Book Review:
Tietz Textbook of Clinical Chemistry and Molecular Diagnostics (4th Edition)

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The fourth edition of the Tietz Textbook of Clinical Chemistry and Molecular Diagnostics covers a broad variety of topics from analytical instrumentation to pharmacogenetics. This book is organized into six sections: Laboratory Principles, Analytical Techniques and Instrumentation, Principles of Laboratory Management, Analytes, Molecular Diagnostics and Genetics, and Pathophysiology. An appendix of reference information for the clinical laboratory is also provided. The sections retained from the third edition have been updated to include timely discussions on nanotechnology, automation, point-of-care testing, informatics, and quality management. The chapters on tumor markers, cytokines, lipoproteins and cardiac risk factors, and cardiac function have been updated to include current literature references, many from as late as 2004. These sections continue to provide the reader with comprehensive, up-to-date reviews of important topics in the field of laboratory medicine.

New to the fourth edition is an eight-chapter section on Molecular Diagnostics. The first two chapters of this section (Principles of Molecular Biology and Approaches to Nucleic Acid Isolation, and Nucleic Acid Techniques) provide a succinct overview of the major developmental milestones in the field of molecular diagnostics and the molecular techniques commonly used for genomic analysis, including target amplification, nucleic acid detection, and nucleic acid discrimination. The chapter on the design and operation of a molecular diagnostics laboratory gives a brief overview of the organizational and operational factors to consider when establishing a molecular laboratory. Discussions of regulatory requirements, quality control, quality assurance, and quality improvement, although brief, should be required reading for laboratorians who perform or oversee molecular diagnostic tests.

The next four chapters (Molecular Genetics and Diagnosis of Hematopoietic Neoplasms, Inherited Diseases, Identity Assessment, and Molecular Methods in Diagnosis and Monitoring of Infectious Diseases) provide the reader with multiple, thoroughly referenced examples of applications of molecular diagnostics in clinical medicine. Unfortunately, a comprehensive review of molecular biology-based forensic techniques is noticeably lacking from this edition.

The final chapter on pharmacogenetics, while citing numerous reviews on the general topic, concentrates on pharmacogenetic testing. The discussions that relate to general pharmacogenetic targets and testing strategies, specific polymorphic genes, and the correlation of phenotypes and genotypes for these genetic targets are both accurate and thorough.

In conclusion, this new edition of the book is well organized, comprehensive, and includes several hundred informative figures, diagrams, and pictures. The editors of the fourth edition of Tietz Textbook of Clinical Chemistry and Molecular Diagnostics have reestablished this book as a leading resource in the rapidly evolving field of clinical laboratory medicine.