



Special Issue Reprint

Molecular World Today and Tomorrow: Recent Trends in Biological Sciences

www.mdpi.com/books/reprint/6970

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ISBN 978-3-0365-6997-0 (Hardback)

ISBN 978-3-0365-6996-3 (PDF)



Various molecular techniques based on omics (transcriptomics, proteomics, genomics) and phylogenetics have been applied in biological sciences. Molecular dynamics and approaches evolved over time into various quantitative tools that allow researchers from multiple disciplines to design different studies. The molecular-based techniques can be comprehensive and systematic, as they allow identification, resolve genetic differences, molecular docking, and prediction models of ecological niches and taxonomic ranks. Investigating genomics, proteomics, and phylogenetic techniques utilize a novel class of DNA elements, such as microsatellites from mitochondria and chloroplast and retrotransposons, resulting in genetic variations using molecular data. In addition to this, the advantages and limitations of molecular approaches have been well studied and acknowledged. The combination of molecular phylogenetic and omics techniques and expression and pathways analysis may greatly increase our capacity to understand and develop new molecular mechanisms and stress responses in biological systems. Furthermore, these techniques offer extensive opportunities for researchers to develop targeted therapy approaches and disease diagnoses using molecular data. It is necessary to evaluate and explore how data from diverse molecular techniques can be applied to different biological studies. The study and applications of molecular approaches hold significant potential for advancing genomics, proteomics, and phylogenetic techniques in biological sciences.



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