

Abstract

Unraveling Structural Wonders: Recent Advances in Biomolecular Structures [†]

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[†] Presented at the 3rd International Electronic Conference on Biomolecules, 23–25 April 2024; Available online: <https://sciforum.net/event/IECBM2024>.

Abstract: Introduction: Biomolecular structures play a role in the functioning of cells, controlling the processes that sustain life. This review embarks on a journey through recent advances in biomolecular structural studies, exploring the profound impact of cutting-edge techniques on unraveling the mysteries encoded within these molecular entities. Methods: This review explores the range of techniques used to determine molecular structures. X-ray crystallography, known for its atomic-level detail, is complemented by NMR spectroscopy, which provides insights into the behavior of molecules. The emergence of cryo electron microscopy has further expanded our abilities, allowing us to visualize assemblies of molecules with unprecedented clarity. Result: Exciting breakthroughs in structural molecular studies have revealed transformative insights. From capturing the actions of enzymes to understanding how membrane proteins are arranged in space, these discoveries have revolutionized our understanding of biological processes. The results section highlights findings that emphasize the importance of these advancements. Conclusions: The synthesis of knowledge is propelling biomolecular research into a new era. These groundbreaking revelations not contribute to our understanding but also have practical implications that can make a difference in various applications. This review concludes by emphasizing the pivotal role of biomolecular structures in shaping the trajectory of scientific inquiry, opening unprecedented avenues for exploration and application.

Keywords: biomolecular structures; X-ray crystallography; NMR spectroscopy; cryo-electron microscopy; structural biology; drug discovery



Citation: Hussain, U.; Tammewar, S.S.; Chalkhor, A. Unraveling Structural Wonders: Recent Advances in Biomolecular Structures. *Proceedings* **2024**, *103*, 4. <https://doi.org/10.3390/proceedings2024103004>

Academic Editor:
Alessandro Paiardini

Published: 12 April 2024



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Author Contributions: Conceptualization, experimental work, formal analysis and manuscript draft preparation was done by U.H.; data interpretation and data curation by S.S.T.; manuscript preparation, formal analysis by A.C. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data available on request.

Conflicts of Interest: The authors declare no conflict of interest.

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