



# The Biological Chemistry of the Elements: The Inorganic Chemistry of Life

*J. J. R. Fraústo da Silva, R. J. P. Williams*

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Twenty inorganic elements, mostly metal ions, are consistently found in living systems and are essential for living systems to function correctly. This text discusses, describes and explains the functional relevance of those elements: the reasons for their selection; the processes of their uptake; transport and final localization in cells; the regulation of these processes; and the interactive network of their reactions that connects the in vivo inorganic elements to the environment and to the genome. The volume has been thoroughly revised for this second edition and includes a discussion of the link to the genome of the uptake and transfer of inorganic elements and the regulation of homeostasis, the functional co-operative activities of the elements, the interaction with the environment, and the evolution of usage. Recent structural and mechanistic knowledge of many biomolecules and organelles is also included.

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