

**Metal Ions in Biological Systems**  
**Molybdenum and Tungsten: Their role in Biological Processes**

Edited by A. Sigel and H. Sigel, Marcel Dekker Inc, New York, 2002

This volume is number 39 in the valuable series *Metal Ions In Biological Systems*, and is appropriately dedicated to Prof. R.C. Bray, a pioneer in the field of molybdoproteins (especially xanthine dehydrogenase/oxidase), who died on August 17, 2001. Experts in the relevant areas cover all aspects of molybdenum in the environment (apparently the most abundant transition element in solution in the sea, page 32) and in living organisms, including dietary requirements, transport, nitrogenases, arsenite oxidase, nitrate reductase, picolinate dehydrogenase, aldehyde oxidase, nitrite oxidoreductase, molybdo-protein-containing hydroxylases, carbon monoxide dehydrogenase, interaction of Mo with sulphur and selenium metabolism, and of course xanthine

oxidase/dehydrogenase. Detailed attention is given to the structure and biosynthesis of molybdenum-containing cofactors.

Tungsten is the second theme of the book, both from the point of view of its toxicity (often caused by its inappropriate replacement of molybdenum in proteins) but also its use in some enzymes, including tungsten-dependent formate and aldehyde dehydrogenases, and other aspects of its role in one-carbon metabolism in some species.

Overall, this is an excellent and comprehensive volume and I recommend it highly. My only criticisms are the drab presentation of many of the molecular structures and the limited coverage of sulphite oxidase, an enzyme known to be essential to human survival.

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