BOOK REVIEWS

that are Substrates for (catecholamine) Uptake1 and Uptake2," is concerned primarily with the mechanisms involved in the uptake of catecholamines by various tissues and the species differences associated with uptake, and uptake2. This review also covers other compounds that participate in uptake, and uptake2, and there is a discussion of the adrenal medulla and other extraneuronal uptake. Also the role of possible pathological changes in uptake, and future directions of research in this area are described. In the chapter on monoclonal antibody applications, the requirements for the receptor antigen and the carrier antibody, tumor model systems, and the nude mouse are presented competently, with additional comment on many of the potential pitfalls in monoclonal antibody research. Recommendations for future use of monoclonal antibodies with their evaluation in vitro and in vivo are given.

"Small Animal Oncological Models for Screening Diagnostic Radiotracers" discusses the need for tumor models and provides information on the classification, growth, and spread of neoplasms. Guidelines are given for the selection of tumor models in general as well as for tumor models based on the mechanism of uptake of radiotracers. Included is a literature review from 1976 through 1981 with more than two hundred references to tumor models, their hosts, and the radiotracers used. The chapter on radiolabeled platelets is a specific review in relation to the use of radiotracers, concentrating on work with In-111 labeled platelets. Work in animal models of atherosclerosis, coronary artery thrombosis, and vascular grafts using dual-isotope subtraction technique is explained. In the presentation on hepatobiliary radiotracers, the authors comment on the advantages and disadvantages of animal models used for hepatobiliary studies and cover anatomical and pharmacokinetic species differences. Variables that must be considered are the anesthetic used, the temperature maintained during the study, surgical techniques, and the ages of the animal model. Studies of the perfused liver, isolated hepatocyte uptake studies, and models of hepatobiliary disease are discussed. In the chapter on renal radiodiagnostic agents animal models that have been used with different radiotracers and their relationship to studies in man are evaluated. Several solutions are given for differences due to different circulation times and body size and methods are provided to produce models that simulate renal diseases in man.

It would be difficult for the reviewer to adequately praise this book. It contains a vast number of references and detailed tables. Although designed for those in radiopharmaceutical research, the subject matter would be extremely valuable to any researcher developing compounds to be used in the study or treatment of human diseases. In the foreword it is suggested that this book is a "must" for anyone new in the field. I further suggest that this book is a "must" for all those in radiopharmaceutical research, because it brings together an abundance of ideas and information on animal models and radiotracers from some of the most knowledgeable people in this area of scientific activity.

BILLY BYRD
Oak Ridge Associated Universities
Oak Ridge, Tennessee

NUCLEAR MEDICINE—FACTORS INFLUENCING THE CHOICE AND USE OF RADIONUCLIDES IN DIAGNOSIS AND THERAPY.

This little book probably should be on the "best-seller list" of nuclear medicine publications, for the title underestimates its content. It might better be referred to as a "Handbook of Nuclear Medicine As a Basic and Clinical Science." The book is especially comprehensive in scope with regard to the basic science aspects of nuclear medicine, and leads the reader to a wellspring of reference materials. Particularly helpful are appendices containing guidelines for radioactive drug product development as well as the extensive tabular appendix giving the factors of radiation dose for most radioactive drug products. (This latter term "radiopharmaceutical drug products" (RDPs) is extensively used instead of the term "radiopharmaceuticals." ) Despite the complexity of some of the topics treated, they are presented in a very agreeable form. Furthermore, the monograph integrates the many excellent NCRP documents related to nuclear medicine that have been produced over the years and probably are not as frequently referred to as they should be. A list of such documents in the first chapter makes this much easier to accomplish than previously. Six chapters are devoted to a logical sequence of consideration of those factors leading to the establishment and performance of clinical nuclear medicine procedures.

Chapter 1 is distinctive, especially for its references to related NCRP documents; however, the title may be somewhat confusing. Perhaps the authors took some liberties with the term "decision making," which today, is more specifically reserved for the actual analysis of individual procedures with regard to their efficacy and efficiency in patient management. The authors use the term here much more broadly, however, and discuss the general concept of analysis of factors leading to a useful application of RDPs. The very short first chapter sets the stage for the subsequent chapters. In Chapter 2, again, this same extremely liberal use of the term "decision making" is applied to the analysis of factors involved in the production and use of RDPs. In general, the chapter emphasizes many considerations not often sufficiently recognized by nuclear medicine personnel. A few suggestions, such as using cathartics to eliminate RDPs from the bowel, seem to be a bit impractical, as is the extensive discussion of "harm" from misadministration of RDPs without making the distinction between diagnostic and therapeutic uses. Chapter 3, dealing with instrumentation, is an excellent overview with the occasional fault of its being sketchy, since the authors have tried to be too comprehensive. Valuable information on radiation dosimetry is provided in Chapter 4. As a result of the multiple authorship, certain terms in this chapter, as well as in others, are not sufficiently defined, and such items as computer notation are used, which may not be readily recognized by those who have not had experience in programming. There is an excellent and pertinent discussion of radiobiology, especially as related to those RDPs that are used for therapeutic purposes. One reference with regard to radiation pneumonitis being produced in the lungs from radioactive iodine, however, may no longer be accurate in view of more recent experience with radiiodine therapy in thyroid carcinoma metastatic to the lungs. Also, the discussion on the utilization of P-32 for polychromatemia varia does not reference more recent data, indicating that leukemia occurs more frequently with treatment by chemotherapy than with P-32. Overall this chapter presents a great deal of useful material succinctly, and Appendix B supplements this section. Chapter 5, dealing with evaluation of radionuclide procedures and their clinical utility, probably is the chapter that best presents decision making in nuclear medicine. Indeed, it lays an excellent groundwork for putting nuclear medicine procedures into proper clinical perspective. The last chapter covers some practical guidelines for implementing the factors that influence the use of nuclear medicine procedures.

Thus, this text joins the many other excellent, useful publications produced by the NCRP over the years as an excellent reference. It certainly should be on the bookshelf of every nuclear medicine physician for ready reference and is a "must" reading assignment for all nuclear medicine residents in training and, probably, radiology residents as well.

HENRY N. WELLMAN
Indiana University Med. Ctr.
Indianapolis, Indiana

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