



International Journal of Molecular
Sciences

an Open Access Journal by MDPI

CiteScore: 10.0

Indexed in PubMed

Impact Factor: 5.6

Special Issue Reprint

Structural Dynamics of Macromolecules

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Structural information on macromolecules provides essential insights for understanding molecular mechanisms at atomic resolution in biological systems. While the authors of earlier studies mainly relied on static structural models, recent advances in experimental and computational techniques now enable the observation of structural dynamics in macromolecules. Serial crystallography enables the determination of room-temperature structures with reduced radiation damage and facilitates time-resolved studies through pump-probe or mix-and-inject approaches. Cryo-EM methods provide multiple conformational states of macromolecules, offering important insights into their functional flexibility. In addition, recent computational approaches can aid in generating highly accurate structural models and provide valuable information on molecular dynamics.

The following Reprint presents a collection of studies focusing on the structural dynamics of macromolecules. The articles included in this Reprint cover a broad range of topics, including theoretical approaches, methodological developments, and experimental studies related to macromolecular dynamics. Together, these contributions provide insights into the dynamic nature of biological macromolecules and support further progress in the study of molecular mechanisms.

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