

## BOOK REVIEWS

**Metal Ions in Biological Systems, Vol. 10, Carcinogenicity and Metal Ions**, Edited by Helmut Sigel, Published by *Marcel Dekker, New York*, 1980; pp. 381; Price SF 155.

The tenth volume of this well known series, devoted to bioinorganic chemistry, contains ten chapters which deal with various aspects of the relations between cancer and metal ions. The introductory chapter presents the role of metal ions in genetic processes and the possible ways in which these ions can lead to errors in genetic regulation. Four chapters are concerned with the carcinogenicity of different metals, one being devoted to zinc. They compare the effects of carcinogenic metals and their role in tumor development. Emphasis is put on the importance of metal levels in body fluids and tissues and on their possible use for cancer control. One chapter deals with the relations between trace elements and human leukemia. The role of metals in tumor inhibition is also discussed and a chapter is devoted to the role of selenium as a cancer-protecting trace element. The relations of the blood concentrations of ceruloplasmin and iron transferrin with malignant disease, and of the metabolism of cobalamins with neoplasia, are the subject of two chapters. Electron spin resonance studies of malignant tissues and tumor diagnosis with radioactive metal ions are the subjects of two other chapters.

Each chapter provides a critical review of the literature up to 1978 and in some cases 1979.

This volume is a detailed introduction to the various relations between carcinogenicity and metal ions. It makes a clear distinction between established facts and results, possible interpretations and interesting assumptions requiring much more work. In this respect it is a valuable book to promote cooperation between bioinorganic chemists and biomedical scientists.

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**Metal Ions in Biological Systems, Vol. 11, Metal Complexes as Anticancer Agents**, Edited by Helmut Sigel, Published by *Marcel Dekker, New York*, 1980; pp. 427; Price SF 170.

This volume contains eight chapters dealing with the antitumor properties or potential of very different types of metal complexes, either synthesized as drugs or formed via the interaction of metal ions, with anticancer chemotherapeutic agents. The introductory chapter gives a concise review of the field of anticancer studies on metal complexes. Two chapters are devoted to the platinum antitumor drugs: from their basic coordination chemistry, necessary to understand how these complexes can bind to biological molecules, to the various clinical aspects including toxic side effects, combination chemotherapy, and development of resistance to the drugs. One chapter describes the properties of ruthenium complexes in relation to the potential of these compounds as chemotherapeutic and radiodiagnostic agents. Coordination of a metal ion can greatly modify the properties of a ligand and possibly enhance its cytotoxicity. This is illustrated by the two chapters dealing with the carcinostatic copper complexes and with the metal complexes of antitumor antibiotics. Metal coordination can also be used in order to try to improve the effectiveness of known drugs and this is the subject of one chapter in the case of the alkylating agents. The last chapter deals with the interactions of enzymes with metallo-drugs, and of metalloenzymes or metal-activated enzymes with anticancer compounds.

Each chapter provides a critical review of the literature up to 1978 and in several cases 1979. This volume is a useful introduction to the field of metal complexes as anticancer agents. It delineates the main directions of the research efforts now undertaken and this shows that many areas are still unexplored.

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