GENETIC TOXICOLOGY


The stated purpose of this book is to serve as a text for scientists who wish to obtain an understanding of the principles and uses of genetic toxicology, and to serve as a reference for those seeking information on safety evaluation. In general, it succeeds in meeting these objectives.

The book begins with a survey of the origins of genetic toxicology and then discusses basic genetics and the consequences of mutation-induction. Although these chapters provide enough basic information for a student to comprehend superficially most of the subsequent chapters, a basic course in genetics is necessary for an in-depth understanding of the discipline. The large number of diagrams and figures throughout the book will prove very useful aids to those learning the basics of genetic toxicology.

In order to cover the entire field of genetic toxicology in one book, the author has made many sweeping generalizations without an in-depth discussion of the rationale, degree of soundness, assumptions, and caveats inherent in those generalizations. Although this approach is necessary in a book with such a broad scope, the student should be cautioned that these generalizations may not always be valid. For example, on page 56 the author speculates that curing individuals with genetic diseases (thereby enabling them to pass on their mutant genes) will contribute more to an increase of genetic disease in a population by proliferation of pre-existing mutations than will the induction of new mutations with environmental chemicals. Since little is known quantitatively about the contribution of mutagenic chemicals to the human genetic disease burden, it is difficult to determine the rationale behind this statement.

The chapter on screening gives a good overview of the purpose and types of strategies used in screening chemicals for genotoxic properties. Especially noteworthy is the discussion of the problems involved in interpreting sets of data with apparent conflicting results.

The description of a genetic laboratory is also useful because it emphasizes safety. All too often the laboratory scientist does not appreciate the risks involved in working with genotoxic chemicals. The descriptions of genetic toxicology assays, when read in conjunction with the sample study designs, will provide the student with an excellent overview of the rationale for how a test works, what endpoints it will detect, how one performs the test, and the reason behind many steps in the protocols. The text would have been more useful if the book in general had been better documented with references.

Overall, the book should serve as an excellent test for the field of genetic toxicology and a quick refresher for those not involved in it. It provides a good survey of the field as it stands today. In addition, it makes the important point that genetic toxicology testing should be used not only to predict the carcinogenic potential of a chemical, but also to predict the risk to future generations as a result of exposure to mutagenic chemicals in this generation.

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New Titles


Biological Wastewater Treatment: Theory and Applications (Pollution Engineering and Technology No. 12), by C. P. Leslie Grady, Jr. and Henry C. Lim. Marcel Dekker, New York, 1980, 984 p., illus., $75.00 (80-20171).

Malaria, edited by Julius P. Kreier. Vol. 1: Epidemiology, Chemotherapy, Morphology, and Metabolism, 416 p., illus., $49.00; Vol. 2: Pathology, Vector Studies, and Culture, 328 p., illus., $38.50; Vol. 3: Immunology and Immunization, 346 p., illus., $39.50. Academic Press, New York, 1980 (80-19569).


Molecules, Cells, and Parasites in Immunology (Proceedings of Symposium on Immunology, Mexico City, Fall 1979, under the auspices of the National University of Mexico), edited by Carlos Larralde, Kaethe Willms, Librado Ortiz-Ortiz, and Michael Sela. Academic Press, New York, 1980, 231 p., illus., $19.50 (80-20496).


