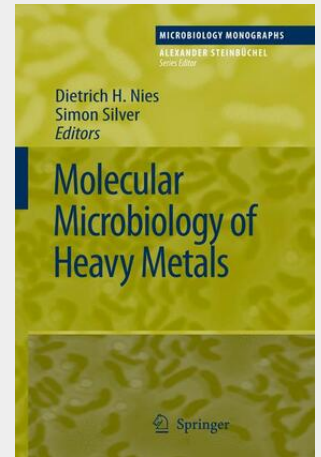


## Molecular Microbiology of Heavy Metals

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All forms of life depend on a variety of heavy metal ions. Nearly one-third of all gene products require a metal ion for proper folding or function. However, even metals generally regarded as non-poisonous are toxic at higher concentrations, including the essential ones. Thus, sensitive regulation of metal uptake, storage, allocation and detoxification is needed to maintain cellular homeostasis of heavy metal ions. Molecular Microbiology of Heavy Metals includes chapters on allocation of metals in cells, metal transporter, storage and metalloregulatory proteins, cellular responses to metal ion stress, transcription of genes involved in metal ion homeostasis, uptake of essential metals, metal efflux and other detoxification mechanisms. Also discussed are metal bioreporters for the nanomolar range of concentration and tools to address the metallome. Chapters in the second part cover specific metals such as Fe, Mn, Cu, Ni, Co, Zn and Mo as key nutrient elements and Ag, As, Cd, Hg and Cr as toxic elements.

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