BOOK REVIEWS

ISOTOPES IN THE PHYSICAL AND BIOMEDICAL SCIENCES
Editors: E Buncel and J R Jones

VOLUME I - Labelled Compounds (Part A)
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Twenty one experts in the field of isotopically labelled compounds have contributed to the thirteen chapters which make up this first volume of the planned series. The text focuses on methods for isotopic labelling with strong emphasis on compounds labelled with isotopes of carbon and hydrogen although some sections discuss labelling methods with isotopes of nitrogen, oxygen and the halogens.

Following a short introductory Chapter 1 by the Editors on the nomenclature of labelled compounds, Peng in Chapter 2 reviews radiation induced methods of labelled which although of limited use in routine synthesis are nevertheless of considerable general interest. A similar comment applies to Chapter 3 on photochemical methods of labelling by Yoshida and Nakayama. Catalytic exchange methods of hydrogen isotope labelling by both homogeneous and heterogeneous catalysis are excellently reviewed by Garnett and Long, two scientists who have made a considerable contribution to the understanding of the mechanisms of such exchange reactions. Acid catalysed hydrogen isotope exchange of organic compounds at temperatures in the range 100-300°C is discussed by Werstiuk in Chapter 5. Catalysed reduction of functional groups are methods emphasised by Filer in Chapter 6 on the labelling of neurochemicals with tritium. Filer discusses also some of the techniques applied in order to determine the molar specific activity of high specific activity compounds as well as methods for the storage of such compounds before use. In Chapter 7 Liebman focuses on methods for isotopically labelling an important class of compounds, the benzodiazepines, with deuterium, tritium, carbon-11, carbon-14, nitrogen-15 and halogen isotopes. Synthetic labelling of carbohydrates with stable isotopes

is the subject reviewed in Chapter 8 by Serianni and Barker while the radiolabelling of lipids is reviewed by Shevchenco and Myasoedov in Chapter 9. Balaban and Bally, in Chapter 10, concisely review the isotopic labelling of pyrimidines and purines. Some detailed experimental recipes are described in both Chapters 9 and 10 which perhaps are not necessary in a text of this type. Methods for the synthesis of some isotopically labelled non-proteinogenic amino acids are reviewed by Adriaens and Vanderhaeghe in Chapter 11 which is followed, in Chapter 12, by Frogmageot and Morgat reviewing methods for radiolabelling peptide hormones. The latter chapter including also a short discussion on the storage of radioactive peptides. In the final chapter Allen focuses mainly on synthetic routes to isotopically labelled beta-blocking agents which are of considerable importance for research in developing new drugs for the treatment of cardiovascular diseases.

All chapters of the text are well supported by extensive referencing with a total of 1655 references together with a short (two pages) Subject Index. The addition of a Compound Index would have been a major plus for this text especially considering the price.

Overall a well presented text with few errors which will be well appreciated especially by scientists involved in the synthesis and applications of isotopically labelled compounds and is thoroughly recommended for most reference libraries.