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Nota di contenuto	Frontmatter -- Historical Development and Perspectives of the Series / Sigel, Astrid / Sigel, Helmut / Sigel, Roland K. O. -- Preface to Volume 9: Structural and Catalytic Roles of Metal Ions in RNA -- Contents -- Contributors to Volume 9 -- Titles of Volumes 1-44 in the Metal Ions in Biological Systems Series -- Contents of Volumes in the Metal Ions in Life Sciences Series -- 1 Metal Ion Binding to RNA / Auffinger, Pascal / Grover, Neena / Westhof, Eric -- 2 Methods to Detect and Characterize Metal Ion Binding Sites in RNA / Erat, Michèle C. / Sigel, Roland K. O. -- 3 Importance of Diffuse Metal Ion Binding to RNA / Tan, Zhi-Jie / Chen, Shi-Jie -- 4 RNA Quadruplexes / Halder, Kangkan / Hartig, Jörg S. -- 5 The Roles of Metal Ions in Regulation by Riboswitches / Ferré-D'Amaré, Adrian R. / Winkler, Wade C. -- 6 Metal Ions: Supporting Actors in the Playbook of Small Ribozymes / Johnson-Buck, Alexander E. / McDowell, Sarah E. / Walter, Nils G. -- 7 Multiple Roles of Metal Ions in Large Ribozymes / Donghi, Daniela / Schnabl, Joachim -- 8 The Spliceosome and Its Metal Ions / Butcher, Samuel E. -- 9 The Ribosome: A Molecular Machine Powered by RNA / Trappl, Krista / Polacek, Norbert -- 10 Metal Ion Requirements in Artificial Ribozymes that Catalyze Aminoacylation and Redox Reactions / Suga, Hiroaki / Futai, Kazuki / Jin, Koichiro -- 11 Metal Ion Binding and Function in Natural and Artificial Small RNA Enzymes from a Structural Perspective / Wedekind, Joseph E. -- 12 Binding of Kinetically Inert Metal Ions to RNA: The Case of Platinum(II) / Chapman, Erich G. / Hostetter, Alethia A. / Osborn,

Sommario/riassunto

The discovery of ribozymes nearly 30 years ago triggered a huge interest in the chemistry and biology of RNAs. Much of the recently made progress focusing on metal ions is addressed in MILS 9. This book, written by 28 internationally recognized experts from 8 nations, provides a most up-to-date view and is thus of special relevance for colleagues teaching courses in biological inorganic chemistry and for researchers dealing, e.g., with nucleic acids, gene expression, and enzymology, but also for those in analytical and bioinorganic chemistry or biophysics. Structural and Catalytic Roles of Metal Ions in RNA describes in an authoritative and timely manner in 12 stimulating chapters, supported by nearly 1600 references, 13 tables, and 75 illustrations, mostly in color, metal ion-binding motifs, methods to detect and characterize metal ion-binding sites, and the role of metal ions in folding and catalysis. It deals with diffuse metal ion binding, RNA quadruplexes, the regulation of riboswitches, metal ions and ribozymes, including artificial ribozymes. The spliceosome, the ribosome, ribozymes involving redox cofactors as well as the binding of kinetically inert metal ions to RNA are also covered.
