

Book review

Metal Ions in Biological Systems: Vol. 11: Metal Complexes as Anticancer Agents. General Editor: Helmut Sigel, multi-author work as listed below. Marcel Dekker, Inc., New York, 1980, xx + 427 pages, S.Fr.115 (~£35), ISBN 0-8247-1004-5.

The eleventh volume of this well-known and respected series devoted to the properties of metal ions in living and biologically related systems, concerns the health and well-being of the organism; namely, the important topic of the use of metal complexes in cancer chemotherapy. It is a well balanced work which contains a wealth of information on the chemistry of potentially cytotoxic metals and their coordination complexes, with reference to the biochemistry of tumours. This enables the reader to begin to perceive a rational approach to the design of potential chemotherapeutic agents in this field.

The first chapter (M.J. Cleare and P.C. Hydes) gives a general overview of the anti-tumour properties of metal complexes. The succeeding two chapters are devoted to platinum compounds. A detailed account of the principles of the chemistry of aqueous platinum(II) agents and their binding to biological molecules (M.E. Howe-Grant and S.J. Lippard) is followed by a detailed review of the clinical aspects of platinum anti-cancer drugs (B. Rosenberg). This includes the fascinating story of the discovery of the inhibition of cell division by cis-platin, the use of combination therapy in humans, toxic side effects of the drugs, and the scant knowledge of the molecular mechanism of action.

In chapter four the concept of the enhancement of the cytotoxicity of a ligand by metal binding is exemplified in the case of carcinostatic copper complexes (D.H. Petering). The next chapter on the oncological implications of ruthenium chemistry (M.J. Clarke) is a model exposition which shows the modern considerations involved in evolving a specific potential anti-cancer drug, and deals with the concept of the prodrug, and its activation. Mutagenicity and carcinogenicity of cancer chemotherapeutic agents and the use of tumour specific radiodiagnostic agents are also discussed.

A short chapter on metal complexes of alkylating agents as potential anti-cancer agents (M.D. Joesten) is followed by a review of the study of the interaction of metal ions with anti-tumour antibiotics (J.C. Dabrowiak), and the role played by metal centred redox systems in the activity of such anti-cancer drugs.

Chapter eight concludes the work with a review of the interactions of anti-cancer drugs with enzymes (J.L. Aull, H.H. Daron, M.E. Friedman, and P. Melius), both from the point of view of the interaction of enzymes with metal compounds possessing anti-tumour properties, and also of metalloenzymes or metal ion-activated enzymes which are inhibited by anti-tumour compounds.

This volume is well produced and will be invaluable to specialists interested in the chemistry and chemotherapeutic actions of metal coordination com-

plexes with small ligands, enzymes, and nucleic acids, whether they be cancer research workers, pharmacologists, toxicologists, or bio-inorganic chemists. In general, however, it will only be read as general background material by the readers of this Journal, particularly on account of the high cost.

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