Each chapter focuses on a specific clinical problem and includes discussions of etiology and pathophysiology, clinical manifestations, laboratory analyses, treatment, and at least one case study. For example, the section “Cardiovascular Disorders” has four chapters that focus on the clinical issues associated with Myocardial Infarction and Atherosclerotic Heart Disease, Infectious Cardiomyopathy, Hypertensive Disorders, and Heart Failure. The final 20 chapters are contained within six sections covering Tumor Markers, Infectious Diseases, Nutritional and Metabolic Disorders, Toxicology and Drug Monitoring, the Neonate, and Geriatrics. The authors seem to have done a good job in covering those clinical areas from which many of the questions posed to the CLS will arise.

I found this book to be very well written and easy to read and use. It has executed extremely well its approach of starting with understanding the clinical problem or issue and then moving to the laboratory tests most appropriate to answer the clinical questions involved. I believe this book may be one of the best single resources published to date for the CLS who desires to understand how properly utilized laboratory tests fit into the overall scheme of clinical diagnosis and treatment.

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Each new century, pundits bemoan that there is little left to learn about the universe in which we live. As we enter into the next century and millennium, this book is a reminder that such notions have historically been wrong. In 1900, no one foresaw Einstein’s theory of relativity, atomic fusion, DNA, antibiotics, computers, continental drift, aviation, the invasion of space, undersea exploration, and the harnessing of electromagnetic radiation in communications. In 1800, no one forecast the achievements of Darwin and Pasteur or the discovery of the atom, radiation, thermodynamics, and the gene.

Sir John Maddox (he was knighted in 1994) is Editor Emeritus of Nature, a position providing an excellent background for this undertaking. He writes in a plain, relaxed, enjoyable style and first takes the reader through a compact history of science as he sums the discoveries to date. These he groups primarily into two categories: the universe and the origins of life.

Advances in astronomy in the 20th century include Hubble’s documentation of the “red shift” as an “apparent velocity” of stars, suggesting to many astronomers an expanding universe; Gamow’s “big bang” theory of its origin; the detection of a microwave background throughout the universe; and the discovery of quasars, black holes, neutron stars, and the clustering of galaxies. In particle physics, the stable of baryons (protons and neutrons) and hadrons (nuclear matter) has grown as more properties, including spin, “color,” and “charm,” have been invoked for their classification.

Major questions proposed by Maddox for the next century include the amount of missing “dark matter” in space, unification of gravity and quantum mechanics into a “theory of everything” (including the “graviton” and the photon), and whether there are more universes beyond the one we know(!). A newer, more comprehensive mathematics will be needed to deal with these questions. Clinical chemists will ally more closely with Maddox’s reflections on biology. He credits life as originating 3.8 billion years ago, only 0.7 billion years after the origin of Earth. The universality of life on Earth—how
DNA, RNA, ATP, cAMP, and phosphoproteins control all living forms—has been accepted. Cloning, PCR, and gene sequencing have brought major advances in just the past decade. The unveiling of the human genome is only 4 years ahead (or less, according to recent news releases).

Maddox provides topics aplenty that remain for 21st century biologists as they “deepen the questions asked of nature”. Can life be created in vitro? What is the meaning of the many DNA repeat sequences and the two-thirds of DNA that is “junk”? Can we model cellular metabolism and its clumsy, complex, intertwined government—resembling a democracy rather than a dictatorship? Can we understand evolution through molecular phylogeny? How does the mind function?

Major challenges loom in addition to questions of basic research: global carbon dioxide accumulation, fending off meteorites from space, global plagues as microorganisms adapt to our overused antibiotics, and instability of the human genome unless we practice eugenics. Will we have the courage and vision to develop religious and social institutions to manage cloning and eradicate wars? These are sobering rather than optimistic thoughts, but they emphasize Sir John’s conclusion that “science has a long agenda ahead of it”.

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The new edition of this substantially enhanced and superbly illustrated “classic” textbook encompasses detailed and authoritative descriptions of our current understanding of disease mechanisms and their pathologic sequelae. As in previous editions, the book is organized into two major sections of unequal length. The first one-third encompasses 10 chapters dealing with molecular, cellular, and tissue reactions to injury caused by agents and/or pathophysiological processes that may affect any organ system, e.g., infections or environmental agents, nutritional deficiencies, vascular or immunologic reactions, and neoplasia. The remaining two-thirds of the book consists of 20 chapters describing etiologic mechanisms, pathologic lesions, diagnostic tests, when appropriate, and clinicopathologic correlations of diseases affecting specific organs or organ systems. Between the two sections, a substantially improved chapter on diseases of infancy and childhood has been inserted.

Each chapter is introduced by an outline of topics to be covered. Headers and subheaders clearly demarcate each subsequent section of text, which is richly illustrated with tables and computer-generated color diagrams of exceptional quality and clarity depicting molecular reactions or genetic lesions. Color illustrations of cellular and pathologic processes and structures are frequently depicted in three-dimensional reconstructions, which are very well described in the text and in the corresponding figure legends. Nearly all gross photographs and light micrographs are in color in this edition and are of excellent quality, as are the representative electron micrographs used to illustrate abnormal subcellular structures.

Examples of new or expanded sections are those on cell injury and death, highlighting details of apoptosis and free radical cell damage, or on cellular adaptations of growth and differentiation and mechanisms involved in cell aging processes. Particularly striking are new and highly readable descriptions, with up-to-date references, of genetic mutations involved in the pathogenesis of immunologic or thrombotic diseases and in neoplasia. Cytokines in acute inflammation and shock are given a more thorough coverage. Whereas chapters on systemic pathology retain their emphasis on morphology and clinical presentation of diseases, most now include new explanations of genetic and molecular mechanisms when known.

What makes this textbook unique and a joy to read is a writing style that reflects the authors’ ability to explain complicated pathologic mechanisms for nearly every major disease in a narrative that is easy to comprehend and remember. Furthermore, even with such a large number of contributing authors, a remarkable degree of uniformity in literary style, clarity of presentation, and selection of illustrations is evident throughout the entire text.

This edition is likely to achieve even greater popularity than the previous one and to continue its dominant contribution to the field of pathology, especially to medical education. Incorporation of the latest information on the molecular and genetic basis of disease within traditional descriptions of pathologic processes makes this an outstanding resource for medical students, residents, graduate students in biomedical sciences, and their instructors.

For clinical biochemists, the first one-third of the book covering general pathology as well as those chapters dealing with diseases of blood vessels and the heart, red cells and bleeding disorders, liver, biliary tract, pancreas, and kidney are likely to be particularly helpful. The clinical chemist, responsible for a large number of assays evaluating diseases in these areas, will find the text useful as a current reference providing information and descriptions of disease mechanisms, with particular emphasis on illustrations of molecular lesions that form the basis for many new diagnostic assays. As an example, the chapter on neoplasia not only gives the reader a clear understanding of the multistep molecular basis of carcinogenesis but also forms the basis for understanding recent technical advances of new diagnostic tests. The chapter on diseases of immunity is also useful for understanding the principles and complexities involved in current HIV testing. This edition of the Robbins