Molecular and Cellular Biochemistry **222:** 1, 2001.

Preface

Epidemiologic and animal studies have identified several metals and metal-containing compounds as potent mutagens and carcinogens. The metals associated with these biological effects include As, Cd, Cr, and Ni. During the last two decades, chemical and cellular studies have contributed enormously to our understanding of metal-induced carcinogenesis. Many hypotheses have been extensively investigated to understand the role of metals in pathophysiological processes. One of the major breakthroughs has been the elucidation of the role of reactive oxygen/nitrogen species in metal-induced carcinogenesis. Carcinogenic metals induce genotoxicity in a multiplicity of ways, either alone or by enhancing the effects of other agents by additive or synergistic action. Although each of these metals is unique in its mechanism of action, several common pathways, for example oxidative stress, may be shared by many of these carcinogenic metals. Recently, the sub-discipline of molecular toxicology and carcinogenesis has been developed. New techniques are available now to unravel the mechanism of carcinogenesis in precise molecular terms so that intricate biological interrelationships can be elucidated.

The conference on Molecular Mechanisms of Metal Toxicity and Carcinogenesis was held at the National Institute for Occupational Safety and Health, Morgantown, West Virginia, from September 10–12, 2000. The conference focused on the latest developments concerning the molecular mechanisms of metal-induced toxicity and carcinogenesis. During this conference, international experts provided in-depth state-of-the-art information pertinent to the field. The conference promoted a multidisciplinary investigative approach among attendees from academia, federal agencies and industries in pursing new avenues of research in metal toxicity and carcinogenesis.

We express our thanks to those who cooperated in the conference and in the publication of this special issue.

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